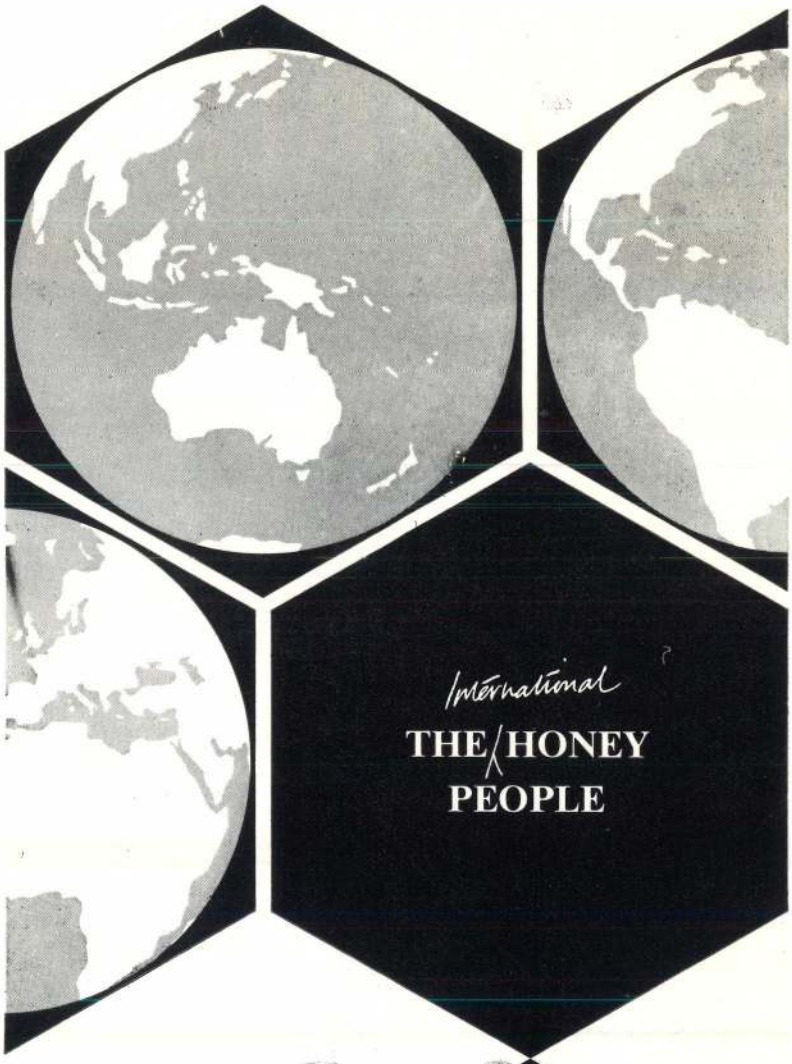
THE NEW ZEALAND BEEKEEPER

February 1975



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

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THE N.Z. BEEKEEPER

The subscription rate for all members is $2 per year, non-members $4, per year, overseas $5 (N.Z.) per year.

Literary contributions and advertisements must be in the hands of the Editor, Mr N. S. Stanton, P.O. Box 4106, Auckland, not later than the 25th of the month preceding publication.

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

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

PROTOTYPE

Because the high cost of modern beekeeping equipment would be beyond most villagers in Papua-New Guinea, some thought was given to low cost methods of keeping bees and making equipment from bamboo and grass.

With the assistance of Mr Vincent Cook, the apicultural advisory officer for the Department of Agriculture for South Canterbury and North Otago, experiments in methods used by ancient Greeks were started and these were quite successful in a prototype hive made of plywood.

It was decided to make a simple basketweave hive as used by a beekeeper in Zululand (Africa) after the Greek pattern.

The South Canterbury Opportunity Workshop entered with enthusiasm into the making of this type of hive.

The finished hive as used by the Greeks is lined with cow dung but cheap plastic film is quite effective — a happy blending of ancient and modern.

Our cover picture shows Mr Chris Dawson inspecting a modern version of this traditional Greek beehive.

See page 25 for our reinstated "Notes for Beginners" section, by Chris Danson.

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Editor: Norman S. Stanton

February, 1975

CONTENTS

Record Season?

Reports reaching my office point to some very good crops being harvested in areas where Beekeepers have almost despaired of seeing a reasonable return for their labours and investment.

Perhaps this is the time to give serious thought to the future use of the very large HMA reserves not only to stabilise prices realised overseas, but also to subsidise the unfortunate Beekeeper who is hard hit by natural disasters such as drought or floods.

And would it be too much to consider compensation for spray and disease damage where this is clearly not the fault of the Beekeeper, the argument that: "This will put a premium on slovenly housekeeping" can be matched by the concept that: "This will bring these matters right into the open where, hopefully, publicity will help with the eradication or at least minimising the problems."

