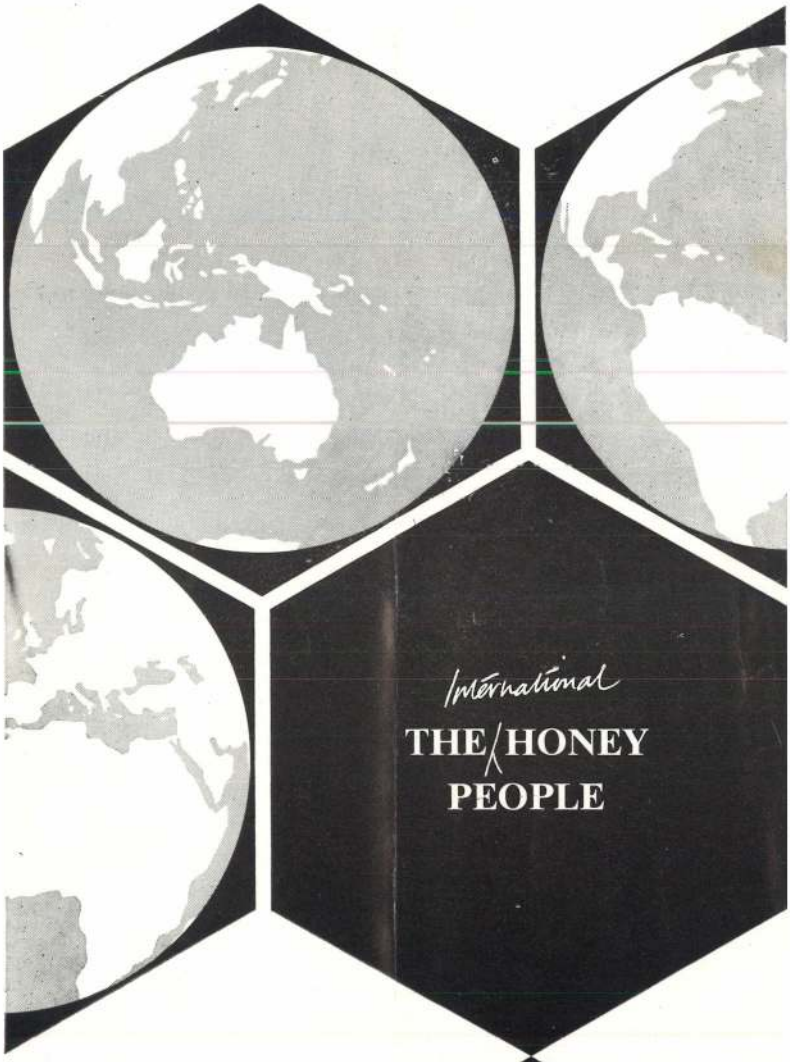
THE NEW ZEALAND BEEKEEPER

MAY 1975



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THE NATIONAL BEEKEEPERS' ASSOCIATION of N.Z. Incorporated

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President: Mr M. R. McKenzie, 72 Timaru Rd., Waimate.
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President: Mr M. Heineman, "Milburn Apiaries" 2 RD Milton.
Secretary: Mr J. H. Garraway, 28 Main Road, Brighton.

SOUTHLAND
President: Mr W. A. Clissold, No. 5 RD, Gore.
Secretary: Mr A. M. Ward, 10 Beattie St, Gore.

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	$20.00	Per Inch	$2.00
Half Page	$12.00	Min. Charge	$2.00
Quarter Page ...	$7.00	for each insertion.	

Cover Picture Story

LA RUCHE FRANCOISE

Our cover picture shows a beehive made from a hollowed-out tree trunk. This kind of hive is still in use in a few remote areas of France but is rapidly becoming a curiosity.

The present estimated honey production is 12,000 tonnes annually, about double the amount produced in this country in a very good season.

But it must be remembered that there is about 20 times the population in France that there is here. So there is little left for export despite a relatively low per capita consumption.

France, as one of the E.E.C. countries enjoys the protection of import duties most foodstuffs now carry when brought into the community.

This has the inevitable effect of forcing up domestic prices. At last report door sales were being made in Britain at up to 90p ($1.50) per lb for special grades and about 70p ($1.20) for average grades.

THE NEW ZEALAND BEEKEEPER
VOL. 37, No. 2

Published in February, May, August and November by the National Beekeepers Association of N.Z. (Inc.) in conjunction with the N.Z. Honey Marketing Authority. Subscriptions (posted): Members $2, Non-members $4, Overseas $5 per year (see note inside back cover). Registered for transmission by post as a magazine.

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

CONTENTS

Hive Levy

It can be said with little fear of contradiction that the gazetting of "The Honey Marketing Authority Regulations" is the industry's most significant recent step forward

The recent financial crises of the N.B.A. will be completely eliminated and they will now be able to get on with their more important tasks of "Better Beekeeping and Better Marketing."

The unfortunate misunderstanding which has crept in regarding the application of Levy funds to cover Members' Subscriptions is deeply regretted. When such Regulations are in preparation, it is almost inevitable that statements as to their application, made before they reached final gazetted form, would be inaccurate

It must, therefore, be clearly understood that the new Hive Levy is collected by the Honey Marketing Authority and may only be applied in: (Quoted from HMA Regulations 1975, top of page 8).

(a) The payments of such amounts as may be approved from time to time by the Minister towards the administrative expenses of the Association carrying out its proper functions; and

(b) The payment of such amounts as may be approved from time to time by the Minister towards the expenses of the Authority in carrying out its proper functions, except those directly relating to the acquisition, blending, processing, packing, and sale of honey.

In these Regulations there is no provision for the deduction of a subscription to the N.B.A. and in fact none is payable because its expenses (which have been approved by the Minister) are to be paid from the Hive Levy Account.

Any deduction made from the Hive Levy authorised under these Regulations is therefore a breach of them and would be dealt with under Clause 29, Offences.

For his own information every beekeeper in New Zealand should have a copy of these Regulations which now revoke the Honey Marketing Authority Regulations, 1964 and its three amendments The Government Printer in Wellington or Government Bookshops in other centres would be able to supply these.

Not only do these Regulations cover the new Hive Levy but they also set out in full the Constitution, functions of and Elections of members to the H.M.A.

Some important provisions which should be noted immediately are:

1. These Regulations came into force on April 20 this year. Next year and subsequent years the Levy becomes due and payable by the 20th February. The new Hive Levy is therefore now overdue if you have not already paid it.
2. There are virtually no exemptions to these Regulations. The one rare exception is the case of a beekeeper who has extracted no honey in the year in which the maximum increased Levy of 5c per hive has been applied. He may apply for exemption from payment of such increased Levy. Clause 1 (5) page 6.
3. False declarations, non-payment of Levy and other offences render the beekeeper liable to a fine not exceeding $400 or $2000 for a company. Clause 29, Page 8.
4. Beekeepers are obliged under these Regulations to keep copies of the Declaration made.

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

EXECUTIVE COMMITTEE

Minutes of the meeting of the General Executive of the National Beekeepers Association held in the Association's offices, Williams Building, Wellington, on Monday and Tuesday the 3rd and 4th March, 1975, commencing at 10.15 a.m. on Monday 3rd March, 1975.

PRESENT: Messrs I. J. Dickinson (in Chair), M. G. Stuckey, P. Berry, G. J. McKenzie, M. D. Haines.

ALSO PRESENT: G. A. Beard (General Secretary).

APOLOGIES: Messrs D. Penrose, N. Stanton.

MATTERS ARISING FROM MINUTES

(1) Re Amendments and Updating of Rules

It was noted that Mr Hardie-Boys the Association's Solicitor would attend the following day.

The Executive Committee considered the alternative courses available to it in the redrafting of the Rules which would become necessary following the introduction of the Hive Levy Scheme. The relationship between the Annual Meeting and Conference was also discussed.

(2) Re Cadetship

Mr Stuckey reported that he had drafted a suitable article and was waiting to contact the Editor of Beekeeper about publication — **noted.**

CORRESPONDENCE

Federated Farmers of N.Z. — replying to Association representations about the development of a sugar beet industry in the South Island.

Resolved

"That a copy of the letter be referred to Mr D. Penrose with a request that he contact the company being formed to further develop the project and report back in due course."

From President to Honey Packers Association — re

(a) Collective Pricing Agreement.

(b) Hive Levy Regulations.

The Packers Association also extended an invitation to the President to attend a Canterbury field day on 14th March.

Resolved

"That the President accept the invitation of the N.Z. Packers Association to attend their field day on 14th March, 1975."

Hon Minister of Agriculture — advising that he had concurred in the re-appointment of Mr J. W. Fraser to the Agricultural Chemicals Board for a three term commencing 1st April, 1975 — **received.**

Federated Farmers of N.Z. — re Agricultural Workers Act, and replying to the Associations representation that a single Agricultural Employers Federation be set up as soon as expedient. Federated Farmers in their reply advised that they had noted the proposal and at an appropriate future date the question would be further considered — **received.**

A. M. Petilt Farm Management Consultant — a copy of letter to Arataki Apiaries — re retention of bees in Coromandel area for pollination purposes — **received and noted.**

Draft of Circular to Branches re Annual Meeting and Conference

Mr McKenzie reported that the accommodation was now at the "Travelways" and the Conference venue at "Seven Oaks".
Matters pertaining to the Annual Meeting and Conference were discussed and settled as under:—

1) **Guest Speaker** — Referred to General Secretary to discuss with Minister's Office.
2) **Invitation to Mayor and Mayoress of Timaru** — Mrs Hervey to receive on behalf of Timaru Beautifying Society Association presentation.
3) **Conference Folder** — South Canterbury Branch to arrange; size of folder to be advised to General Secretary.
4) Annual Meeting to open 9.30 a.m. on the Wednesday with official speakers and adjourn at lunch.
5) Conference to open at 2p.m.
6) **Rule Change Recommendation**

Resolved
"That a draft rule to change the balance date from 30th April to 31st December, be presented on behalf of the General Executive."

(Minute Note: This change is considered desirable when the Hive Levy is operative so as to keep the "income" and "expenditure" periods in the same period i.e. the calendar year).

(7) Meetings of General Executive at Conference Time
a) Monday and Tuesday, commencing at 10 a.m. Monday.
b) Friday at conclusion of Annual Meeting for balance of that day.

Appointment of Returning Officer
Honey Marketing Authority Elections

The General Secretary drew attention to the need for the Association to make the appointment.
Moved:—
"That the General Secretary, Mr G. A. Beard be appointed the Returning Officer for the Honey Marketing Authority Elections."

Ministry of Agriculture and Fisheries re certification of Beeswax exports.
Resolved:—
"That a copy of the Ministry's letter be minuted to the Waikato branch, Mr McKenzie and the Editor Beekeeper."

Mr Norman Stanton — raising a number of points re Beekeeper.
Arising:—
a) Editors Phone Number — Now HSN (83) 63-336 Auckland.
b) Journal subscriptions under Hive Levy Regulations.
The General Executive noted that all who pay the Hive Levy will automatically become members of the Association and have an entitlement to receive a copy of each issue of the Beekeeper.
c) **Under 50 Hive Beekeepers**
Moved:—
1. That all beekeepers who do not pay hive levy (i.e. beekeepers with fewer than 50 hives) pay a membership fee of $7.50 such fee to carry entitlement to one copy of each issue of "Beekeeper".
2. That overseas journal subscriptions be $7.50 per annum.
3. That casual copies of Beekeeper be debited at $2.50 each.

Mr Chairman/McKenzie
Carried

d) That the size of Beekeeper be kept to 48 pages plus 8 green pages for beginners plus cover.

Telegram ex West Coast Branch — advising the passing of Mr T. Holland.
Resolved:—
"That a letter of condolence be sent to the family of the late Mr T. Holland."

BEESWAX

Despite the cautiously worded circular we sent to our wax suppliers on 26th March, we are still paying the highest prices possible in relation to the world's best markets. You can either send us your wax, assured that we pay the ruling price, on the date we receive it, or write and ask us for a quotation.

COMB FOUNDATION

Now is the time to work out your requirements for the coming season and place your orders with us. As it takes a minimum of three weeks to convert your wax into foundation, plus the fact that orders are completed in order of receipt, the sooner you let us have your wax together with your conversion instructions, the better chance we have of making delivery to you on time. If you would prefer delivery after the colder months of Winter, please indicate this when ordering.

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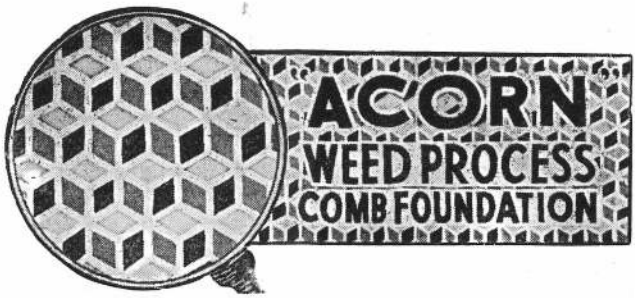

"The foundation of Success"

Under Secretary to the Minister of Agriculture and Fisheries — re Coromandel Restricted area.

This letter dated 12th December, 1974 was in reply to the representations made personally by the President and Vice President on 3rd December.
Mr Barclay advised that he was not prepared to amend the Restriction Order — **received.**

Royal N.Z. Institute of Horticulture — attaching an account for $13.00 covering the annual subscription.

Resolved:—

"That the Association continue its membership of the Institute."
Director-General of Agriculture — advising that it was not now proposed to proceed with the proposal to charge a honey grading fee — **received and noted.**
Horticultural Producers Council — inviting the Association to be represented at a meeting in Hamilton on 28th February.

The President advised that it had not been convenient for anyone to attend the 28th February meeting but he felt the Association shoud take an active interest in the work of the Council.

Resolved:—

"That the letter be received and the Council advised that the Association would like to be kept informed of the Council's activities."

Minister of Science — re research into sweet clover.

Resolved:—

1) That a copy of the letter be sent to catchment boards.
2) That a copy of the letter be minuted to the South Canterbury Branch and the Editor Beekeeper.

Memo to Branches dated 14th January re Conference Arrangements — received and noted.

1) That the conference venue was now the "Seven Oaks" instead of Chateau Commodore.
2) That the accommodation was now "Travelways" instead of Chateau Commodore.

Ministry of Agriculture and Fisheries — re **Indiscriminate use of Sprays**

Resolved:—

That a copy be sent to:—
a) Mr J. W. Fraser.
b) To the Otago Branch.
c) To the Editor Beekeeper.

Ministry of Agriculture and Fisheries — re Apiary Advisory Service in Hawkes Bay.

Resolved:—

"That a copy of the letter be minuted to the Hawkes Bay Branch and to the Editor Beekeeper."
(Minute Note: This letter was discussed with Messrs Watt and Smaellie when they met the Executive on the 4th March. It was noted that complaints about any aspect of the Apiary Advisory Service should be made in the first instance directly to the Regional Advisory Officer of the Ministry in each locality).

West Coast Branch re **Beech Forests**

Resolved:—

1) "That the General Executive endorse the recommendations as set out in the branch memorandum under date of 17th February and forward the same with support to the various Ministers concerned."
2) That the branch be requested to keep the general executive informed of developments.

Auckland Tool and Gauge Company re marketing of new 2000 gram honey container — **received and noted.**

Under Secretary to Minister of Agriculture — advising in response to Association representations, that the Hive Levy regulations would be enacted as quickly as possible — **received.**

Mr Dudley Lorimer — returning thanks for the expression of appreciation for his services to the industry as an Executive member — **received.**

Memorandum to President from General Secretary re **Associations Finances** — also present Mr John Read, Accountant to Pork Industry Council.