The lead in these matters, as in all others, should come from Branch Remits to Conference — the Editor

NATIONAL BEEKEEPERS' ASSOCIATION OF NEW ZEALAND (INC.)

Minutes of a meeting of the executive committee of the National Beekeepers' Association (Inc.) held in the Associations' offices, Williams Building, Wellington on Monday and Tuesday the 2nd and 3rd December, 1974.

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

ALSO PRESENT: Messrs G. A. Beard, General Secretary, and Norman S Stanton, Editor "Beekeeper."

MATTERS ARISING FROM MINUTES

(1) President's Honorarium for Year 1st May 1974 — 30th April 1975

It was moved

"That the 1974 Conference recommendation that the President's honorarium for the 1974/75 financial year be at the rate of $500, be endorsed."

(2) Re Possible Administrative Link with Federated Farmers

Mr Stuckey reported that he had had discussions with the Auckland Provincial staff and it was apparent that such an arrangement was not practical. The beekeeping producers were not sufficiently numerous to warrant setting up a separate commodity section. Mr Stuckley suggested that the Executive Committee take no further action in the fatter and this course was adopted.

(3) Agricultural Chemicals Board

etted and that he had attended the metieng of the Board held the erpvoius

The General Secretary reported that Mr Fraser's appointment had been gazetted and that he had attended the meeting of the Board held the previous week.

The Executive Committee noted that Mr Fraser's present appointment was for the balance of a term due to expire on March 31st, 1975.

Resolved "That it be recommended to the Minister of Agriculture that Mr J. Fraser be reappointed as the Association's representative when his term expires on March 31st, 1975."

(4) Cadet Training Scheme

The Executive Committee discussed the scheme as it applied to beekeeping and noted that the principal problem was in interesting beekeepers to accept cadets. Normally cadets would spend a year with each beekeeper. It was also recorded that it was not necessary for the same beekeepers to have first year cadets each time — steps would be taken administratively to ensure that second and third year cadets were available.

IN ATTENDANCE — Mr H. E. P. Downes, Chairman of the Education and Rural Services Committee of Federated Farmers.

The President in extending a welcome to Mr Downes said the Association was keen to promote interest in th cadet scheme but pointed out that with only about 44 beekeepers with more than 1000 hives the opportunities were somewhat limited.

Mr Downes in expressing appreciation of the invitation to be present pointed out that some quite small groups were successfully involved with trade training — much of the labour in the future would be drawn from the cities and it was essential to provide these people with proper training. It was desirable that beekeepers be talked into taking at least some cadets.

The question of making greater use of short courses and an enlarged seminar was also discussed. The terms and conditions under which cadets were employed was also raised and it was agreed that Beekeepers should be encouraged to offer to their Provincial Federated Farmer Cadet Schemes positions for cadets.

It was duly resolved

(1) "To record to Mr Downes the Executive Committee's appreciation of his attendance."

(2) "To continue to liaise with the Education and Rural Services Committee of Federated Farmers."

(5) Restricted Beekeeping area — Coromandel

The President surveyed the action taken since the previous meeting to have the whole situation reviewed on the basis that extracted honey should be excluded and a proper testing and monitoring procedure applied.

The Executive Committee also discussed at some length the operations of the Advisory Committee and the lack of reports from the Association's three representatives.

It was duly resolved.

"That the letter sent to the Minister of Agriculture requesting a review of the restriction as it applied to comb honey be confirmed"

Mr P. Berry also tabled and made available copies of correspondence he had had with the Ministry on the Coromandel restriction.

It was noted that an arrangement had been made for a deputation to wait upon the Mr Barclay at 3.30 p.m.

Resolved

"That the deputation comprise the President, Vice President and the General Secretary."

On returning the President reported fully on the discussion held with Mr Barclay and advised that the deputation was concerned to learn that no Health Department Officer was present or available to the Advisory Committee nor was there any record of the Advisory Committee meetings readily available. Mr Barclay had undertaken to give careful study to the Executive's recommendations.

The next day Mr Fraser, Head Office Health Department attended the meeting and fully explained the whole problem of tutu toxins in comb and extracted honey. Mr Fraser also detailed the discussions his Department had had with D.S.I.R. and the difficulties associated with the testing procedures available. It was emphasised that very small quantities of toxin could have quite serious effects on people eating honey containing such toxin.

It was agreed by Mr Fraser that more research study and information would be helpful in deciding upon a policy approach to the whole question.

Following this discussion it was resolved

(1) "That the draft letter to Mr Barclay again requesting review and reappraisal of the need to include extracted honey in the prohibition be endorsed on the basis that such honey be held and submitted for analysis prior to sale."

(2) "That the Minister of Agriculture be advised that the Association's representatives on the Restricted Zone Advisory Committee be the President, Vice President and Mr B. Forsyth."

It was then further decided that the Secretary obtain copies of circulars sent out by the Ministry to producers in the restricted area.

(6) Draft hive levy Regulations

The letter from Honey Marketing Authority indicating a reservation about the order of priorities for payments from the Hive Levy Account was taken in association with the principal question.

The Executive Committee gave consideration to Clauses 29B and 29A 3 (d). At this stage Messrs E. W. Lee and D. Hayman, Ministry of Agriculture attended the meeting for the purpose of discussing the draft regulations.

In welcoming Messrs Lee and Hayman the President noted that due to pressure of duties Mr Lee was retiring from the Authority in favour of Mr Hayman and asked Mr Lee to accept the Association's good wishes for the assistance he had given during his term.

The meeting then proceeded to discuss the Draft Regulations; the following points were agreed

(1) **Re Comb Honey** — Provision would be made whereby comb honey producers would be able to apply for Hive Levy exemption.

(2) **Re Priorities Claims on the Levy Account** — The point that the Association shoud receive its budgeted requirements whether or not the fund was in temporary deficit was accepted: The Executive Committee agreed that should there be insufficient funds in the account to meet such a payment then the Authority could make an advance on normal bank lending terms pending recovery from increased hive levy revenue.
The urgency in settling the draft was noted and it was left to Messrs Hayman and Beard to confer and agree upon the machinery of the alterations agreed upon and for copies of the revised draft to be sent to members of the Authority by the Ministry.

It was resolved
"That the Authority be asked to consider as a matter of urgency the revised draft so that it can be agreed and referred to the Minister before the end of December."

CORRESPONDENCE

Ministry of Agriculture — advising that Mr D. Hayman had been appointed to the Honey Marketing Authority vice Mr E. W. Lee.

Agricultural Chemicals Board — confirming Mr Fraser's appointment.

Ministry of Agriculture — re Honey Grading Regulations Review. The Ministry was replying to an enquiry that arose via a Conference Remit.
The Ministry indicated that it was its intention to charge a fee for grading based on the **actual** costs incurred in providing such a service.
After discussion it was resolved
(1) "That the Association advise the Ministry that at this stage it could not support a grading fee based on total costs."
(2) "That the General Secretary check on the Grading fees charged for the grading of other primary produce, such as fruit, butter and meat, and report back."

N.Z. COMB HONEY PRODUCERS' ASSOCIATION — advising that its members did not support being included within the Hive Levy regulations.

Mr Hardie Boys — Solicitor to Association memorandum to Executive Committee 13/11/74 — re Proposed changes to the Rules of the Association.
It was pointed out by the Association's solicitor that while the proposed chages were acceptable they did tend to create certain anomalies.
It was duly resolved
(1) "That the Solicitor be requested to register the amendments requested."
(2) "That the Branches be advised that voting at Branch level at the Remit Meeting shall be those present or by proxy given to and exercised by a financial member of that Branch."
(3) "That should the Hive Levy Regulations have been enacted the Association's Solicitor be requested to attend the next meeting of the Executive Committee for the purpose of discussing the Rules of the Association."

(i) **Re Remit 12** Resolved
(a) "That the Waikato Branch be given a copy of the reply."
(b) "That the Executive take no further action other than to draw members' attention to the new season's terms of trading which the Executive considers to be a move in the right direction."

(ii) **Re Remit 13** — Freight Allowance. Resolved
"That it be noted that the point is covered in the new season's trading conditions."

(iii) **Re Remit 15** — re Advice Notes Resolved
"That while the new season's trading supply conditions are more satisfactory the Executive is still somewhat concerned that the new proposals will not allow payment on delivery notes as in the past."

(iv) **Re Remit 29** — Price Lists. Resolved
"That the Editor be requested to obtain and publish the Authority's Price List."

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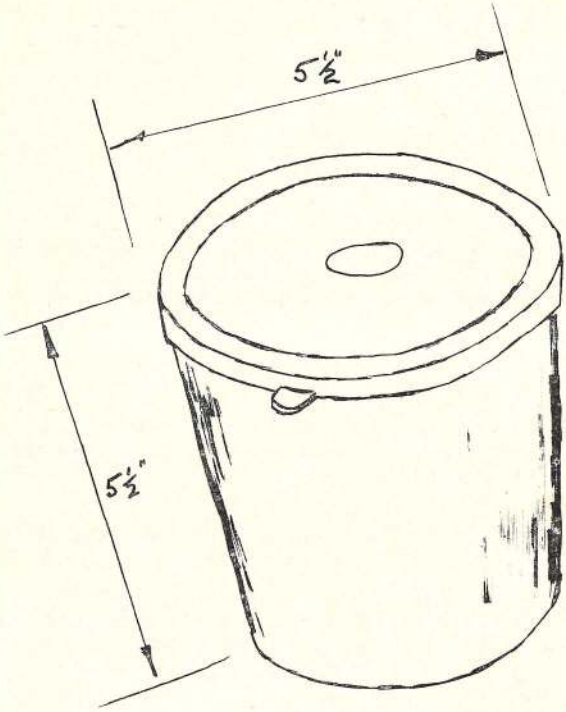