The General Secretary advised that the current finances of the Association were in a serious state and unless revenue was forthcoming from some source, the activities of the Association would have to be phased down.

A draft budget for the ensuing year was tabled and it was clear that the need to enact the Hive Levy regulations was urgent if the Association was to avoid going into recess.

The General Executive considered all aspects of the matter and noted that the most critical period was between now and the end of June.

It was also noted that until the Hive Levy regulations were passed it would not be possible for the Executive to arrange bridging finance.

It was duly resolved:—

1) That a case be stated to the Honey Marketing Authority for an advance on the hive levy account as soon as this is practicable.
2) That the Parliamentary Under-Secretary, Mr B. G. Barclay be advised of the position.
3) That any interim that may prove necessary be left in the hands of the president, vice president and the general secretary to settle.

Meeting with Messrs Watt and Smaellie — Ministry of Agriculture and Fisheries

The Chairman in welcoming Messrs Watt and Smaellie said the General Executive was pleased to have the opportunity of discussing a number of questions that had arisen in recent months.

1) **Re Composition of Restricted Area Advisory Committee**
   Mr Watt advised that this was a matter for the Ministry to finally determine and the Association should make its view known to the Minister accordingly (refer to later minute).

2) **Re Departmental Circulars**
   In response to an enquiry, Mr Watt agreed that there was no reason why general circulars to Apiary Instructors and Beekeepers should not be supplied to the Association's office.

3) **Indiscriminate Use of Sprays**
   This question was discussed at some length and it was noted that early advice to the local Ministry office was essential in effecting better supervision and control.

4) **Re Advisory Services**
   It was emphasised that any complaints about the service should firstly be directed to the local Regional Advisory Officer.
   Messrs Watt and Smaellie were thanked for making time available to attend the Executive meeting.

RESTRICTED AREA ADVISORY COMMITTEE

A letter from the Under-Secretary to the Minister of Agriculture dated 18th February, 1975, replying to the Associations letter of 23rd December, 1974 on the subject was duly tabled and read to the meeting.

The Under-Secretary indicated that it was his intention to establish the Committee as an Advisory Committee constituted under Section 13 of the Ministry Act, 1972.

The Executive Committee after considering the comments of the Under-Secretary about the composition of the Association's representatives on the Committee decided that the proposals as advanced were quite unacceptable. **It was duly resolved:—**

That the Under-Secretary be advised:—

a) That it would be desirable for a representative of the Health Dept. to be retained on the committee.
b) That the association be represented by three Beekeeper members nominated by the general executive of the association of whom two should be serving members of the general executive.
c) That the association not support a rotational system for association members on the advisory committee.
d) That in addition to the Chairman's right to convene meetings it be provided that any two members may requisition a meeting.

RULES OF THE NATIONAL BEEKEEPERS ASSOCIATION INC.

In attendance Mr M. Hardie Boys, Solicitor to the Association.
The Chairman welcomed Mr Hardie Boys to the meeting and said the Executive Committee wished to discuss with him in general terms Rule changes consequential upon the passing of the Hive Levy regulations.

In the course of discussion, the following points were specially noted:—

1. The dual membership system that would apply — i.e. the over 50 hive group via the Hive Levy Regulations and the under 50 hive group via direct membership.
2. Delegates voting at the Conference and in some instances at Annual or General Meetings.
3. The organisation of and the relationship between the Annual Meeting and the Conference.
4. The Weighted Voting system in general.

It was agreed with Mr Hardie Boys that the General Executive would in due time develop a lay draft of the revised Rules and then discuss the same with him.
Mr Hardie Boys then left the meeting.

HIVE LEVY REGULATIONS — RE TRANSLATION OF VOTING ENTITLEMENTS

The General Executive considered the most appropriate voting entitlement system having regard to the desirability of keeping in line with Authority's voting system.
It was moved that provision be made in the new or revised rules for the following:—

Members with:—
a) 1 to 50 Hives — 2 Votes
b) plus 1 vote for each 25 hives in excess of 50 hives, with a maximum at 2500 hives and over of 100 votes.

Mr Chairman/Berry
Carried

HIVE LEVY REGULATIONS — CONSIDERATION OF REVISED DRAFT

In attendance Mr Don Hayman, Ministry of Agriculture.
The draft which has been made available for circulation prior to the meeting was tabled for discussion.

The following points emerged:—

1) That the amount or hive levy sum should be the subject of a joint association/authority recommendation
2) That the levy for 1975 be 15 cents a hive.

In general, the General Executive was in agreement with the draft as tabled — the target date for gazetting was 22nd March with April 1st, as the operative date.

CONFERENCE AND ANNUAL MEETING PAPERS
It was duly resolved:—
1) That the General Secretary prepare the annual report of the Association.
2) That President present an address to the annual meeting.
3) That the following persons be invited to present reports to the annual meeting:—
   a) Mr E. Smaellie — Superintendent Beekeeping.
   b) Mr T. Palmer-Jones — Scientific Report.
   c) Mr J. W. Fraser — Associations representative on the Agricultural Chemicals Board.
   d) Librarians report — Mr C. Dawson.
   e) Chairman Honey Marketing Authority.

It was further resolved:—
That the agendas for both the annual meeting and the conference be settled by the President and General Secretary.

BASE PRICE FOR HONEY — 1975 SEASON

The President reported that in company with Mr Russell Poole, the Authority Chairman, they had waited upon Mr Bruce Barclay on 17th February, to discuss aspects of the Base Price arrangement for honey.
Following this meeting Mr Poole had drafted a joint confirming letter which had later been sent to Mr Barclay. A copy of this letter was tabled and elaborated upon by the President.

Following general discussion, it was moved:—
1) That the general executive confirm the action taken by the President and that the terms as set out in the joint letter dated 18th February, 1975 sent to Mr Barclay be endorsed.
2) That the Authority be advised that the procedure in respect of the base price for honey be based on a background report prepared by the Authority for the negotiating parties prior to their respective November meetings so that a joint policy approach can be more readily determined.

(Minute Note: It was felt desirable that a decision on the Base Price be reached before the end of December each year). Stuckey/McKenzie **Carried**

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5. Beekeepers owning less than 50 hives on 1st January in any year are not obliged to pay this Hive Levy and do not therefore have to make a Declaration in that year.

ANNUAL CONFERENCE 1975

The 1975 Conference will be held in Timaru on June 25, 26 and 27 at "Seven Oaks" in Wai-iti Road.

REGISTRATION

A registration fee of $5.00 per person will cover morning and afternoon teas and hall hire during conference.

GET TOGETHER

An informal get together will be held in the lounge at "Seven Oaks" on Tuesday evening 24th June at 8 p.m.

SOCIAL

The Social evening on Thursday 26th June at "Seven Oaks" has been organised. Tickets are $5.00 single and will include a good supper and plenty of refreshments.

MEALS

Buffet meals will be provided for a charge of $2.50 per meal for the three days of conference. Meals must be ordered prior to conference on the registration form.

LADIES PROGRAMME

On Thursday afternoon ladies are invited to join a bus tour of places of interest in and around the City of Timaru. The bus will be back in time for the ladies to have their hair appointments.

REGISTRATION FORM

Name ..... Branch .....

Address .....

Address .....

Registration Fee $5.00 No. of Persons ....

Social Tickets $5.00 No. of Persons ....

Meal Tickets

Wednesday $2.50 No. of Tickets ....

Thursday $2.50 No. of Tickets ....

Friday $2.50 No. of Tickets ....

....

CHEQUE ENCLOSED FOR .....

If your wife requires a hair appointment late Thursday afternoon please tick here .....

A receipt will be sent as soon as payment is received and tickets etc. will be handed out at 9.00 a.m., Wednesday 25th June.

Please complete this form and return to me before Wednesday June 18th.

M. D. CLOAKE, FAIRVIEW; No. 2 R.D., TIMARU.

ACCOMMODATION

The following Hotels and Motels are within one mile of the Conference venue at "Seven Oaks" in Wai-iti Road.

HOTELS

DB Grand, 360 Stafford St., phone 7059; Dominion, 344 Stafford St., phone 6189.

MOTELS

Aaron Court, 27 Evans St., phone 3845; Anchor, 63 Evans St., phone 88-283; Ascot, 63 Evans St., phone 5967; Chateau Commodore, 300 Wai-iti Rd., phone 6997; Moana, 3 Wai-iti Rd., phone 6393; Modern, 53 Evans St., phone 4690; Morrow, 40 Evans St., phone 4589; Sea Breeze, 364 Stafford St., phone 80-206; Tepid Pool, Virtue Ave., phone 3556; Trailways, Evans St., phone 84-094; Wai-iti Court, 5 Preston St., phone 88-447: White Star, 12 White Street, phone 7509.

INTRODUCING TIMARU

Situated on the east coast of the South Island, 99 miles south of Christchurch and 127 miles north of Dunedin on the South Island main trunk railway.

Timaru is a growing city of 29,500 and the centre of a district population of approximately 60,000. It can serve through its port all the South Island.

The rich farmlands around Timaru are especially suited for sheep farming, potato and wheat growing (one half of New Zealand wheat is grown within 60 miles of Timaru), which form the background of the city's wealth. The climate suits berry fruits such as raspberries and strawberries which are grown in the Waimate district. The fishing fleet based at Timaru has the third highest catch for any port in New Zealand and is one of the major fishing ports in New Zealand with seven main varieties of fish.

In South Canterbury there are industrial units employing over 12,000 people. The majority of these are in and near Timaru. They include flour mills, woollen and knitwear mills, woolscourers, tannery, footwear, macaroni, general and specialised engineering, foundries and numerous other manufacturing, maintenance and repair industries necessary to completely service the district and city. The Smithfield Freezing Works on the northern boundary of the city and the Pareora works ten miles to the south contribute to the export trade through the port.

The central all-weather bulk loading port of the South Island and one of New Zealand's main ports for the export of frozen meat. Timaru and Bluff between them now export all frozen meat for the United Kingdom from the South Island, the main trunk railway line being immediately adjacent to the wharves and the main North/South highway is within 400 yards of the port area. The Port has one of the most efficient and co-operative labour forces in the country to ensure safe, quick and efficient turn-round of shipping. No congestion, weather delays to a minimum, the average yearly rainfall over the last 50 years 23 inches. No other city in New Zealand with less rain days. All-weather mechanical handling equipment has been installed and is capable of handling up to 10,000 carcases per hour. The equipment can load meat in the carcase and carton form, also cheese and frozen vegetables, the latter being an increasing trade. All-weather loading ensures the rapid turn-round of refrigerated cargo liners and meat for export is regularly drawn from all works between Kaiapoi and Burnside.

Storage silos and bulk handling machinery now in operation permits a ship loading rate per hour of 680 tons of lucerne pellets and 1000 tons grain.

Timaru's Caroline Bay is the best equipped beach in New Zealand. More than 50 acres are developed for various amenities, still leaving many acres of fine, clean, sandy beach. Over the years the Caroline Bay Association has assisted the Timaru City Council to provide lawns, gardens, car parks, lighting,

NEW ZEALAND HONEY MARKETING AUTHORITY NEWSLETTER

The Authority met in Auckland in March for its first meeting in 1975, intake also being the first meeting with Mr Don Hayman as Government Representative on the Authority in place of Mr Eric Lee.

HONEY INTAKE

To date this has passed the 2000 tonne mark, and this large early intake resulted in the Authority reaching its overdraft limit at the end of February, and application was made to the Minister of Finance for further accommodation. The application was approved, and the Authority is assured of sufficient money to pay for all honey we expect to receive this season.

MINIMUM PAYOUT

Last year the Minister of Agriculture directed the Authority to pay a minimum average payout of 52c per kg. This year, following discussions between the Parliamentary Undersecretary for Lands and Agriculture, the President of the N.B.A. and the Chairman of the H.M.A. the minimum average payout was set by the Minister at 54c per kg.

HIVE LEVY

The draft regulations for a hive levy as requested by the N.B.A. Conference last year and as drawn up by the N.B.A. executive in conjunction with the Ministry of Agriculture and Fisheries were referred to the Authority for comment. The Authority wrote to the Ministry suggesting that the voting qualification of 1 vote for every 25 hives with a maximum of 100 votes should be amended to 1 vote for every 50 hives with a maximum of 50 votes plus 1 vote for every tonne of honey supplied to the Authority with a further maximum of 50 votes. The Minister declined to accept the Authority's recommendation. The Regulations as originally drafted were gazetted and came into force on 1st April, 1975. On the recommendation of the N.B.A. the Minister set the levy at 15c per hive for this year, with the major part of this levy going to the N.B.A. National Executive.

FURTHER LEVY POINTS TO NOTE

The levy is due and payable on or before 20th April, 1975.

Levy is payable by **every producer owning 50 hives or more** and must be paid on **ALL** hives owned by him. **Note:** Although there is a maximum number of votes available to a producer, there is no maximum to the number of hives on which levy must be paid.

Any levy unpaid at 31st May, may be subject to a penalty surcharge of 10%.

No producer shall be entitled to vote at any election unless he owns at least 50 hives and has paid the levy due in respect of his hives by the 30th June.

No levy is payable by any producer owning less than 50 hives.

SEALS

Any person having in his possession as at 1st April, 1975, unsold honey containers or labels on which seals levy has been paid can have the levy refunded on make a declaration to the Authority of stocks on hand as at that date. Once these declarations have been received and verified by the Authority credits will be passed to claimants' seals accounts, and any balances left owing to the Authority on these accounts will become immediately due and payable.

AUCKLAND PROPERTY

Negotiations are proceeding for the sale of the Authority's Parnell building and the planning of a new factory at East Tamaki is progressing satisfactorily.

LOANS TO BEEKEEPERS

The Auditor General and the Authority's Solicitors have pointed out legal difficulties in proceeding with the loan proposal. Further clarification is being sought from the Minister of Finance on the legal points raised.

STAFF

Mr Clarrie Carr, Secretary/Accountant to the Authority suffered a heart attack towards the end of last year, and was forced to offer his resignation which was accepted with regret.

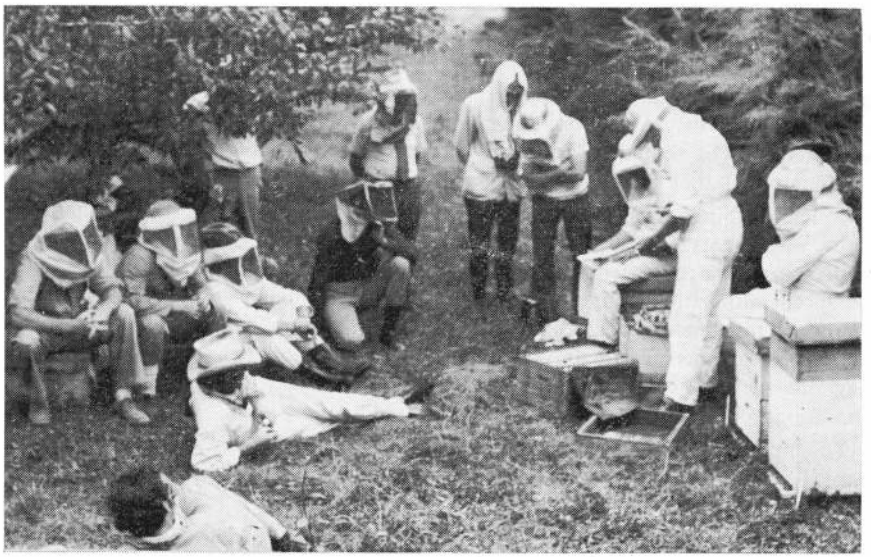
Mr W. R. Gregory was appointed to fill the vacancy, and has quickly settled into the position. His first major achievement was the preparation of budgetary figures in support of the application to the Minister of Finance for increased overdraft accommodation, the successful outcome of which was referred to earlier in this newsletter.