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Minutes of Library Committee Meeting held 21/11/74.

Mr McKenzie in reporting advised that Mr Cloake was prepared to continue his association with the Committee as the co-opted member.

Resolved

(1) "That Mr McKenzie be the Executive Committee's representative on the Library Committee and that Mr M. Cloake's offer to continue his association with the Committee as the co-opted member be accepted."

(2) "That a letter of appreciation be sent to Mr C. Dawson."

Agricultural Workers Amendment Bill

The General Secretary reported that he had attended a meeting on 21st November of Agricultural Employer Groups convened by Federated Farmers. The Hon. Minister of Labour had attended the meeting for a period.

It was still Government's intention to proceed with an Amending Bill in 1975. The Employer groups were advocating the setting-up of a special Agricultural Tribunal to handle Agricultural Awards.

After discussion it was resolved: "That the Association join with other Agricultural Employer groups in supporting the principle of the establishment of a separate Agricultural Tribunal under the proposed Agricultural Workers Amendment Bill."

Department of Agronomy, Massey University — re Short Courses

Mr Berry tabled a letter he had received from Mr E. Roberts, Lecturer in Agronomy relative to possible short courses in Beekeeping.

It was noted that the proposals were aimed at the hobbyists rather than the semi and commercial beekeepers. The period of facility availability would be in the November-February period.

The Executive Committee also considered whether it could be practical to extend the length of seminars and it was decided that this possibility be discussed further with the Minister of Agriculture.

In respect of the short course proposal it was resolved: "That Mr Roberts be advised that a short course for hobbyists could be practical and that a period in January could be a convenient time."

1975 CONFERENCE:

Mr McKenzie reported on the action taken by the South Canterbury Branch to arrange the Conference in Timaru. The Conference sessions would be held at the Chateau Commodore.

The Conference registration fee would be $5 per person (or $7.50 double) and this would cover morning and afternoon teas etc. The Conference and Executive meeting dates were confirmed as under: Monday and Tuesday, June 23-24, Executive Committee, Wednesday-Thursday-Friday, June 25-26-27 Conference.

It was resolved.

(1) "That all Branches be advised of the Conference date and requested to advise the Secretary of the South Canterbury Branch, Mr M. Cloake, of their accommodation requirements."

(2) "That the Honey Marketing Authority be advised of the Conference dates and related particulars."

GENERAL POLICY ON ASSOCIATION REPRESENTATION ON OUTSIDE BODIES AND COMMITTEES

Resolved: "That in general it be policy that Association representatives on outside bodies and committees be, or include, serving members of the Executive Committee."

RESTRICTED AREA — COROMANDEL

A copy of a letter forwarded to Hon. Minister of Agriculture by Mr J. C. Higgins, 2 Robert Street. Waihi and signed by twelve interested beekeepers in that region. Resolved: "That Mr Higgins be thanked for the copy of the letter made available and for the action to support the Executive's resquest for a reappraisal of the restriction imposed."

Paper presented at 1974 Taupo Seminar

HONEY THROUGH THE AGES

By Mr Edward Roberts, Agronomy Department, Massey University

I AM HONOURED to have been asked to deliver the 25th Anniversary Lecture of the Bee Research Association. I feel that this organisation is not as well known by New Zealand Beekeepers as it deserves to be. I would therefore like to devote a short time to bringing to your attention some of the functions of the B.R.A.

It is an international organisation set up 25 years ago in the United Kingdom and has a two-part role. In the first place it facilitates communication between scientists working in all fields related to bees and beekeeping in all countries of the world. In the second place it provides a central clearing house through which information can be channelled from the research workers to the users; that is the beekeeper and his advisory officers. The Association has members in most countries of the world and in each region there is a 'link man', who can feed information back to the Association from his region, and from the central body out to groups and individual members in his region. Our representative is Grahame Walton who I am sure would be pleased to discuss all aspects of the B.R.A. with anyone interested.

The B.R.A. publishes three journals:

Bee World: A popular type journal containing articles of a general interest nature.

Journal of Apicultural Research: A more scientifically oriented publication which provides a channel for reporting the results of research work.

Apicultural Abstracts: A journal which reviews briefly in English, all papers published in any language, which have any relevance to bees or beekeeping. This information is also indexed and is now stored in a computer, so that it is possible for any member wishing to obtain a review of papers on a particular topic to obtain a computer print out listing all the relevant literature.

From time to time the Association also publishes books, charts and bulletins on various topics. It also maintains a very large reference library and museum in the U.K. and members may borrow books by post in the same way as the N.B.A. library operates here in New Zealand. The Association also promotes conferences on topics of interest and importance to the industry.

It is my opinion that during the past twenty-five years the Bee Research Association — under the capable direction of Dr Eva Crane — has achieved, to a considerable degree, the high objectives set at its foundation. Research workers cannot function effectively in isolation, and the Association has greatly facilitated communication in this area. Research is of little value unless the results achieved are widely known; again the Association has achieved

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***In 1974 lectures and meetings were held around the world to commemorate the Bee Research Associations's 25th Anniversary. In New Zealand the event was marked with Mr Robert's address at the Taupo Seminar.**

some considerable success in this field. The Association has therefore, by oiling the wheels of communication, enabled considerable progress to be made in our industry.

I am sure that it is the wish of all of us that the Bee Research Association should continue to function as effectively during the next twenty five years, and I would ask each of you to consider fully the benefits to be gained from membership.

In choosing the topic for this lecture I was conscious that we would all be gathered here discussing in fair detail certain aspects of the production, processing and marketing of our product — honey. The problems we have in these areas, seem at times to be so great that in my view we fail to see past them. I feel therefore that it might be valuable to stand back for a few minutes and look at our product on the broad canvas of history — hence my title "Honey Through the Ages."

Without a doubt the honey bee has been exploited for its honey since the dawn of civilisation. The earliest record we have of this exploitation is a painting on the wall of a cave near Valencia in Spain, which depicts a woman collecting honeycomb from a hole in a cliff. Throughout history from these earliest beginnings to the present day honey has featured prominently in the records and mythology of many civilisations. It has featured as a food; as a source of alcoholic beverages; as a medicine; as a preservative; as a cosmetic (which may or may not be considered a special case of preserving); as a part of religious ritual; and as a means of increasing sexual prowess. To do justice to this topic would demand hours of discourse and you are fortunate that I am strictly limited to half an hour! I shall therefore touch but briefly on some of these uses.

Honey as a Food

Despite a complete lack of knowledge of the chemical composition of honey and being completely unconcerned by such things as the Codex Alimentarius, man from earliest time to the present has regarded honey highly as a food-stuff. In fact in many languages the adjective "sweet" is derived from the word for honey. For example in my own native tongue (Welsh) the word for honey is 'mel', and for sweet is melys. We are conditioned today to think of sugar as the main sweetening agent in our civilisation. This is but a very recent phenomenon in the history of man however.

Although the sugar cane was known and used by people in North India in the 4th Century B.C. it was not introduced in the west until much later. The Arabs brought cane to the Mediterranean region and by the ninth century it was cultivated in Egypt. It remained however a 'rare delicacy' in Europe until the development of the sugar estates of the Americas during the 17th and 18th centuries. And it was not until the 19th Century that it became an important dietary component of European civilisation. Until that time honey had reigned supreme as the universal sweetener. We may ponder the fact that today honey has acquired the image of being a 'rare delicacy' and sugar is the universal sweetener. Neither product has changed in essence. All that has happened is a change in the cost and availability of the two commodities.

Throughout the ancient world the value of honey as an energy giving food was recognised and even today the image remains among tribes which do not have ready access to sugar.

During my stay in East Africa I made a study of beekeeping and the uses of honey among several tribal groups. One such group — the Bakiga people of S.W. Uganda deserve a special mention in this context.

Among these people polygamy is standard practice and the woman is primarily regarded as a chattel. She is valued as a producer of children and the cultivator of the land. When a new wife joins her husband's extended family she is under extreme social pressure to prove her value as an asset to the group. She therefore works extremely hard and eats very little thus demonstrating her worth to her husband. What he doesn't know is that his mother every evening leaves a pot of honey by the bed of his new wife to ensure that she is able to maintain her strength.

As we have heard this morning there is a considerable difference of opinion regarding the definition of honey, and it is proving difficult to establish a consensus on this point in current discussions on the Codex Alimentarius. It would appear that in the Soviet Union there is no requirement for the bees to have collected either nectar or honeydew directly from plants for the product to be labelled as honey. I refer to a book published by N. Yoirish in 1959, in which he describes the production of "Express Honey". Essentially the bees are fed sugar syrup ad lib and when it has been sealed — the combs are extracted in the normal way. The implications of this process with respect to the definition of honey are as obvious as the advantages to the beekeeper! Yoirish has taken the process a stage further, and by the addition of various substances to the syrup has produced a range of types including Multivitamin honey, Carrot honey, Haematogen honey, Milk honey, and even Ginseng honey! Is this what the future holds for honey as a sweet food?