All members of the staff have worked well in coping with a big intake of honey and the office staff in particular have striven to have payout cheques in the mail within the first few days of the month following delivery of the honey.

SALES

Sales of packed honey within New Zealand have been excellent, but export sales of bulk honey have been slow at the prices we are trying to obtain. International monetary problems are making it difficult for most countries to buy our honey, especially when some of the other selling countries are offering lower prices than us.

R. F. POOLE
Chairman



HIGHLY SUCCESSFUL COURSE FOR QUEEN BEE PRODUCERS

In this picture discussion is in progress on one of many different methods of raising Queen Bees at Flock House, January, 1975.

Paper presented at 1974 Taupo Seminar

Recent Work By Research Division Into Various Aspects of Practical Beekeeping

Mr Ivor W. Forster, Senior Technical Officer, Oamaru.

When I sat down to prepare this talk I was struck with Walter Rothenbuhler's remark that most beekeepers look upon research as a sort of harmless playwork engaged in by college professors. It has been said that research takes findings that have promise of having practical application. Increased production forever to get answers to questions that don't matter anyway.

I think it's fair to say though that most beekeeping research carried out in New Zealand has been, well, what we call applied research. To seek information that will allow problems to be headed off before they happen. To provide has always been the main criteria.

Few research findings are really spectacular. Research work is seldom glamorous. It's mainly hard, painstaking work. A lot of it is concerned with confirming or disproving opinions and beliefs that perhaps have long been accepted, maybe though without any critical analysis. On the other hand ideas are examined that have been rejected for no sound logical reason.

A lot of things in beekeeping are not very clear cut. Even with regard to quite elementary processes there are sharply conflicting opinions, there are widely varying experiences, there are markedly contrasting results. Even accepted authorities disagree on many issues. Also beekeeping is affected by many circumstances over which the beekeeper has no control. Circumstances he cannot always anticipate. Often although we know what the ideal is we have to accept some sort of compromise to fit in with circumstances and conditions.

The main thing that research does is to measure actual results. As compared to the skilled practical beekeeper the researcher has the time and facilities to do this. He can pursue investigations through to conclusions even though it may appear that honey production will be reduced. He doesn't have to worry overmuch about the immediate economic repercussions.

From the information obtained we can then say that on an average we would expect so and so to happen under these particular circumstances. On this basis we have looked at several aspects of beekeeping.

Various methods of colony manipulation had been evolved over the years to control swarming and to promote honey production. Some of these were studied. They were found to be ineffective and left us with the three basics of honey production — disease control, feed, and queens. (Forster 1969).

The pollen situation was studied. Pollens from specific sources were examined. The effects of feeding other protein matter as a supplement to natural pollen was investigated. (Forster 1966; 1968a; 1968b). We looked at the performance of queens that had been sent through the post. (Forster 1971a). We found mailing didn't affect a queen's ability to head a honey producing colony. Mailing did though, increase supersedure in the first season.

It was found that clipping the wings of queens didn't affect their colonies' honey storing ability nor did it increase the supersedure rate (Forster 1971).

Colonies in which drones were strictly limited produced no more honey than those where ample drone populations were allowed. (Forster 1969).

An unexplained spring mortality among field bees had caused some perplexity over the years. This was found to be caused by the narcotic effects of kowhai nectar. (Clinch, Palmer-Jones, Forster 1971).

We make no attempt to sell these ideas or to coerce anyone into using them.

I did have a beekeeper approach me over wintering bees on sugar. (Forster 1972). He was grimly determined to shoot down every conclusion I'd drawn. When I'd patiently explained each point he said, "Well I don't want to feed bloody sugar". I had quite a job convincing him I wasn't even suggesting that he should feed bloody sugar.

Now the advantages of young queens is fairly generally accepted. However world authorities aren't very decided even on this one. In fact if you knew nothing at all about beekeeping and decided to swot this point up you would conclude that young queens didn't matter much — in fact maybe that they were undesirable. Jay Smith comes about the nearest to recommending annual requeening and even he isn't too positive.

Here, going on my own work, on an average first year queens always outproduced second year queens. In one test of 96 hives over three seasons (Forster 1969) and another of 180 hives over two seasons first year queens gave about 30 pounds of honey more than second year queens. Spring queens produced 20 pounds more than autumn queens. Queens mated from in the hive produced 25lb more than introduced queens. Colonies that started queen cells during the build up period produced 25lbs of honey less than those that made no attempt to raise cells. These things all interact to some extent. I mean, say, hives with autumn queens may start queen raising while young spring queens seldom do. As cell raising hives produce less honey this puts autumn queens at some disadvantage. Perhaps not through any deficiency in egg laying but just because a different influence on colony development and behaviour.

With a spring queen you also have the advantage of being able to run a two queen colony for some of the build up period if you want to.

Here again though let me say I'm not against autumn queens. There are many advantages in using autumn queens. There are plenty of bees for raising

cells and making up nucs, and much better acceptance if you are introducing queens. Queen rearing facilities are made use of for more of the year. Your hives are settled down in the spring. This eases pressure of work and allows other aspects of colony management to receive more attention. This is one of those compromises we must accept.

But if I've faith in my own findings, I must recognise that the absolute ideal is a young spring queen.

Now why don't we have all first year spring queens? The main problem is of course getting queens. It is alright if you can buy them when you want them. Even then some beekeepers are disturbed by losses in introduction. This too, varies terrifically. Butler and Simpson summing up the efficiency of a fairly precise method of queen introduction put the average loss at 10% in the spring. They found that losses rose sharply as the season advanced into late spring and early summer. Particularly so if hives reached a strength where they started queen cells or even contemplated raising cells. Perhaps contemplate is not quite the word to use for a creature that can't think, but it has been shown that the attitude of the colony that leads to swarming starts to build up several weeks even before eggs appear in queen cells.

I checked with one beekeeper who admittedly had had a bad run in queen introduction and we reckoned he would get less than 50 queens accepted out of 200. This chap was just about ready to give up spring requeening. Actually this was early summer and the hives were strong.

Our thoughts must turn then to using queen cells. Queen cells are usually fairly readily available. The rearing of cells is within the capabilities of most beekeepers. If not they can usually be fairly readily purchased. Queen cells do, of course, mean dividing hives in some way to make up mating nucs, of some sort. To do this the beekeeper can be faced with finding queens so that he can create this queenless nucleus or "top" or what have you to mate the queen in.

Queen finding isn't a very straight ahead process. This is particularly so if the weather is bad or the bees are robbing or your eyesight isn't too good or you've just had a heavy night. If you stir apiaries up too much there's the danger of nuclei getting robbed out. Yes, the thought of looking for a queen does create a bit of a psychological barrier which deters some chaps from embracing plans that envisage large scale queen finding. Also, some beekeepers have been disappointed at the low percentage of matings from "tops". I had long formed an opinion that "tops" weren't the ideal place to mate queens from and had noted on occasions where much better matings were obtained from nucleus on separate stands than from "tops" in the same apiary and cells from the same batch. So I set out to make some comparisons and to see if I could streamline this splitting of hives and perhaps improve mating percentages. (Forster 1974).

A total of 172 hives were located in twelve apiaries. The ages of all queens were recorded. Seventy were first year, 48 second year, and 54 third year queens. I randomly allotted half of each age group in each apiary to an "A treatment" and half to a "B treatment".

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In mid-October I manipulated all hives. In "A group" I made up a "top" in the conventional manner: That is; I found the queen, put her down in the bottom box with half the hive and raised the other half above a division board ready to take a queen cell. I put up extra bees to allow for drift back to the parent entrance below. I put a sheet of newspaper between the top box and the division board to temporarily close the entrance. This was to reduce drift back to the familiar entrance and to lessen the risk of robbing.

In the "B group" no attempt at all was made to find the queen. The second box was lifted off onto a division board. Then the combs in the bottom box were quickly pulled apart. Any combs below where the queen may have been, were removed with adhering bees ready to be put in the top box. The outside combs from the second box with adhering bees, but without the queen, were put down into the bottom box. A comb of brood was shaken clear of bees to the top box and this was put down below also. Food supplies for both halves were also checked. So we had all the nurse bees up top with the queen and all the old bees down below with no queen. This operation could be carried out very quickly and in practically any weather. Once you get the swing of it, it's amazingly simple.

Two days later queen cells were given to the queenless "tops" of group A and the queenless bottoms of group B. All hives were checked within a few days and as far as could be ascertained all cells had emerged except one. This was in group A where an old queen had inadvertently got up into the supposedly queenless "top". She had been found and put down but these things do happen. I was prepared to accept a few queens down where they shouldn't have been in the B treatment but none were found.

I awaited the results of mating with great interest. They turned out to be 78% for group A with the young queen on top; and 87% for group B, with the young queen down below. Not quite as spectacular as I thought, but the B method did give 9% more mated queens. I don't know what you chaps expect as a mating percentage but I feel the averages of both these groups were reasonably good.

The next move was to put the hives together without any queen finding. Apart from leaving both halves with a queen I planned to use the normal process of putting the portion of the hive with the young queen in the top position with a double sheet of newspaper in between her and the bees below. In this case of course, the bees below did have a queen. This is no new idea. It's as old as the hills. Still very little had been done as to recording detailed results.

Lundie, Root and Farrar all consider the young queen will usually survive if the storey containing her is placed on the top. They assume that the bees in the top storey will descend in force once they chew through the paper. The old queen is by now a stranger to them and so they will kill her. Grout believes the younger queen will invariably kill the older, or if the bees take a hand themselves, they will see that it is the old queen that is done away. Butler considers that the younger, more vigorous queen will usually be the one that

"makes it". He considers there is a risk that both queens will be injured. A chap called Skirkyavichyas said he had shown that it is only queens of a similar age that fight otherwise it's entirely up to the bees themselves. Various opinions have been expressed as to the effect of the ages of the queens involved and also the relative strength of the two colonies to be united.

Haydak and Dietz did some quite precise work on uniting queen-right colonies. They had the young queen in "tops" over a double wire gauze screen. They just replaced the screen with a queen excluder and let the bees sort it out. They found that in 57.3% of the cases the young queen survived, 10.3% the old queen survived, and in 32.4% of unitings both queens died.

This rather shook my confidence in my proposed manipulation. There was a difference though. Their young queens were over double screens. The old queen was not entirely shut off from the bees above, and was not a complete stranger to them. They did not use newspaper as a temporary barrier between the two components when uniting. There was no build up of pressure to drive the bees from the top straight down through the paper after being deprived of an entrance. Anyhow I went ahead to unite my hives. This was early in December.

In group A where the young queen was on top I merely removed the division board, put on a double sheet of newspaper and put the part with the young queen back on top. In group B remember the young queen was below, so what I did was to swap the two portions of the hive and put the old queen down on the bottom board with a double sheet of newspaper, then the storey with the young queen on top. I thought that not only would the old queen have bees that were strangers coming down from above once they had chewed through the paper but that there would be some strange bees coming in the entrance, which should further reduce the old queen's chances of survival.

I had recorded the age of each queen. I also recorded the bee strength of each of the units involved. Now what were the results of all this? Well 95% of the young queens survived in group A and 92% in group B. I had expected group B to have a slight advantage here but it was the other way around. Only just of course. Nothing of significance.

What about the ages of the old queens? This made no difference at all Whether one year, two years, or three years, about the same percentage of each pulled through. There were of course only eight old queens that did survive.

There was no pattern at all of bee strength and young queen survival. Overall, relative bee strength seemed to make little difference. In the one hive that lost the two queens the division and parent colony were of equal strength and both were exceptionally strong.

So to summarize. In Method A: (Finding the old queen and establishing a young queen on top) I obtained 74 laying queens established in the hive for each 100 queen cells. In method B: (Not finding the queen and mating the young queen from the bottom box). I obtained 80 young queens per 100 cells.

The young queens lost in uniting without dequeening were not a complete loss as their hives had the advantage of nearly two months of their egg laying.

In this work I used every hive in the twelve apiaries. If I had dropped out those not entirely suitable no doubt results would have been better. Some hives were a bit weak. Some did run low on stores. One Apiary was affected by the effect of kowhai nectar.

I would say results were quite satisfactory. That 6% extra laying queens from method B were worth having but the great thing was that method B takes less time. It takes much less skill and can be carried out in almost any weather. It does involve two visits to an apiary and the disadvantage of this would depend on your present methods and how your apiaries were located. Even if you don't adopt the system as a regular method you could switch to it with confidence if you did get caught with bad weather.

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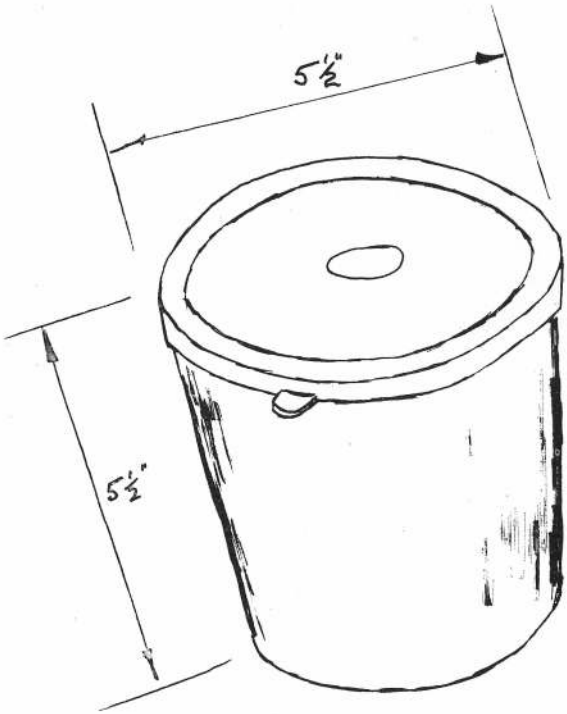

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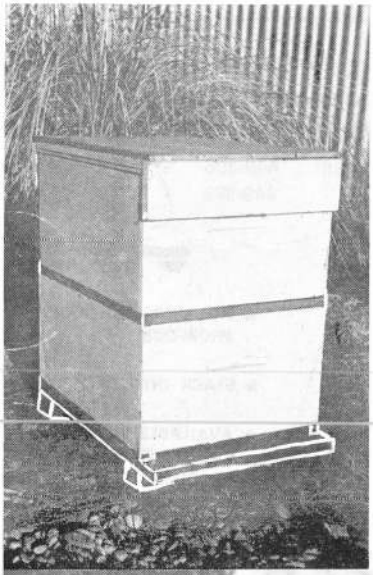
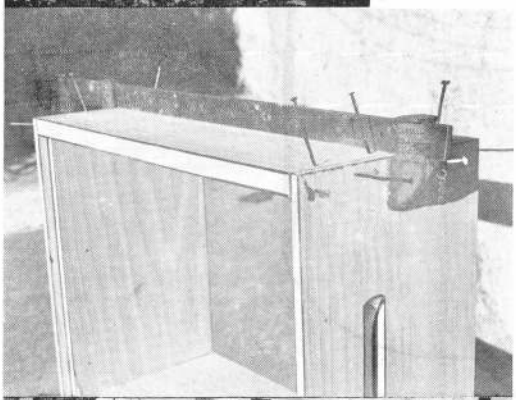


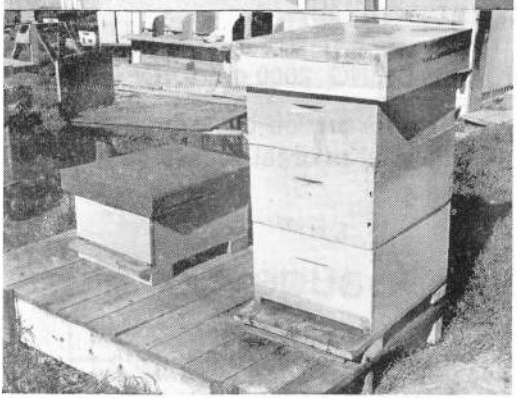
(Bottom): STATIONARY HIVES.— Left, Rails 4" x 2" on flat, Floor 22" with $\frac{3}{8}$" entrance, Lid $4\frac{1}{2}$" rim.

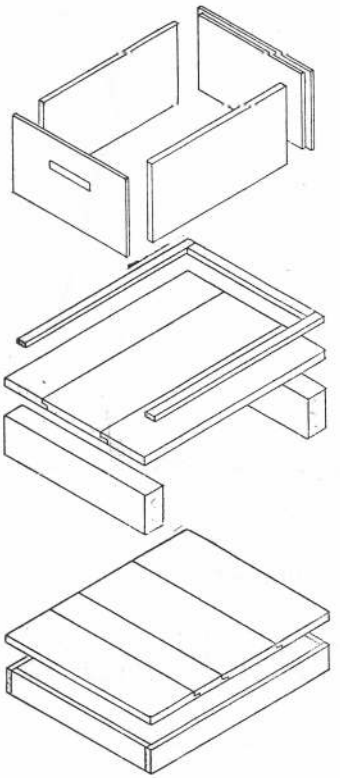
(Left, Above): MIGRATORY HIVE.— $21\frac{1}{2}$" bottom board with $\frac{5}{8}$" entrance. Lid overhangs back and front but flush at sides.

(Middle): STOREY BEING ASSEMBLED.— Held in position by cramp. Rails at each corner.

(Below): Four sides of a STOREY BOTTOM BOARD.— 4" x 2" rails, 22" floor board, $\frac{5}{8}$" rim. LID.— Telescopic with 2" rim.







Notes for Beginners

AND OTHERS

By CHRIS DAWSON

CANTERBURY HOBBYISTS

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.

WELLINGTON BEEKEEPERS' ASSOCIATION

President: Jim Guyton.

Secretary: Joe Sweeney, No. 3 Whites Lines West, Lower Hutt.

Meetings: Usually second Monday in month, Y.W.C.A., upper Willis Street,, 8 p.m.

AUCKLAND BEEKEEPERS' CLUB

President: W. B. Metcalfe.

Secretary: R. T. J. Anderson, P.O. Box 3672, Auckland.

* *

PROPOLIS

(From the British Bee Journal)

"Paddy" has said he has collected more than £100 ($165) for his sales of propolis. A Lincolnshire beekeeper can boast of £749 ($1236) obtained for propolis. Can any New Zealander beat this?

Isn't it nice to be appreciated. My thanks to those who welcomed me back to the "Beginners" column and thanks, also to those who asked questions.

To continue the policy of explaining **why** it is necessary to do things a particular way, you will now be introduced to some new terms.

BEETIGHT means that the bees inside the hive cannot gain exit at any place where they should not, nor can strange bees gain entrance to stores where they should not.

In assembling lids, supers and floor boards you must ensure they are "beetight". Correct assembly of factory-made equipment will ensure this and home-made gear must be made accurately for the same reason.

To see an experienced beekeeper preparing his equipment for use is one of the advantages of belonging to a Beekeepers' Club.

BOTTOM BOARDS. All timber should be treated; tanalised, soaked in Metalex, boiling tar or hot wax. Floors soaked in Metalex or tanalised need to be sealed with a coat of paint before use.

Now two more terms: **MIGRATORY** — (moving beehives from place to place) and **STATIONARY** — (beehives settled on the site of the apiary).

The specifications for floor boards and lids varies according to whether they are to be used for migratory or stationary beekeeping. Measurements

for stationary bottom boards are:— rails 4" x 2" or 3" x 2", floor size 16" x 22" or 24" rim $\frac{7}{8}$ x $\frac{3}{4}$. For migratory beekeeping the rails are 2" x 2" or $1\frac{1}{2}$ x 2" and the floor size 16" x 20" or 21".

The 24" stationary bottom board gives a four inch landing platform and keeps the grass away from the entrance. The 21 inch migratory bottom board allows hives to be packed close but also allows a small space for ventilation while travelling.

There is some debate as to the correct thickness of rims. The factors to be considered are climate and rodents. Some beekeepers use a rim of $\frac{3}{8}$ which gives little ventilation but keeps the mice out. Others use rims up to an inch thick. These give more ventilation but allow mice easy access. The latter beekeepers fit mouse guards for the winter.

The boards used to build the floor need to be half-checked. If two boards are nailed side by side, the bees seem to delight in opening the cracks wider until the floor board is not beetight. Later, rodents will chew the openings wider.

Interesting Bottom Board ideas: John Heineman uses a one inch strip of galvanised iron recessed $\frac{1}{2}$ into each edge of the boards used for the floor. This eliminates the need for checking and is easy to cut with a circular saw.

Stan Wilson dunked his bottom boards in boiling tar — he declared they were everlasting. Some use concrete bottom boards, but the chief disadvantages are that they are very heavy and they are inclined to cause the bottom super to be damp.

Harry Cloake drives two nails through from the bottom so that they

Chris Dawson on

GETTING AWAY FROM IT ALL

This is the advice we act on when we take a holiday. I loafed around some beautiful lakes and enjoyed bright sunshine and balmy breezes while admiring Mitre Peak, Milford Sound and the mountains that nearly crowd the road off the map.

It was on a road near the most southerly tip of the South Island that we stopped at a farm in lush green, beautiful Southland — the beekeepers' paradise.

Through the hazy dream of a Sunday afternoon snooze I heard the word "bees" and that brought me to consciousness. My host had a problem.

He had purchased an old church that he hoped to move on to his farm for a woolshed. Everything was rosy except that one corner of the building had a hive of friendly bees. So friendly that every time mine host entered the road gate, the bees came out to meet him.

To the question, "What can be done?" I answered, "Let's have a look!"

"Getting away from it all" meant leaving smoker and veil at home but now it would seem they were needed.

The bees were established at the top of a high corner. By tapping the inside walls it was possible to locate a comb of about twelve square feet on the south and west walls. From the outside, a steady stream of black bees were enjoying their work.

Just after sunrise the next morning, we arrived with a jemmy, garden spade, an aerosol and some buckets, but no veil or smoker.

By careful use of the aeosol we were able to keep the bees controlled until we had filled five buckets with honey in the comb — about 150lb. Over morning tea we speculated on how easy it is to secure a year's supply of honey in this reputedly cold part of New Zealand.

In the distance could be seen nestling in the storms of Foveaux Strait, some of the mutton bird islands with Stewart Island on the horizon.

The part of the morning that I did not enjoy was destroying what was obviously a good colony of successful black bees.

protrude about quarter inch above the rims. When the bottom storey is pushed down on these nails, the storey is not likely to be moved by sheep.

All my bottom boards are built on to the lowest storey. This eliminates any movement by stock, but creates extra work when it is necessary to lift the bottom frames to a higher storey.

LIDS. A well-built hive capped with a colourful lid is a joy to own and a pleasure to see. Migratory lids are made flush on all sides or flush at sides but overlapping front and back. They need to be accurately made so that they fit well and are beetight. Usually one inch timber is used with a $\frac{3}{8}$" rim around the edges on the lower side to give beespace over the frames. For stationary hives, the telescopic style lid is most popular. Where wind is a factor to be considered the rim can be five inches

deep. Rims of from two inches to five inches are used. I use two inch rims in the home apiary, which are easy to take off and lighter in weight. My out apiaries have four inch rims on their lids.

It is important that lids fit snugly. The inside measurement is decided by whether you are going to use hive mats that overlap all round or crown boards that are neat fitting. For the latter, the inside measurement is $16\frac{1}{2}$" x $20\frac{1}{2}$".

For light, use $\frac{5}{8}$" dressed timber and cover with 26 gauge galvanised iron. For heavy lids use one inch rough timber and cover with heavy iron. There are now some beekeepers who do not cover lids with iron but cover the hive with a sheet of heavy plastic sheeting before placing the lid on. These lids are painted all over before being assembled.

Assembling Storeys and Frames

Bee Space: Before the assembly of supers and frames is discussed, it is advisable that the principle of bee space is understood.

There was born on Christmas Day, 1810 Lorenzo Lorraine Langstroth — "The Father of American Apiculture." Although bee space existed since the beginning of honeybees, it was left to Langstroth to "discover" it and apply the discovery to successful honey farming by using frames. It is just 150 years since his discoveries were applied and the application of the knowledge of this principle of bee behaviour allows modern beekeepers to build equipment that bees enjoy using.

The "discovery" was that if a space of between 3/16 inch and $\frac{3}{8}$ inch is left in a beehive, the bees will keep it clear as a walk and work area. If the space is smaller than 3/16 inch they will fill

SNIPPETS

INSECTICIDE STRIPS

We have previously heard of the danger of using insecticide strips such as "Vapona" in a bee house. These strips kill flies and other insects over a long period by means of an insecticide which vapourises very slowly. These products can be very effective and are installed and often forgotten, with very sad results for some beekeeprs. A beekeeper received some queens by post one morning and left them in the kitchen while he went to work. Within hours the queens were dead even though the forgotten strip in the kitchen was a considerable distance from where the queen cages were left. Even a whole colony can be killed by leaving a box of combs in a room where a strip was in use. It seems that combs can absorb the insecticide vapour from the air sufficiently to destroy any colony to which the combs are given. So do not have bees, queens or combs or foundation in rooms where such strips are being used, even for a short time. Bees are insects after all and happen to be sensitive to this type of product.
— Beekeeping

* *

ROYAL JELLY

The bees feed each queen larva 1,600 times before closing the cell. On the other hand a worker bee larva receives only 140 feedings. So for each feeding a worker larva receives a queen larva receives over 10 times more during the same period.
half the remaining honey. Repeat with the rest of honey. Serve with roast potatoes and creamed turnips.
— The Scottish bee Journal

HONEY ROAST CHICKEN

2oz fresh white Breadcrumbs
2 level tablespoons chopped Parsley
1 level teaspoon dried Thyme
Salt and Pepper
1 Cooking Apple
4 tablespoons clear Honey
3oz melted Butter

Mix together breadcrumbs, parsley thyme, seasonings, chopped apple, one tablespoon honey and one oz melted butter. Use to stuff neck end of chicken. Truss and stand in a roasting tin. Season with salt and pepper and pour over remaining butter. Cook at 375°F — allowing 20 minutes per pound and 20 minutes before end of cooking time brush chicken with half the remaining honey. Repeat with the rest of honey. Serve with roast potatoes and creamed turnips.

— The Scottish bee Journal

* *

PERMISSIVE?

A contributer to the Notts. "Beemaster" writes — "I collected a swarm from the yard of a hoisery factory, and one of the Directors watched the proceedings with great interest. He asked me afterwards how many bees I thought I had collected. I replied that it was not a very big swarm, but my guess would be about 5,000 bees. "And only one queen," he queried. "Yes," I said, "only one queen." "Does each one mate her in turn?" he asked.

* *

"About Pollen" (Thorsons, London) is, as the title suggests, a little book of 63 pages about pollen. Whether one agrees with the author or not it is still worth reading. Some will certainly have doubts about some of the statements made by its author, Mr Binding.

it up with propolis and if it is larger than $\frac{3}{8}$ inch the bees will fill it with comb.

Langstroth started a revolution in beekeeping by building boxes and frames that allowed bee space all round the frames — on each side between frames and walls, at bottom between the box of frames on top and the one underneath, and on top between the lid and the top bars.

For the first time in history, the comb of a beehive could be removed and examined without damage.

Modern builders of hive equipment adhere closely to this principle. Today's beehives are designed to incorporate Langstroth's discovery into the hives successfully used by beekeepers today and enjoyed by the bees.

The size of our honey frames in relation to the size of the super is such that the frame hangs in a position which leaves bee space all round it.

To make sure you secure this result it is necessary to carefully assemble both frames and supers so that bee space is correct.

While in Papua New Guinea, I met a keeper of bees living in a rather isolated locality. His knowledge of beekeeping had been gained by studying old books. He carefully made his boxes and frames that fitted neatly. When he came to lift out the frames, they were firmly gummed by propolis into the box. He rebuilt his frames one inch smaller and again hung them in the middle of his boxes. The bees filled the frames with honey and all the gaps with comb. About this time he learned about "bee space" and built a third lot of frames that gave perfect results.

This beekeeper built his own smoker and also a two-frame honey extractor whose driving mechanism was the pedal, crank, chain wheels and chain from a bicycle. These pieces of equipment worked perfectly.

Once, while on inspection duties, I tried to take the frames out of a hive built by an enthusiast. He told me he did not like the sloppy fit of the factory built stuff so he trimmed things up a bit. We had to take a garden spade to open the brood box and it caused some damage to his frames and comb.

Now you will understand why I have made a special effort to have you understand the principle of bee space.

Building the Supers or Hive Boxes

The requirements of a super (storey or hive box) are:—

1. Strong enough to cope with a weight of up to 90 pounds.
2. Accurately assembled so they are bee tight.
3. Protected from weather to prevent rotting or distortion.

Measurements of the sides are $19\frac{1}{8}$" x $9\frac{9}{16}$" and of the ends 16" x $9\frac{9}{16}$". The rebates on the ends are 7/16" wide by $\frac{1}{2}$" deep at top and $\frac{7}{16}$" x $\frac{3}{4}$" or $\frac{7}{8}$" at ends. The hand hold needs to be one inch wide and as deep as possible. Your fingers need a good grip when you are lifting 80 lbs or more. I like the Australian pattern of hand hold. It sheds the rain and gives a very good grip for the fingers.

So that the supers have weather protection, paint the rebates of the ends and end grain of the sides with a coat of primer.

To nail the supers I hold them together with an old furniture cramp cut down to take 21 inches. Assemble so

The American Congress has approved a sum of $200,000 for bee research into pesticides by which it is hoped to eventually reduce bee losses from pesticides in the States, reports "Gleanings in Bee Culture."

* *

Histamine and histidine found as components of bee venom in week-old bees and increased over a period of three to four weeks. Thereafter a decrease noted. Newly emerged bees do not posses these two constituents.

* *

A report taken from Annals of the Entomological Society of America, says that there is an enzyme present in honey which acts on glucose and releases hydrogen peroxide. The enzyme is not very active in normal honey but becomes more active in diluted honey.

* *

Glucose oxadise which produces hydrogen peroxide is widespread in the insect world including bees and ants, and explains how these creatures are able to protect their stores from deterioration.

* *

We understand that Guys Hospital Medical School under the guidance of Professor M. H. Lessof, MD, FRCP is tackling the problem of allergic reactions from bee venom. The prime object is to develop improved methods of treating this condition in people.

* *

A news bulletin from South Africa says that African bees are excitable and need to be handled with the utmsot care. But not all varieties are such bad swarmers as is often supposed, though

many swarms have muliple queens. These queens are extremely prolific and make large colonies. In one apiary 14 colonies averaged 146kg. (308lb.) of honey each and their keeping can be very profitable. Besides the normal diseases, these bees have to contend with wasps, lizards, toads and birds.

Incidentally, there is nowadays an attempt at new legislation in the USA which will prevent the importation of African bees in all its stages, from germ plasma to adult. The present law (1922) prohibits only the importation of adult bees. There is also proposals for control and eradication if any importation occurs.