Medicinal uses of honey

From earliest recorded history honey has been valued for its medicinal properties.

It has been widely advocated as a "preventer of disease" or an agent of longevity. Hippocrates — the father of modern medicine considered honey as an essential constituent of his diet — and he reputedly lived to be 107 — surely a good advertisement for any doctor.

The religious book of the Muslim people — the Koran — devotes the whole of Chapter 16 to the bee — and includes the following reference. "There proceedeth from their bellies a liquor of various colour wherein is a medicine for men."

Indian mythology praised the medicinal value of honey. Greek and Roman scholars extolled its virtue and even today among societies not conditioned to the universal taking of pills — honey still forms a large part of folk medicine.

In 1959 N. Yoirish published a book entitled the "Curative Properties of Honey and Bee Venom". He has assembled in this work a large array of medical conditions which are reputed to respond favourably to treatment with

honey. It would appear to me that most diseases have been treated at some time with honey and in most cases a measure of improvement has been reported.

One area where modern medicine has acknowledged the value of honey is as a dressing for wounds and burns. In several hospitals in the U.K. honey dressings have recently been reported to encourage the healing of pressure sores and similar lesions when other methods have failed.

Not only have human diseases been treated but in an old book of Remedies for Diseases of farm animals which I came across some time ago honey featured there prominently too, and I have even seen honey recommended for the treatment of wounds in plants!

Recently we have experienced a resurgence of interest in natural things — this has manifested itself in many ways — one of particular significance to us as honey producers is the trend towards Health Foods. While I do not believe that we should make claims which we cannot substantiate regarding the curative properties of honey, we can safely emphasise its 'natural food' qualities and take advantage of the growth in the health food industry.

Honey as a preservative

Honey was the major preservative for fruit prior to the rise of sugar and is still widely used in preference to sugar for this purpose. This use is however in decline as honey prices climb steadily away from sugar prices.

It is not only in the preservation of fruit however that honey was used in the past. As you will be aware the Egyptians were masters in the art of preserving people. However when faced with the task of preserving infants, their standard procedures were modified, and the tiny corpse was placed in a suitable container which was then filled with — you have guessed? — honey. Several of these gruesome containers were discovered in Egypt during the last century and the honey was still recognisable as such — though I doubt whether Mr Colin Rope, our Honey Grader, would have rated it very highly. Perhaps this is one use for honey that is best not advertised!

Honey as a Cosmetic

A special case of preserving is undoubtedly that practised by the cosmetic industry.

This industry has flourished for as long as women have wished to prevent the ravages of time from leaving their marks. Even when the prevention fails then cosmetics continue to be important as agents of disguise — concealing the lines and blemishes. Cosmetics in ancient time also served to disguise natural bodily fragrances (or odours if you believe the advertisements). In the days before soap this was possibly of greater significance than today. The arts of the cosmetician reached heights in ancient Egypt that have never been equalled since — anywhere. This is not the time or place to discuss some of the finer points. Needless to say honey featured prominently in many preparations. One example I cannot resist. Have you ever considered how the Egyptian maiden achieved "A Ring of Fresh Breath Confidence". She could not rush down to the corner supermarket for Brand X toothpaste. No — but she carried with her a small container filled with balls of crystallised honey mixed

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Religious uses of honey

The value a society places on a commodity can be measured in part by that commodity's place in the religious rites and rituals of the society. Honey has featured prominently in the religious observances of many societies.

By 4,000 B.C. in Egypt beekeeping as opposed to honey hunting, was well established and the royal title of kings of the 1st Dynasty include the phrase 'King of the Bee land' (Lower Egypt) and the 'Reed Land' (Upper Egypt — now Sudan). Taxes were levied in honey in parts of the empire and one Pharoah — Ramases III — was praised in an ancient manuscript for having donated hundreds of thousands of jars of honey to the temple. Priests anointed their lips with honey — doubtless to increase the flow of honeyed words — and all temples included in their budgets a considerable sum for the purchase of honey to be used in religious rituals.

In Babylon and Assyria new born children were fed milk and honey at a special ceremony — a practice which has since been repeated by many subsequent civilisations from Mexico to Asia.

In the Old Testament the Hebrews were specifically banned from making a burnt offering of honey — this was a pagan ritual but honey was permitted as an offering of first fruits. Honeyed apples are still eaten by Jews during New Year celebrations. The spies returning from the promised land reported it was a land flowing with milk and honey — high praise indeed.