* *

THE LONG-LIVED BEES OF WINTER

That there is a huge variation to environmental conditions within few days old. In a matter of days the glands are exhausted and worn out. They are not rebuilt as the bee has come to the end of its nursing period. Next the wax glands may develop. In the height of the season most bees may have to respond to the demand for comb honey.

The worker has now virtually used up all its body reserves and is unable to replace them by further consumption of pollen. It still has its wonderful navigational ability and senses that enable it to seek out nectar, pollen and waste in the fields. By consuming sugar it can get the energy to fly for these purposes.

It is easy to see possible variations within this pattern. Where the situation provides plenty of nurse bees in relation to the amount of brood to be fed, or there has that ends and sides are flush all round at the top. If there is any variation between the widths of sides and ends, careful planing of the bottom can be done after the super is assembled.

Some use 7 nails at each corner while others use 5. Two of the nails driven into the ends need to be as near the top and bottom as possible. To ensure that the top nail does not split the rebate, I drill a hole $\frac{1}{4}$" from the top on a downwards angle. The nails used on the sides are $2\frac{1}{2}$". These nails need to be galvanised or of the special coated variety sold by the merchants to beekeepers. All nails should be driven at various angles as they grip better this way.

When all nails are driven home and punched, the super should sit flat on a flat surface. If it does not, it will not be beetight and it is necessary to plane surfaces down until the super sits quite flat. I have a sheet of steel plate that I do all my nailing on — it serves the dual purpose of making a good surface for nailing on and a flat surface for testing.

Frame Assembly

A frame needs to be strong enough to hold up to ten pounds, accurate enough to hang in the super and allow correct beespace and wide enough to encourage the bees to build a single comb. This latter is achieved by using end bars that are the exact measurement of "Comb Space". "Comb Space" is almost as important as bee space. If the combs are too far apart, the bees, when they start to draw out the comb, will fill in with burr comb and cross comb. They like each comb to be $1\frac{3}{8}$" to $1\frac{1}{2}$" wide. The sheets of wax foundation must hang straight and exactly comb space apart.

The frame sides should be snug fitting to top bar and bottom bar before nailing. At each end use two $1\frac{1}{2}$" cement coated frame rails to hold top bar to sides and at the bottom $1\frac{1}{4}$" rails to hold bottom bar.

Some beekeepers use a casein adhesive when assembling frames. This gives added strength and rigidity. Be sure that the frames dry out with all angles at "right" angles.

I prefer the now available Australian style of frames. They have a wider top bar that discourages comb building on the bar and the bar is not as deep as that previously used. This allows an extra row of cells in each frame, but is just as strong as those we are used to. It is necessary to order wider foundation for these frames.

Wiring the frames

To secure best results in wiring the frames a jig is a great help. This holds the frame square and bows in the ends slightly. When released from the jig the frame is square and the wire is taut. From a $\frac{1}{2}$ inch fine tack (bootmakers tingle) on the edge of the end bar near the top hole, the wire is carried through the holes back and forth until it is tacked safely on the front edge of the end bar near the last hole. When you release the frame do what every beekeeper does, run your fingernails over the wires and hear the ping, ping, ping of your home made guitar.

Frames that are wired can be held indefinitely but do not fit the comb foundation until shortly before use.

Fitting Foundation

When foundation is removed from its packing, it is usually cold and shrunk. It

been a completely broodless period in the hive then many individuals may have an extended life in its initial phase.

As young workers emerge in the late summer and autumn there is a decreasing amount of brood to be fed as the laying power of the queen is declining. A lot of them will miss out on nursing duties altogether and without the hive, has been one of the most revealing and fascinating studies of our times. Not all is known, but extention of the knowledge now comes in the realms of biochemists.

It has been shown that in the summer the life of a worker bee can be as short as 25 days or extended to 60 or 70 days. Six weeks then may represent a fair average. How it this?

An animal body builds up and maintains itself from complex food substances called proteins, which derive in the first place from plants. Plant proteins which are needed by the animal. The energy required to enable the chemical changes to take place and also allow the animal to move and maintain its body temperature, derives from the 'burning' of sugars.

In the case of bees pollen is the source of protein, and is therefore the vital food, at least for the rearing of the young. Nectar, honey, and other sweet substances gathered occasionally provide the sugar, while vitamins also play an important part.

Insects as a whole are far less able to rebuild worn out body tissue than other animals and here we have one clue to the idea of bees

wearing themeslves out by work. The faster tissues are used up the sooner it dies.

The young worker honeybee, very soon after emergence from its cell, begins to feed from the pollen stores in the combs, and continues to do so heavily for the next 10 to 14 days. The immediate effect of this is to stimulate the development of the hypopharyngeal glands in the head, the source of brood food. During early summer, such a bee will be producing brood food when only a and certainly if the queen ceases to lay none at all of the last batch become nurses at this stage.

But nature has decreed that these young bees shall consume large amount of pollen in their early days. Some of them no doubt continuing to do so from stores after the cold weather arrives. These are to be the winter bees. They achieve the maximum development of glands, fat bodies and ovaries. With their reserves in their bodies and through the minimal activities in which they will be engaged during the next few months, they wil be able to live far longer than their summer sisters. They remain physiologically young until they start to feed brood, and then normally age more slowly because at first the number of larvae to be fed is relatively small.

If the real winter bees have ovary development why do they not lay drone eggs when brood rearing starts? Dr Anna Maurizio of Switzerland has suggested the answer to this. Bees wintering in a normal colony are still getting queen substance, and this inhibits egg formation. The ovaries are simply is going to be placed in a beehive where the temperature is about 95°F. If the foundation is not warmed before fitting, it will expand and bulge. A fruit case with a piece of bird netting for a lid and a small heater underneath is sufficient to warm the foundation.

Place the edge of the sheet of warmed foundation in the slot in the top bar. Rest the foundation on a piece of timber 16" x 8" x ¾" with the wires of the frame resting on the foundation. Touch each end of each length of wire with prods attached to a wire running to four volts of a car battery. The wire will warm and you will have to learn the exact moment to lift the prods when the frame wire has melted itself half way through the foundation. You are going to ruin a few sheets of foundation — we all do — in learning this job but if you are electrically minded, you will work out the correct voltage to use. The fixing of the comb foundation into the frame needs to be left till as late as possible before placing the frame in a colony.

Making your own equipment

While I am keen to encourage the do-it-yourself Kiwi and I commend the building of lids and bottom boards from whatever timber and galvanised iron available, I strongly recommend that frames and supers be factory made.

Accuracy in manufacture is vitally important and there are lots of traps to fall into. The vital factors of beespace, combspace and beetightness are built into the factory made equipment. I have no shares in any beeware factory, nor do I get any commission for making this recommendation.

Correct construction of the beehives is very important. You will never regret that you built everything carefully and accurately.

Some of My Mistakes — 2Ms

Like lots of Kiwis, I like to do things my own way. Here are some of My Mistakes that I call "2Ms".

Bottom Boards — Rails too long, too heavy, and nailed at the edge of the 24" floor.

Floorboards — Not half checked. Rims too thick (1¼) and too thin (¼in).

Supers — Not enough nails, not painted before assembly, one end with rebate up and other end with rebate down.

Lids — Too small inside and jammed on the hive — too big and blew off easily, iron had a hole and hive got wet inside.

Frames — Not enough rails in top bar and it came off in my hand when shaking bees; frame not held square when foundation fitted and one side was propolised to super; used cold foundation and it buckled to make a very poor comb.

Anti-Climax

February Notes closed with the record of three laying queens in one colony; one old queen and two young supersedure Queens — all laying. These were placed in separate colonies made from the original hive.

Within two weeks, the old queen started to lay drone brood and soon was laying all drone eggs. At this stage she was destroyed. This happening prompts some interesting speculation.

additional food reserves in this case.

A colony cannot survive winter without the energy food of honey or sugar supplies to keep them warm. But this is not all. Very poor weather conditions in the late summer, a district where pollen is scarce, a queen going off lay early are factors which could reduce the number and effectiveness of the winter bees. The awakening and progress of a hive in the first part of the new year will depend on the winter bees. They are its brood rearing potential. — **Beecraft**

* *

DANGEROUS

A correspondent has recommended that supers could be put out to be cleaned up by the bees. In my opinion this is very dangerous.

If there is disease in the neighbourhood, bees with it may join with those in the apiary and thus spread it. This method also invites robbing.

A better system is to put honey wet supers on top of the inner covers of the hive with the feedhole open. In 48 hours bees will usually clean up four to six supers except for one or two combs where the bees have consolidated the honey. This can be set aside for spring feed.

Put the supers on at dusk to minimise robbing.

* *

We understand that a method to anlyse the synthetic honey product that has been widely distributed in America has been found by Mrs C. Lindauer. The Americans have been informed.

Did the queen know she was failing and took measures to ensure the survival of the colony? Did the bees realise the queen was going to fail and made doubly sure of succession. The two supersedure queens are now heading thriving colonies.

Keep up the Reading

When you have studies some of the books in the last Notes, you will be ready to start studying colony management. Books are available from your local library, the National Library and the Beekeepers' Technical Library. The following are recommended:—

"ABC & XYZ of Bee Culture".
"Beekeepink" by Echert and Shaw.
"The Hive and the Honey Bee", Edited by R. Grout.
"Practical Beekeeping" by Isaac Hopkins.
Langstroth on **"The Hive and the Honey Bee".**
"The Behaviour of Bees" by Wadey.
"Beekeeping in United States".

Bee Widows

With your equipment assembled, you will be ready to take delivery of your bees. That date should be recorded in your "Anniversaries" diary. Present your wife with a worthy bouquet of flowers — she is on the way to becoming a "Bee Widow".

BEEKEEPERS TECHNICAL LIBRARY

The Library thanks Mr Nick Wallingford for a copy of "The Golden Pollen," Natures Unique Force of Life (on Pollen for food and medicine). 64 Pages — 1972.

Books are available to Members of the National Beekeepers Association. List of books and rules sent on request to the Hon. Librarian, Chris Dawson, Box 423, Timaru.

LIBRARIAN RETURNS TO PAPUA NEW GUINEA

As an urgent request was received by our Librarian to return to the Highlands of Papua New Guinea for another term. He will be leaving on June 9 for a further three months of voluntary service.

It is anticipated that his fare will be paid through New Zealand's Foreign Aid Programme.

During his absence, Library matters will be managed by his wife, Mrs Florence Dawson. His address until the end of August will be C/o P.O. Box 179, Mt Hogen, W.H.D., Papua New Guinea.

LETTERS TO THE EDITOR

To The Editor.

The official Government Journal *Beekeeping in N.Z.* has been out of print for almost four if not five years. As president of the local Beekeepers Club over the years I have repeatedly appealed to the Department both in conversation and letters as to when a repeat edition would be available. In each case I have been advised it was in the Government Printers hands and that they were busy. I can well understand that, but almost five years delay seems overdoing the same reply. The last edition was actually printed by Blundell Bros. in Wellington under authority from the Dept. as is printed at the bottom of the back page.

Why the Dept. will not arrange to contract out is something I cannot understand when the Government Printer is so busy but when I have mentioned this in my several letters there has never been any comment. The last I heard from the Dept. in Wellington, they expected to have the reprint available this year — there is not much time left!

While writing I want to congratulate you on the vast improvement in the *New Zealand Beekeeper,* every issue seems to be better and today it is a really worthwhile publication with something for everyone. Let us give honour where honour is due!

PHILIP C. MUIR

Sherry River, RD2 Wakefield, Nelson.

Dear Sir,

I am seventeen years old and very keen on going into bees with a cadet scheme like printed in the February edition of the "N.Z. Beekeeper." I have six hives of my own, plus a small nucleus. My qualifications are four years of secondary education at Nelson College, gaining School Certificate in four subjects, plus Sixth Form Certificate.

J. W. LUKEY

Wellington

Dear Sir,

I am interested to discover some beekeepers are packing and selling honey in one and two litre plastic containers. These are readily available and of convenient size.

The views of your readers are sought since there could be some points of advantage in using a measure against a weight for packing. I have written for official sanction in this practise.

The container is filled to a Plimsoll line and finished more accurately.

JIM GUYTON

4 Cotcliffe Ave., Crosby Road,
Northallerton, Yorkshire, England.

Dear Sir,

I am seeking work for next season, October through March with a commercial honey producer in New Zealand.

I have had some commercial experience having spent holidays for several years working with a commercial beekeeper running 2000 hives. I also own some 70 colonies of my own.

As well as wishing to visit your country on a working basis I feel that I could learn a great deal to help me in the future, especially in migratory beekeeping.

GEOFF DINSDALE

Kruck Cottage, Old Rd.,
Skegby, Turton in Ashfield, Notts., England.

Dear Sir,

On the eve of my departure home to England after some five months in New Zealand I wonder if I might express my appreciation generally through the medium of "The New Zealand Beekeeper"? I have been received with the kindest and msot generous hospitality everywhere I went and I cannot leave without saying that the New Zealand beekeepers have made my visit truly memorable. I have become most happily involved with their successes and sympa thetic to their problems, and will carry back with me nothing but lasting and very deep affection for your country and the good people in it.

Don Appleton

Plimmerton

Dear Sir,

We have had the Prime Minister, Mr Walding, Mr Moyle, and the Leader of the Opposition Mr Muldoon as well as other MPs away recently trying to sell N.Z. produce to the E.E.C. and Middle East customers. No doubt they have all worked very hard to make sales.

But all their negotiations have been on meat, butter, cheese, apples and dairy products. Not once has N.Z. honey been mentioned.

As you know, there is some stagnation in the honey market of our traditional customers of Japan, Great Britain, Germany etc. If we had an active salesman who knows the industry he could sell our surplus and also get a better price for the whole exported crop.

I would like this matter to be raised at Conference, hopefully by my Branch, South Western Districts.

JIM GUYTON

THE COST OF OPERATING YOUR TRUCK

G. M. Walton Apicultural Advisory Officer, Palmerston North

Introduction

The Ministry of Transport's Economics Division has recently published its 1975 edition of **Truck Operating Costs.** This excellent bulletin has been designed to assist vehicle owners in identifying and reducing operating costs.

A truck is an essential item of equipment in a beekeeping business. A beekeeper's effectiveness hinges to a great extent on his truck — its capacity, condition and use to which it is put.

The cost of operating a truck is one of the larger expense items faced by a beekeeper. Some beekeepers have an accurate knowledge of the operating costs of their vehicle(s) but many do not. A truck owner should keep a detailed record of transport costs. This would assist him in determining whether the costs incurred are in relation to the advantages obtained.

The costs presented in this article are the estimated costs of operation for various types of motor vehicles in New Zealand, ranging from light-weight vans and pickups to heavy duty vehicles. They have been based primarily on Ministry of Transport cost estimates as at September 1, 1974, and presented in "Truck Operating Costs". Fuel, oil and tyres and tube costs have been adjusted to take into account recent price rises up to April 1, 1975. Farmers, including apiarists, are permitted certain reductions in heavy traffic licence fees, certificate of fitness, and mileage tax. These have been incorporated in the Tables.

Gross Vehicle Weight

The weight shown for the different truck types in Tables 1 to 3 is the gross weight for the vehicle including its payload. The heavy traffic licence fee and mileage tax rate (for a diesel) is based on a vehicle's gross weight.

Running Costs

These are costs that accrue with every turn of the vehicle's wheels. They include the costs for fuel, oil tyres and tubes, and repairs and maintenance (Table 1). Running costs are influenced not only by the make of vehicle, its age and gross weight, but are also influenced by the driver's skill, topography, climate, road and paddock surface, and road congestion. The running costs given in these Tables are no more than broad averages for the various classes of truck.

1. **Fuel.** Petrol has been assessed at 17.3 cents/litre (78.7 cents/gallon) for vans up to 3048 kilograms (3 tons) gross weight, and at 16.4 cents/litre (74.6 cents/gallon) for heavier vehicles. Diesel fuel has been taken as 10.25 cents/litre (46.6 cents/gallon). Some reductions in fuel costs are possible with bulk delivery.

2. **Mileage tax.** The purchase of petrol includes tax at the rate of 3.98 cents/litre (18.1 cents/gallon). By contrast diesel fuel is sold tax-free and owners of diesel vehicles are required to pay tax in quarterly instalments on the actual distance travelled on public roads. An arbitary reduction of 5% in the mileage tax has been made for diesel vehicles, to take into account a beekeeper's off-road running.

3. **Oil.** Oil consumption has been accepted as four pints per 1600 kilometres and priced at 43 cents/pint.

4. **Tyres and tubes.** Besides the many factors listed above that influence the running cost of a vehicle the wear on tyres and tubes is also related to the loading of the vehicle, the condition of the suspension, and the quality and correct inflation of the tyres. The cost/kilometre for tyres and tubes presented in Table 1 considers the average life of tyres and takes into account two price rises totalling 41.7% since September 1974.

5. **Repairs and maintenance.** This is incurred as a result of normal wear and tear on the vehicle, and not as a result of accidents. Obviously this is a highly

1 mile = 1.61 kilometres

TABLE 1 — Estimated running costs in cents per kilometre for various truck types.

Truck Type	Fuel	Oil	Tyres and Tubes	Repairs and Maintenance	Depreciation	Mileage Tax	Total
Petrol van up to 2 ton (up to 2032 kg)	2.5061	0.1075	0.8084	2.0151	1.2546	-	6.6917
Petrol van 2-3 tons (2032-3048 kg)	3.6199	0.1075	1.0346	2.4279	1.6075	-	8.7974
Petrol 3-5 ton (3048-5080 kg)	4.0283	0.1075	0.7836	3.0833	1.8408	-	9.8435
Petrol 5-7 ton (5080-7112 kg)	4.5195	0.1075	1.1969	3.5264	2.1621	-	11.5024
Petrol 7-9 ton (7112-9144 kg)	5.0082	0.1075	1.7732	4.9103	2.3221	-	14.1213
Petrol 9-11 ton (9144-11177 kg)	5.4501	0.1075	1.7816	5.7174	3.1371	-	16.1937
Petrol 11-13 ton (11177-13209kg)	5.9795	0.1075	1.9557	6.6036	3.5625	-	18.2068
Diesel 5-7 ton (5080-7112 kg)	1.8385	0.1075	1.1517	3.5264	1.7189	0.6627	9.0057
Diesel 7-9 ton (7112-9144 kg)	2.1059	0.1075	1.8279	4.9103	1.7789	0.7978	11.5283
Diesel 9-11 ton (9144-11177 kg)	2.2710	0.1075	1.6829	5.7174	2.3497	1.0072	13.1357
Diesel 11-13 ton (11177-13209kg)	2.4644	0.1075	1.9793	6.6036	2.8056	1.1379	15.0983

variable cost, and the figures given in Table 1 represent an average figure for the whole life of the vehicle. Preventative maintenance and proper garaging can significantly reduce costly repair bills.

6. **Depreciation.** The Ministry of Transport in its bulletin "Truck Operating Costs" has apportioned the depreciation of a vehicle between running costs and standing charges. Two thirds of the capital cost, less the cost of tyres and tubes, divided by the expected distance life of the vehicle (160,000 km for petrol vehicles and 240,000 km for diesel vehicles) has been the basis for calculating the depreciation cost per kilometre. This calculation takes into account the depreciation attributed to the use made of the vehicle. It thus provides a better assessment of truck operating costs than the 20% annual depreciation rate established for taxation purposes.

Standing Charges

These are fixed annual costs that occur independently of the distance travelled (Table 2).

The annual licence fee ($10.05), the accident compensation levy ($14.45) and the insurance indemnity surcharge ($0.95) are simply the costs payable annually by any vehicle owner who relicences his vehicle. Other standing charges include:

1. **Certificate of Fitness.** This is required for all beekeeper's trucks with a gross laden weight of 6605 kilograms (6½tons) or more. A farmers' truck of less than 6605 kg requires a current warrant of fitness ($3.00 per year).

2. **Heavy Traffic Licence.** Under the Transport Act 1962 farmers, including beekeepers, are favoured by a scale of heavy traffic licence fees approximately half that of other occupational groups. Heavy traffic licences are paid in quarterly instalments and are based on the gross weight of the vehicle. Beekeepers can alter their weight classification of the vehicles each quarter, according to their estimated load requirements. The figures in Table 2 assume that the gross weight loading has remained constant for the licencing year.

3. **Comprehensive Insurance.** This is a difficult item to asses for it varies from area to area, company to company, and from age group to age group. The comprehensive insurance charge, which includes earthquake and war damage insurance, has been based upon rates of a large insurance firm.

4. **Depreciation.** The depreciation charge has been apportioned between running costs and standing charges. The depreciation cost per year has been obtained by taking one third of the capital cost of the vehicle, less the cost of tyres and tubes, divided by the anticipated life of the vehicle in years (six years for petrol vehicles and nine years for diesel vehicles).

5. **Other Costs.** A number of other costs could be included under the heading of standing charges, but have been excluded for various reasons. The cost of garaging a truck, for instance, has been regarded as a charge to the honey-house account, for a truck bay is usually an integral part of the honey-house.

Interest on truck capital has not been included. A beekeeper's truck is regarded as an essential part of his business and money must be provided for

its purchase and maintenance. When assessing the beekeping enterprise as an overall business operation and as a form of investment, the interest on capital, including truck capital, should indeed be taken into account.

Wages have not been included. Truck driving is just one of a number of duties required of a beekeeper. It would not be practical to isolate the truck driving time and to calculate this as a wage. Beekeeping wages are determined primarily by the skill and experience of the worker in managing his bees, and not by any truck driving ability.

Some adjustments would be necessary to the standing charges to take into account supervisory, administrative and depot expenditure. This may be a significant cost factor in a larger beekeeping business which operates a fleet of trucks.

TABLE 2 — Annual standing charges in dollars for various truck types.

Truck Type	Annual Licence Fee	Accident compensation and insurance indemnity	Warrant of fitness or certificate of fitness	Heavy traffic licence	Comprehensive insurance	Depreciation	Total
Petrol van up to 2 ton (up to 2032 kg)	10.05	15.40	3.00	-	47.79	167.28	243.52
Petrol van 2-3 ton (2032-3048 kg)	10.05	15.40	3.00	10.64	55.35	214.33	308.77
Petrol 3-5 ton (3048-5080 kg)	10.05	15.40	3.00	25.00	61.47	245.44	360.36
Petrol 5-7 ton (5080-7112 kg)	10.05	15.40	3.00	47.32	67.59	288.28	431.64
Petrol 7-9 ton (7112-9144 kg)	10.05	15.40	6.00	98.64	71.10	309.61	510.80
Petrol 9-11 ton (9144-11177 kg)	10.05	15.40	6.00	169.32	87.48	418.28	706.53
Petrol 11-13 ton (11177-13209kg)	10.05	15.40	6.00	206.64	96.66	475.00	809.75
Diesel 5-7 ton (5080-7112 kg)	10.05	15.40	3.00	47.32	75.24	229.18	380.19
Diesel 7-9 ton (7112-9144 kg)	10.05	15.40	6.00	98.64	78.30	237.19	445.58
Diesel 9-11 ton (9144-11177 kg)	10.05	15.40	6.00	169.32	95.13	313.30	609.20
Diesel 11-13 ton (11177-13209 kg)	10.05	15.40	6.00	206.64	107.37	374.07	719.53

Operating Costs

The operating costs, the sum total of the running costs and standing charges, is presented in Table 3 for annual distances of 10,000, 15,000, 20,000 and 25,000 kilometres. As the annual 'mileage' increases the standing charge per kilometre decreases i.e. a truck's operating efficiency improves with increasing distances.

Based on current costs the diesel vehicle is slightly cheaper to operate than a petrol vehicle of equivalent weight.

It should be emphasised that the figures in the Tables can only be regarded as a guide. They serve as a starting point for truck operators to investigate their own costs to see if these can be reduced to a lower level. If anything, the costs shown would be a conservative estimate because recent increases in vehicle capital costs, the cost of fitting out a flat-deck and the associated depreciation and insurance charges have not been adjusted in this report.

Acknowledgement

Appreciation is expressed to the Ministry of Transport for their permission to reprint and adapt portions of the bulletin **Truck Operating Costs,** 1975 edition published by the Economics Division of the Ministry of Transport, Wellington, New Zealand, January, 1975.

TABLE 3 — Estimated truck operating costs (running costs plus standing charges) expressed as an annual cost (dollars) and as a cost per kilometre (cents).

Truck Type	10 000 km	15 000 km	20 000 km	25 000 km
Petrol van up to 2 ton (up to 2032 kg)	912.69 (9.1c/km)	1247.28 (8.3c/km)	1581.86 (7.9c/km)	1916.45 (7.7c/km)
Petrol van 2-3 ton (2032-3048 kg)	1188.51 (11.9c/km)	1628.38 (10.9c/km)	2068.25 (10.9c/km)	2508.12 (10.0c/km)
Petrol 3-5 ton (3048-5080 kg)	1344.71 (13.4c/km)	1836.87 (12.2c/km)	2329.06 (11.6c/km)	2821.22 (11.3c/km)
Petrol 5-7 ton (5080-7112 kg)	1581.88 (15.8c/km)	2157.00 (14.4c/km)	2732.12 (13.7c/km)	3307.24 (13.2c/km)
Petrol 7-9 ton (7112-9144 kg)	1922.93 (19.2c/km)	2629.00 (17.5c/km)	3335.06 (16.7c/km)	4041.13 (16.2c/km)
Petrol 9-11 ton (9144-11177 kg)	2325.90 (23.3c/km)	3135.58 (20.9c/km)	3945.27 (19.7c/km)	4754.95 (19.0c/km)
Petrol 11-13 ton (11177-13209 kg)	2630.43 (26.3c/km)	3540.77 (23.6c/km)	4451.11 (22.3c/km)	5361.45 (21.4c/km)
Diesel 5-7 ton (5080-7112 kg)	1280.76 (12.8c/km)	1731.05 (11.5c/km)	2181.33 (10.9c/km)	2631.62 (10.5c/km)
Diesel 7-9 ton (7112-9144 kg)	1598.41 (16.0c/km)	2174.83 (14.5c/km)	2751.24 (13.8c/km)	3327.66 (13.3c/km)
Diesel 9-11 ton (9144-11177 kg)	1922.77 (19.2c/km)	2579.56 (17.2c/km)	3236.34 (16.2c/km)	3893.13 (15.6c/km)
Diesel 11-13 ton (11177-13209 kg)	2229.36 (22.3c/km)	2984.28 (19.9c/km)	3739.19 (18.7c/km)	4494.11 (18.0c/km)

BEES IN NEW ZEALAND

Part VI: LEAFCUTTER BEES IN NEW ZEALAND

By D. J. Donovan, DSIR, Christchurch

In Part V of this series I detailed the rather exacting pollination requirements of lucerne, and related how these pollination requirements have been met by the alkali bee, **Nomia melanderi** Cockerell, in much of western North America.

Although the alkali bee is a very effective pollinator of lucerne, it has not been possible to establish effective populations in all areas where pollinators are required, and in much of the seed growing area, another species of bee is used. This is the lucerne leafcutter bee, **Megachile pacifica** Panzer (until recently called **Megachile rotundata**).

This bee apparently arrived accidentally in the eastern U.S.A. from eastern Europe or western Asia shortly before 1937. Since then it has spread to the western U.S.A. where its population has greatly increased. Adults of **M. pacifica** are smaller than honey bees — about one half to two thirds the length and are entirely black except for dull yellow or white body hairs, and narrow transverse white stripes on the abdomen. Although smaller than honey bees they are like alkali bees much more heavily built. Consequently they are not damaged in any way by blows from the reproductive columns of lucerne florets. Indeed, because lucerne and leafcutter bees originated in the same area of the Old World, and because the bees appear to be so well adapted to lucerne florets, it appears that this species may be the original prime pollinator of lucerne. Like alkali bees, leafcutter bees are solitary and gregarious. Each female makes her own nest, and generally prefers to build her nest as closely as possible to nests of other females. Leafcutter bees however, belong to the family Megachilidae, and nests of bees in this family are unlike any of those discussed to date.

Life Cycle

Both sexes of bee emerge from nests in late spring or early summer, and mating takes place generally within an hour or two. The life of males consists of a constant search for and attempts to mate with receptive females, which is only interrupted by brief periods of feeding. Males usually do not live longer than several weeks, but females may live 6 weeks or more.

After mating and feeding, newly emerged females search for holes about 10 cm long and 6 mm in diameter, usually in twigs or cracks in timber. After cleaning a selected hole of any debris such as loose pieces of rotting wood or insect or spider fragments, the bee carries oval pieces of leaf (Fig. 1) into the hole and fixes these together with saliva mixed with leaf juice to form cup-shaped cells about 6 mm in diameter and 8 mm long. Females select a leaf that is similar in surface texture, flexibility and thickness to that of lucerne or clover leaves. Leaf pieces are cut out with the mandibles and in flight are held with the mandibles and the middle pair of legs, while the fore and hind pair of legs remain free for landing and walking.

After completion of the cell cup, the female provisions it with pollen and nectar (Fig. 2). Pollen is carried in a scopa on the underside of the abdomen, not on the legs as in most other bees. An egg is then laid in each cell, and the cell is sealed with several circular pieces of leaf (Fig. 3). Female bees can construct one or two cells a day, and will repeat the process until the hole contains about 10 cells and is filled to within about 1.5 cm of its entrance. The remaining 1.5 cm is then plugged with a wad of circular leaf pieces. Female bees can make up to 35 cells in their life time, so usually several nest holes are required by one bee.

Eggs hatch in about 2 days, and all food is consumed within about 5 days. The fully fed larva then defaecates and spins a tough protective cocoon. If oviposition occurs from early to mid-summer, the larvae frequently will change directly to pupae and new bees will emerge later that same summer. If however, oviposition occurs after mid-summer, the larvae hibernate, and overwinter as cold-resistant prepupae (Fig. 4). Pupation then begins in early spring with the onset of warmer temperatures. The last adult bees die with the approach of autumn, so adult bees are not present from early autumn until late spring.

Utilisation of leafcutter bees in North America

In the late 1950s several observant growers noticed that the new bees which had suddenly appeared nesting in their barns etc., were tripping large numbers of lucerne florets. Enterprising growers reasoned that the bee population would increase further if more nest holes were available and some barren timbers and wooden posts were soon drilled with holes. Within several years, specially constructed shelters for nest holes in rolled corrugated cardboard, drilled boards and drinking straws were being placed in lucerne seed fields. Researchers calculated that each female could trip enough florets in her lifetime to produce more than 500 gms of seed, and a brisk trade in cells soon developed at a price of about one cent per cell.

Parasites and depredators (nest destroyers) of leafcutter bees began to increase rapidly in the early 1960's and management of leafcutters to maintain population levels became more specialised. Most of these parasites and depredators originated from other native species of leafcutter bees that nested in similar situations to **M. pacifica.** In Canada grooved nest boards which can be taken apart at the end of the season for nest removal have become widely used. (Hobbs, 1973). Many parasites and depredators attack the overwintering prepupal stage of the leafcutter bees in late summer and early spring when temperatures are relatively mild. By storing prepupae at about 5°C from as soon as they become prepupae to early spring when pupation begins, losses due to pests are minimised.