The Greeks and Romans offered sacrifices of honey to many Gods including Pluto — God of the Underworld — and "The Fates" who supposedly shaped human destiny. Doubtless the aim here was to sweeten the temperament of these important deities.

In India again religious offerings were made in honey, and many rituals and prayers of the Hindus mention honey.

Many civilisations practised the offering of honey as part of funeral ceremonies and it was common practice of many civilisations to place an offering of honey beside the corps during the burial ceremony, some even buried their dead in honey. Achilles (of the famous heel) was reputedly interred in this manner.

Honey and Love

Honey has played an enormous part in the love life of many civilisations. The Roman Goddess Aphrodite was associated with honey as was Amor — the god of love. This god indeed was reputed to dip his arrows in honey to ensure the love he induced was sweet.

In marriage ceremonies in Scandinavia and Central Europe honey played a large part — in some cases to the extent where the bridegroom was covered in honey, and gifts of honey were frequently made to the happy couple. It is

from those rituals that our much impoverished honeymoon is derived. However it is to India that we must turn for the fullest use of honey in this regard. The Indian god of love Kama is associated with honey and as might be expected the marriage ceremony of ancient India literally dripped with honey.

Long before Freud and his followers popularised their theories in the West, whole civilisations from the Mediterranean to India believed that a successful sex life was essential to a happy existence. A whole mythology surrounds their methods of achieving this happiness. Some of these writings have been made available to us in translations — perhaps the best known work of this type is the Kama Sutra — which was written as a guide book to achieving happiness.

Much less well known than these writings, are the formulae for very many concoctions designed to increase ones' prowess as a lover. By this stage I need hardly add that honey was a vital ingredient in many of these too, both those designed for internal consumption and those designed for external application.

In the interests of delicacy I will not pursue this fascinating topic further today, but will recommend it as a rewarding field of research to those of you who have an academic disposition.

On this thought-provoking note I must conclude this lecture. I hope that perhaps these remarks might stimulate some of you to explore further some of the more exotic uses to which our product has been put.

At the present time much emphasis is placed on market diversification. Perhaps it is time that we re-explored some of these alternative uses for our product — HONEY.

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Paper presented at 1974 Taupo Seminar

CARE IN THE USE OF METHYL BROMIDE

By Brian M. Milnes, Apiary Instructor, Auckland

AS WE ALL KNOW, the principle insect enemies of bee combs in New Zealand are moths, of which there are two species (the large and the lesser wax moth); and if they are allowed access to stored combs they can become very destructive. The beekeeper's most valuable asset, apart from his bees, is a plentiful supply of drawn-out bee combs, or in the case of a comb honey producer, his comb honey crop. It is therefore most important to take adequate measures for the protection of these combs during the "off season" in districts where it is known that wax moth can be expected to cause trouble.

This is where methyl bromide fits into the picture, because pure methyl bromide is the best fumigant for comb honey and bee combs. At recommended rates and after thorough airing it leaves no taints or poisonous residues, and it has been approved by the Health Department for use with foodstuffs such as comb honey.

Methyl bromide is a lethal gas and must be handled with extreme care. It is supplied in steel pressure cylinders in a liquid form, but when released into the atmosphere at temperatures exceeding 9.4°C it changes into an almost insoluble poisonous gas only slightly heavier than air. Indeed, its ability to disperse itself is so great that it will penetrate through wood, sheet cellulose, wax cappings and rubber. It is neither inflammable nor explosive and has no corrosive action on metals other than aluminium. However it is corrosive to metals when in the presence of a flame. (i.e. heating wires, pilot lights, etc.)

Pure methyl bromide is quite odourless, colourless, and tasteless. Its presence in the air cannot be detected without the aid of a "halide leak-detector" lamp. These lamps are specially constructed torches operating with fuels which normally burn in the air with an almost colourless flame. However, a change in the colour of the flame to an intense green indicates a light concentration of methyl bromide in the atmosphere; and a change to an intense blue indicates a heavy concentration of methyl bromide. If using the "halide" lamp it is of course essential that the operator is not colour blind and checks should be made to establish this. Incidentally, one of these leak detectors costs about $13.00, which is neglibile if it can save a life.

A respirator is also essential when handling methyl bromide in an enclosed building. These respirators, which cost $41.00 complete, have an approximate shelf life of 7 years, or a life of 2 years from time of fitting. The cannister will last for 1½ hours of continual use in low concentrations of methyl bromide, such as in the case of the fumigation of comb honey.