The sequence of events for leafcutter bee managment in Canada is as follows:—

Autumn, winter and early spring: Cells removed from grooved boards are stored at 5°C.

Late spring: Cells are incubated in trays at 30°C for 20 days. At the end of this period a small number of adult bees, mostly males, is present.

After 20 days: The trays are placed in shelters in the lucerne fields that contain hives of wooden boards, and over the next week to 10 days all bees emerge. Lucerne bloom is developing fast at this time.

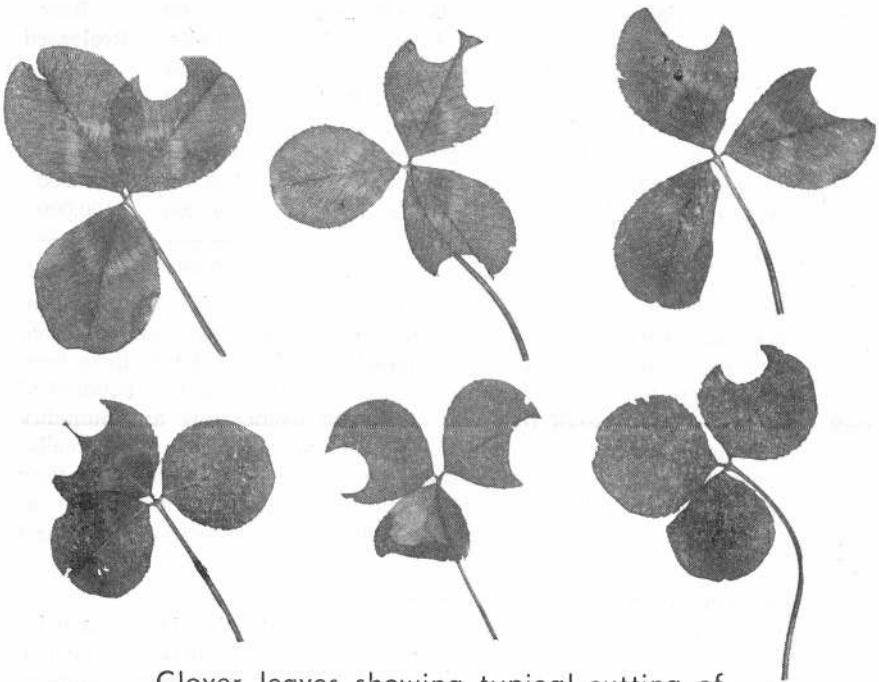
Through the lucerne bloom period of 6-8 weeks: Bee nesting activity is at its peak for most of this period but declines as old bees die off.

Early autumn: Hives are removed from the field and stripped of cells which are then stored for winter.

Where leafcutters are used at the rate of about 50,000 cells/ha in Canada, and the lucerne plants are in good condition, seed yields have greatly increased. Leafcutter bees cannot be utilised in all areas however. Hobbs (1973) states that for successful leafcutter propagation in Canada, there must be at least 350 daylight hours above 20°C. In addition, leafcutters are adversely affected by strong winds. The leaf piece carried beneath the bee catches wind much as does a sail, and even light winds increase the difficulty bees experience in orienting to their nest holes.

Introduction of Leafcutter Bees to New Zealand

The introduction of leafcutter bees to New Zealand was advocated by Palmer (1966) because they were reported to fly at lower temperatures than alkali bees, and therefore would probably be more successful in New Zealand.



Clover leaves showing typical cutting of lucerne leafcutter bees

As with alkali bees, the developmental cycle of leafcutter bees had to be synchronised with the southern hemispheric seasonal cycle, but because cells can be held for more than 12 months at 5°C with little mortality, this was no problem. However, there was concern over the large number of parasites and depredators that are often present in leafcutter bee nests. Many of these insects can breed inside the cocoons surrounding the bee prepupae, and externally there may be little or no sign that the bee cell contains one or more parasites or depredators rather than a bee prepupae. It was vital to the future of leafcutter bee culture in N.Z. that all other insects be eliminated from imported cells.

The first cells arrived at DSIR Lincoln on 4th January, 1971. From the 1683 cells received, 392 males and 279 females were released on the property of Mr S. Orchard, Seddon. All cells were incubated at 24-27°C to stimulate development of prepupae to adult bees. In addition to the bees that emerged from the cells, 5 other species of insects emerged and were eliminated. Bees nested successfully in the field and lucerne florets were tripped. It seemed that bee behaviour was in all respects similar to that in North Amrica, and it appeared that if sufficient numbers of bees per hectare could be provided, seed yields could be expected to rise substantially.

Importations of leafcutter bee cells, source, and number of bees released to date are as follows:

Import	Origin	Date Received	Total Cells	Bees Realeased
1	G. E. Bohart, Logan, Utah	4 Jan. 1971	1,683	671
2	E. G. Schultz, Parma, Idaho	14 May 1971	50,183	2,280
3	,, ,,	30 Nov. 1971	82,719	60,893
4	G. A. Hobbs, Lethbridge, Alberta	25 Oct. 1973	104,000	80,000
5	S. & A. Seeds Ltd. Brooks,	25 Nov. 1973	300,000	240,000
6	G. A. Hobbs, Lethbridge,	16 Dec. 1974	120,000	100,000
			658,585	483,844

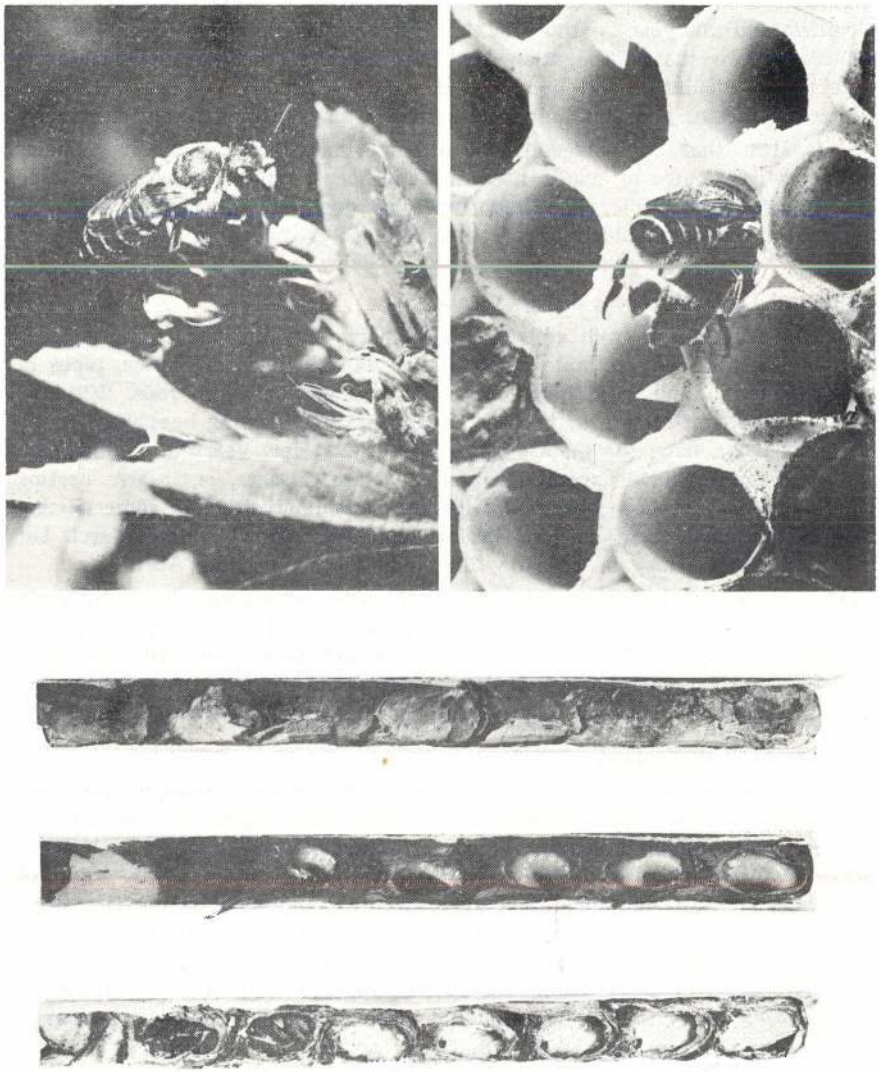
Few bees were obtained from Import 2 because on arrival most cells contained pupae and these did not survive the winter cold storage period. From the imported bee cells, more than 25,000 parasites and depredators have been removed. Bees were hatched from the cells in the insect quarantine building at DSIR, Lincoln. In insect-proof rooms in which the temperature and humidity can be controlled, undesirable insects can be eliminated. This enables populations of beneficial insects to be established free of the pests with which they are afflicted in other countries, and this in turn gives the beneficial insect an extra good chance of establishing and building up to effective population levels.

Propagation of leafcutter bees in New Zealand

In Alberta, Canada, leafcutter bee populations are expected to increase by up to 4 times in a good season. In their poorest season to date the number of cells recovered at the end of summer was about the same as the number placed out at the beginning of summer. (Hobbs, pers. comm. 1974).

Summers in the praries of Canada are short but clear skies and warm stable conditions usually prevail, and these are conditions which are eminently suitable for leafcutter bee propagation. Because leafcutter bees originated in desert areas, they are adapted to these conditions.

As New Zealanders know, weather conditions here can and do vary greatly,



(Top left). Female Leafcutter Bee on lucerne florets.
(Top right). Female Leafcutter Bee entering nest hole carrying leaf piece.
(Below): Opened nests to show: (Top) completed cells, (Middle) prepupae in cocoons, (bottom) pupae in cocoons.

not only from day-to-day but within a day. Rainfall is more or less evenly distributed throughout the year so there is no dry season in summer as is found in many other countries. How then would leafcutter propagate under New Zealand's variable weather conditions? For these bees to become economically effective, it was essential that population increase should be quite rapid.

To date bees have been released at selected sites at Alexandra, Canterbury, Blenheim and this year for the first time at Taupo in the North Island. Present indications are that propogation has been excellent in the upper Wairau valley near Blenheim, and good at Alexandra, Seddon and Taupo. Coastal Canterbury seems poor but inland Canterbury may be moderately suitable.

It is clear that hive placement is all-important. Because nesting females are so badly affected by winds, hives must be located in positions as sheltered from winds as possible. The importance of good shelter cannot be overemphasised. Hives should be oriented to NNE so the morning sun shines into the nest holes to stimulate bees to activity early in the day. (Fig. 5).

Biology of Leafcutter Bees in New Zealand

When bees emerge from cells in trays, many may migrate from the area to found nests in any suitable cavities such as nail holes in barnes, pipes of small diameter hanging in barns, and cracks under bark on trees. Within 3 weeks of the first release of bees at Seddon in 1971, nesting bees were found as far as 600m from the release point. In the last few years at Seddon, the first bees (males) have appeared as early as late October, but active nesting by females has not been observed until late November although some nesting undoubtedly must occur earlier. Nesting females are few by late March but an occasional bee may be seen on fine sunny days until late April.

Nests sealed by late Decemebr almost all show emergence holes by early February, in other words almost all the progeny of bees that nest through December emerge that same year as a second generation, and complete their own nests in February and March. Nests sealed from early January on show a decreasing tendency to produce bees that same summer.

Parasites in New Zealand

Several species of mason wasps (sometimes erroneously called mason bees) are native to New Zealand. Most people will have found at one time or another, mud nests in folds in raincoats or keyholes of doors. Mason wasp larvae are often parasitised by a very small wasp, **Melittobia sp.**, the adults of which are about 1 mm long. Shortly after the completion of the first leafcutter bee nests at Sneddon in 1971, several prepupae were found to be parasitised by this small wasp. Since then, this parasite has occurred on leafcutter prepupae in other areas, but cold storage of cells at 5°C throughout the winter appears to kill wasp adults, eggs, pupae and most lavae except some larvae that are fully fed, and it may be that cold storage at a lower temperature will kill these larvae also. The insect is not a problem at present, but it does have a very high potential for rapid population increase when conditions are favourable. Faulty winter storage of cells at a temperature

The presence of leafcutter bees in a lucerne field does not of course

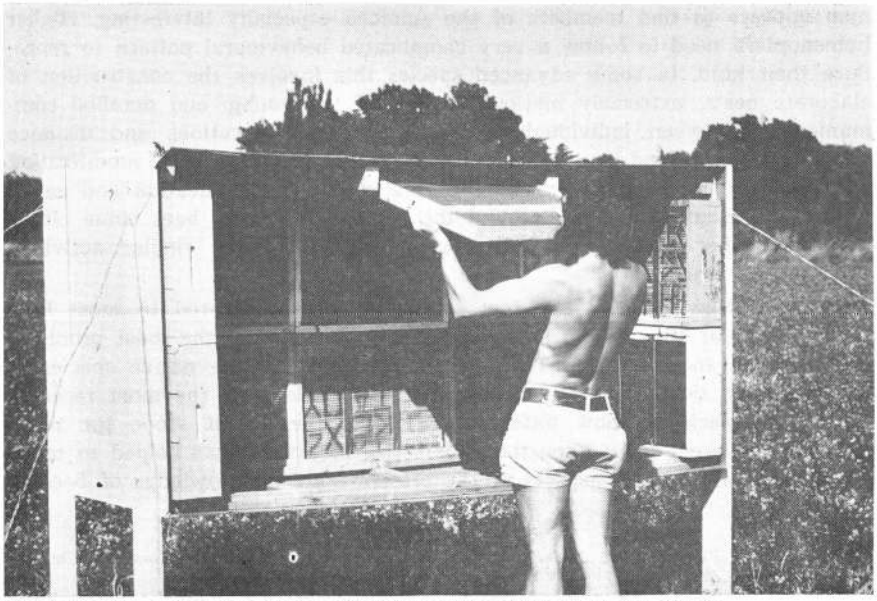
which allowed parasite reproduction could lead to destruction of great numbers of prepupae by winters end.

Several hundred leafcutter bee cells were illegally imported and bees released without quarantine procedures in early 1971. In nests seized after discovery, 5 cells contained imported parasites. There is no evidence that these parasites have established in N.Z., but if nests had not been seized and the parasites destroyed, the parasites would have had every chance of establishing.

Present status of leafcutter bee research in New Zealand

At the beginning of the 1974-75 summer (December 1974) 253,000 loose cells were available for release, and about another 25,000 cells were in nest holes in solid boards. A further 130,000 cells were imported from Dr Hobbs, Alberta. The main aim of Entomology Division at present is to multiply bees as rapidly as possible, and at the same time to gain an indication of the effect that leafcutter bees will have on seed production. In previous years we have attempted to locate good areas for bees by placing out measured small numbers of cells in selected localities and measuring the numbers of cells at summers end. This process is continuing, but is beset with difficulties because of climatic variation from one year to another. It now seems clear however that with adequate shelter and careful placement of hives, leafcutters will be economically utilisable in most of the areas in which lucerne seed is currently harvested.

It is as yet too early to estimate the number of cells which will result from this summer's activities. When and how cells become available to seed growers has not yet been decided, and will depend greatly on the multiplication rate of the bees.



Tray of cells being placed in a shelter holding leafcutter bee hives.

automatically guarantee a good seed yield. First of all there must be adequate numbers of bees — probably about 50,000 cells/ha will have to be provided the weather must be suitable for bee flight throughout the lucerne bloom period, and the lucerne itself must be in good condition. Lucerne plants must be widely spaced, as weed-free as possible, and must have adequate fertiliser and soil moisture.

The capital cost of bees and equipment per hectare will probably be about $1000.00 (most of this cost is for grooved nest boards). If seed yields rise as much as expected and if seed prices stay reasonably good, then this cost should be recovered in a year or two.

In North America leafcutter bees are owned by two different groups of people:—

(a) Lucerne seed growers that wish to own and control their own populations of bees, and

(b) Contractors who provide pollinators when and where required.

I anticipate that leafcutters will be handled in a similar manner in N.Z. Beekeepers who now hire out honey bees for pollination of fruit, nut and seed crops may find leafcutter bees attractive as another source of interest and income. Beekeepers have an eye for hive placement and suitable plant forage for bees, and all have storage areas and large coolers which could be utilised for handling leafcutter bees. Beekeepers are thus pre-adapted for successful management of leafcutter bees.

Conclusion

Because bee activity is so complex compared to that of most other insects, man appears to find members of the Apoidea especially interesting. Higher hymenoptera need to follow a very complicated behavioural pattern to reproduce their kind. In some advanced species this involves the construction of elaborate nests, extremely meticulous care of the young, and detailed communication between individuals about suitable hive locations and distance and direction of food sources. In these activities which involve modification of the immediate environment, care of the young, communication and enterprising exploitation of areas around the population centre, bees come closer than any other insects and indeed most animals to the similar activities exhibited by man.

Although New Zealand has few species of bees compared to most land areas of similar size, we do have represented members of the most primitive and most advanced groups. The biology of almost all the native species is not known in detail, and the biology in New Zealand of the most recently introduced species is now unfolding. There is then great scope for those interested in bees, and I hope that this series of articles has helped to bring to one's attention some aspects of the present state of knowledge of bees in New Zealand.

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Pollination Trial on Blackcurrants

By G. J. Wood, Horticultural Advisory Officer, Dunedin

OVER THE PAST few seasons black currant growers on the Taieri have been getting reduced yields from suspected poor pollination and a fungous infection **Botrytis cinerea** at flowering.

This past season a pilot trial was set up to find the cause and possible remedy for this reduced yield.

The original trial was planned to place four framed nucs in a number of cages and exclude bees from bushes with other cages. However, difficulty was encountered in obtaining cages and in the end only one cage, which was made locally, was available.

The constructed cage was 12' x 6' x 5', was covered with 30% sarlon shade cloth, and covered two mature black currant bushes.

Seven beehives were placed within a few yards of the trial area and bee counts were carried out over the flowering period.

Bee counts on 40m of the trial bushes next to the beehives were as follows:—

		Bees	Bumble Bees	Flies
15.10.74	14°C	28	5	5
17.10.74	11°C	32	8	4
25.10.74	12°C	21	2	11

Full bloom was estimated to be 15.10.74 and flowering tapered off around 25.10.74.

The cage was placed over the bushes on 2.10.74 and botrytis sprays were kept up over the flowering period. Five botrytis sprays were applied between 11.10.74 and 10.12.74. Three bushes randomly chosen were used for each treatment except for the caged bushes where two were used.

The results were as follows:— (The variety was Seabrooks and harvested 2. 1.75)

	Yield (lbs/bush	Kgs/bush
Botrytis Sprays	(10.8)	4.90
Cage bushes (Bee excluded, Sprays given)	(1.5)	0.68
Control	(9.8)	4.45

As can be seen pollination appears to have had a considerable effect on the yield.

Continued from Page 13

ing fields, tennis and basketball courts. Two completely equipped children's playing areas which include paddling pools, picnic area with gas rings Sound Shelland permanent stadium seating capable of seating 5,000. Timaru's largest public hall. Tea Rooms, Aviary, Roller Skating Rink, War Memorial Walk, Bathing Sheds and Diving Raft make this beach the annual holiday choice of thousands of New Zealand families. Each year the Caroline Bay Christmas and New Year Carnival attracts thousands of visitors to the city.

If You Don't Have Enough Worries, Try Fretting About Bees

EDITOR'S NOTE: This excellent article on bees and how they are being threatened was originally printed in the Wall Street Journal, Nov. 7, 1974. It has appeared in "The American Bee" Journal" and "Canadian Beekeeping".

Remember the old saying about how a horse and rider were lost because somebody neglected to tend to a small matter like a missing horseshoe nail?

Some scientists and agriculturists are worried that the same sort of ballooning consequences may stem from what many people probably consider to be a minor irrelevancy: The nation's honey bees slowly but steadily are being exterminated.

Not on purpose, of course. But as the honey bees forage for pollen and nectar they increasingly are gathering poison also—pesticides that farmers apply to protect their crops from destructive insects.

So there are 20 percent fewer honey bee colonies in the U.S. today than there were 10 years ago—about four million versus five million. (A colony contains between 25,000 and 60,000 bees.) In California, the leading bee state, as much as 20 percent of the state's honey bees have been killed in some recent years—a mortality rate double that of the early 1960s.

"All the indications are that it's going to get a lot worse," says Ward Stanger, an apiculturist at the University of California at Davis. "It's a serious situation," Mr Stanger says—so serious that he is seeking to have the honey bee declared an endangered species.

Bee Benefits

It is even more serious in another respect: Nearly 100 crops with a farm value of $1 billion annually depend on honey bees for pollination; another $3 million worth benefit from bee pollination in terms of higher and better-quality yields. Among those crops are apples, cherries, plums, broccoli, cucumbers, cabbage, melons — indeed, virtually all fruits and berries, as well as many vegetables and even some livestock-forage crops such as alfalfa.

Thus, at a time when boosting food production is becoming a global priority, the fate of honey bees takes on some of the significance of the proverbial horseshoe nail.

Floyd Moeller, research leader at the North Central States Bee Laboratory at the University of Winsconsin, says that the economic value of honey bees as pollinators is twenty times their value as honey makers. Far from being an esoteric ecological concern, the dwindling number of honey bees bodes ill for the nation's food supply. "You just can't pollinate as efficiently with fewer bees," Mr Moeller says.

(Bees pollinate inadvertently by dropping bits of pollen, which they gather for food, as they fly from plant to plant. This cross-pollination, which is also performed by other insects, the wind and humming birds, produces crops genetically superior to those produced by self-pollination. Nectar, the bees' other main food is the one they make honey from.)

Some crops already are threatened by a lack of bees. Most notable is the California almond. Each of the state's 200,000 acres requires two colonies of bees for pollination, but there are now only 300,000 colonies in the entire state. Last year, almond growers had to import mroe than 100,000 colonies of bees, some of them hauled up to 2000 miles each way from as far away as Montant in big tandem-trailer trucks to pollinate their fields. "This obviously isn't a very practical way to do things," says the University of California's Mr Stanger. "I just don't

know how long we can keep it up."

The Cranberry Connection

Researchers almost routinely are uncovering more evidence attesting to the honey bees contribution. For example Mr Moeller and his colleagues at the University of Wisconsin discovered a few years ago that cranberry production could be tripled with efficient bee pollination — whereupon Wisconsin cranberry growers rushed out and rented 2000 bee colonies and increased the cash value of their crop by $4 million. (Rental fees since have doubled to $30 per colony).

An even more dramatic and significant breakthrough may lie in the potential effect of bee pollination of soybeans, the United States second most important feed crop and a critical source of protein. Some observers expect a new hybrid soybean that would double present yields to be in common use in several years. Unlike present varieties, however, the new hybrid will require honey bees for pollination. With all-out production, about two million colonies of bees — half the country's present total — would be required for just this one crop.

In a way, it's surprising that honey bees are declining in numbers because they in effect have been a protected species for years. Their protectors have been the dedicated practitioners of the area of beekeeping, a form of animal husbandry whose beginnings are lost in antiquity.

But the economics of beekeeping have taken a turn for the worse in the last 10 years or so, largely because of the sharply increased possibility that a beekeeper's bees could be wiped out by pesticides. Changed farming practices (such as using chemicals for fertilizers instead of plowed-under legumes) which while in blossom are excellent sources of nectar and the continuing spread of suburbia into what used to be open fields also have contributed. "The bee just doesn't have enough flowers she can visit," says John Root, whose family has been in the beekeeping supplies business in Medina, Ohio, since 1869. Another factor, until the last couple of years, has been a depressed honey market.

"There's just been no incentive for a guy to stay in the business," says Robert Banker, secretary-treasurer of the American Beekeeping Federation in Cannon Falls, Minn. The result, he says, has been "a steady decline" of full-time beekeepers to about 3,000 and of all beekeepers, including those with one or two colonies to about 150,000. A rise in honey prices in the last two years appears to be attracting more people into beekeeping, though so far apparently not in substantial enough numbers to reverse the decline of either bees or beekeepers.

Researchers have suggested various protective measures to beekeepers, such as keeping bees in hives and feeding them pollen supplements when nearby sprayed crops are flowering, installing pollen traps that knock the poison-tainted pollen off the bee when she returns to the hive and even draping colonies with wet burlap when pesticides are being applied.

But there isn't a simple solution to the poisoning problem. "It's a complicated situation," Mr Banker says. "We want to protect our bees but we fully recognise that a grower has a right to protect his crops" from legitimate threats. "Something's got to be done, but we're not sure what," says a spokesman for the National Wildlife Federation in Washington, D.C. He recalls that "last summer bees were dropping off like flies" in Virginia.

All this doesn't mean that the honey bee faces extinction, however. They no doubt will be around as long as there are people who are intrigued by them. "I have several observation hives mounted in windows," says Mr Root, the Ohio supplier of beekeeping equipment. "I can sit and watch them for hours."

Bee-ing Communicative

Some people spend lifetimes watching bees. Foremost among them is Karl von Frisch, a professor at the University of Munich who has devoted virtually all of his working years to studying bees and other insects. Last year Mr von Frisch received a Nobel Prize for his work; it was the first time the prize was given to an animal behaviourist.

Branch Notes

NORTH OTAGO

With the extracting over for the year most beekeepers are satisfied with their crop. In some areas hives produced well with two crops taken and still left with adequate winter stores. In other areas hives were light for stores. If honey wasn't put down there could be costly sugar feeding in October.

With all this honey, marketing should loom up as a high priority at the Conference.

Dick Robins a retired Beekeeper from Taitapu now living in Oamaru has started commercial beekeeping again, only in a smaller way, just to keep his hand in. Dick is also an active member in the North Otago N.B.A. Branch.

The Beekeeping fraternity of New Zealand will be losing a senior technician through retirement in the future. Ivor Forster is now piecing together his final field trials and will retire in the spring. — R. N. McCallum.

SOUTH WESTERN DISTRICTS

The branch held its first meeting for some time on April 5th at Wanganui. Opinions were divided over the reasons for the long gap. Some thought we had all been too busy extracting bumper crops, while others (unkindly perhaps) said that we had enough talk to last at least a year at the Palmerston North Conference last July! Seriously however, the season has been kind and the crops well above average in most parts of the district.

During the morning Mr D. Ward of Dannevirke and Tonga, entertained us with the saga of the establishment of the Tonga part of his business. His delivery was humerous and enlightening and we look forward to further episodes as they 'mite' appear.

The afternoon was devoted to a situation report by Bruce Forsyth of the H.M.A. on Honey Marketing and related issues. We always enjoy Bruce's visits as he officiated at the birth of our branch — not that that prevents us from having a go at him

occasionally! The branch was pleased to hear that the new regulations were now gazetted and that there was some hope of a more stable financial basis for the industry. Bruce faced some curly questions on H.M.A. marketing policy within N.Z., particularly after mentioning their packing costs of 16 cents per lb but the meeting was relieved to receive his assurance that no price cutting tactics were being employed by the Authority.

Altogether a most enjoyable meeting on a must pleasant day. — Edward Roberts.

HAWKES BAY

Now the extracting season is almost over in Hawkes Bay it appears the honey crop, while patchy, will probably average out a little below the average of the past 10 years. — Ian Berry.

HONEY PRICES

HONEY PRICES

The current Honey Marketing Wholesale Prices are as follows (per doz. pots unless noted):

Imperial Bee: ½s $2.66, 1s $4.98. 1s Jars $5.43, 2s $9.85, 5s Tins $24.65.

Honeygold: ½s £2.60, 1s $4.88, 2s $9.65, 5s Tins $24.15.

Selected Sources: ½s Plastic Pots $2.92, 1s Glass Jars $5.48, 3 x ½s Gift Pack $10.27, 5s £24.90.

Hollands and Cloakes: ½s $2.66, 1s $4.98, 2s $9.85, 5s $24.65.

Meadowcroft and Three Bees: 1s $4.98, 2s $9.85, 1s Jars $5.48, 5s Tins $24.65, 10s Tins $48.00.

LOCAL CONSUMERS

Most producers are charging 40-45c per lb for door sales according to grade and pack.

A report of a Dunedin shop selling retail at 37c per lb has not been confirmed. It is to be hoped that this report is in error because this price could be classed as "senseless price cutting" which does nobody any good.

AUSTRALIA

The current Wholesale Prices ex store, Brisbane are as follows:

Bulk (clear honey) $21.05 per tin (27.2kg) 907 gram jar (clear honey) $9.66 per doz; 454 gram (1lb) Jar $5.39 per doz.

Packers' Prices to Beekeepers (c/kg)

Extra white amber (pf-17) 46-45, white amber (pf18-34) 45, extra light amber (pf35-50) 45-43, light amber (pf51-65) 43-42, pale amber (pf66-75) 42-41 medium amber (pf76-90) 41-37, dark amber (pf91-114) 37-26.

Minimum export prices, $A per tonne of 2200lbs F.O.B. for all markets are:

Light amber $550, pale amber $540, medium amber $530, dark amber $520.

UNITED STATES

As always, there is a considerable variation in prices on this market according to area, grade and other factors.

Present wholesale prices are: White (liquid) 45c-59c US per lb; Amber 41c-54c US per lb.

Retail (liquid) 93c-$1.11 per lb; Creamed 95-99c per lb.

(Converted at the current US exchange of $1 N.Z. = $1.37 US; 45c US = 33c N.Z. and $1 US = 73c N.Z.)

The domestic market is reported as being very good in US but beekeepers are complaining about the influx of cheap honey from abroad, chiefly Mexico and Central America. One report told of dealers buying honey for about 35 to 40 cents US per pound in five gallon tins and selling it to consumers for about 60 to 70 cents US per pound a few days later.

Another significant factor is the trend for beekeepers in US to leave more honey for winter feed . . . at times it has been cheaper than sugar.

The best coverage of the World Honey Market appears regularly in the American Bee Journal.

BEE PRICES

A report in **Gleanings in Bee Culture** says that two storey bee hives with bees are selling for $50.00 US which is equivalent to $36.50 N.Z.

Queen bees are advertised in the same journal (Jan. 1975) from $4.50 to $6.25 according to quantity. ($3.15 to $4.57 N.Z.) for delivery in US.

Classified Advertisements

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HONEY EXTRACTOR

2 Frame Bench Model

Power Drive, Excellent Condition, $60

Phone 81-022, **PALMERSTON NORTH**

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Thanks for orders received. 1975 production nearly sold out. Now booking orders for 1976.

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Extensively modified in fingers. Complete with chain feed out and stanless trough.

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GIANT ENGLISH — Best Oil, ideal pollen and Honey Producer. 8oz $1 Posted.

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EMPLOYMENT WANTED

A steady single man with beekeeping experience, seeks employment in coming season. Reply to:

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WANTED TO BUY

A copy of "Bees in Their Bonnets" and would consider other such old books, publications and magazines.

Please send list and price to:

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P.O. Box 225, Te Puke, Bay of Plenty

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Protect drones, workers and queens against Nosema with Fumidil B®

Recent reports suggest Nosema, a protozon parasite that reduces the vitality and the effectiveness and can also shorten the life of adult honey bees, is now on the increase in New Zealand.

Abbott's water-soluble fumagillin antibiotic Fumidil B prevents and controls Nosema.

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