The Fumigation Regulations 1967 control the use of methyl bromide and are administered by the Department of Health. Commercial beekeepers are not required to be licenced operators as they derive their living from honey production. However, in the event of a serious accident or fatality taking place within the Industry through the mis-use of methyl bromide, it could well mean that these Regulations could tighten up.

What are the symptons of Poisoning? Though a strong dose of methyl bromide may kill a person instantly, a slight dose seldom produces any immediate effects, as symptons usually appear slowly; even as late as 48 hours after exposure. The symptons are dizziness, blurring of the vision, lassitude and a sensation of profound fatigue, staggering gait, abdominal pain, and convulsions. Any person developing such symptons after exposure to methyl bromide should immediately call a doctor. The victim should be kept in fresh air, remain in a reclining position, and be comfortably warm.

The Ministry of Agriculture and Fisheries has produced a pamphlet on "Methyl Bromide for Honey Comb Fumigation". This pamphlet, which outlines the methods and precautions in using methyl bromide, is available through local Apiary Instructors.

Paper presented at 1974 Taupo Seminar

SHIFTING IN THE HONEY-HOUSE

By Douglas A. Briscoe, Apiary Instructor, Tauranga

TODAY the approach to factors in the beekeeping industry are changing quite dramatically. Whether this is because younger men are growing into the industry or not I'm not too sure. However, units are becoming larger. This is natural I suppose, due to economic factors. With this trend to larger units it does bring about a certain amount of difficulties. One man can only do a limited amount of work in a given space of time and if units are to become larger, then the obvious answer is to bring in some sort of improved management programme. This will allow more work to be done in the same amount of time. The lack of a planned management programme is one of the factors that is indeed affecting the beekeeping industry at the present time.

In the apiary, mechanisation is playing a vital role today. We have boom loaders, we have larger trucks geared to handle more hives at the one time and we have motorised-type barrows that can be used within the apiary for loading and unloading both hives and bulk honey. It is by these means that the extra workload can be tackled.

In reality it is the weakest link in the chain that governs the overall efficiency of any business. While mechanisation is playing a very big part out in the field, or in apiary work, it is essential that the work in the honey-house itself is also capable of being handled to the same extent. If this were not so, the weak link in the chain would then be in the honey-house, or the handling of the product once it was brought back for extraction. It is this handling in the honey-house that we should look at in more detail.

Bulk handling of any product calls for mechanisation, proper, and good management, and the ability to handle heavier loads. The beekeeping industry is no different to many other industries in this respect. Gone are the days when honey was packed in 4-gallon (60 lb) tins with two of these tins to a wooden case. There are not very many producers that still use 4-gallon tins.

Today we have the concept of the 28 kg and 300 kg (5 gallon and 44 gallon) drums. These in themselves present quite a problem when it comes to handling or shifting them within the honey-house. I think we are all familiar with the old type hand barrow; the type of barrow that is used for shifting bags of wheat. For man years these indeed were a comman sight in honey-houses, but today, these barrows are really not on. It's virtually impossible to shift a 300 kilogram drum full of honey (something like 650-700 odd lbs). This type of barrow is not really capable of this sort of work.

When handling large weights in a honey-house, not only has consideration got to be given to the type of mechanisation or appliance that is called upon to do this work but it's also very necessary, I feel, to give very careful thought to the floor itself. A previous speaker has dealt with floorings in honey-houses in some depth. Whichever type of flooring has been selected, care must be exercised in shifting big weights about the honey-house. It is when handling

a full 300 kilogram drum of honey with the orthodox hand barrow that is the cause of most floor damage — whether it is concrete or timber. This occurs when the drum is stood upright from the wheeling position. The drum invariably becomes upright with a bang as it drops down on its off-side edge. Edging the barrow under the drum does not cause all that much damage, but it certainly requires considerable effort. No floor, to my knowledge, will take this sort of continued punishment for very long. If a concrete floor has been plastered, invariably it is not long before the plaster will start to crack and break. Even a concrete floor laid and finished in the one original pour is quickly subjected to chipping. The surface of the concrete becomes broken and this is where you can get little pockets of water and moisture allowing fermentation to get away.

So really, when thinking of moving heavy weights around a honey-house, consideration must be given to appropriate forms of mechanisation that can transfer drums, honey and hive bodies within a relatively confined honey-house space and to do it efficiently and relatively easily. I think there are only two ways that this problem, if we could call it a problem, can be overcome. Firstly is the use of the honey-house bogey. This is used in conjunction with timber pallets. Honey is stored or stacked on the pallet and the hand barrow is pushed in underneath. The pallet and its contents are lifted clear of the floor by a backward levering motion of the propelling handle. After moving the load the handle is brought back to the upright position and the pallet comes back to its resting place on the floor. Under these circumstances no damage occurs to the floor for the weight is lifted and lowered directly and squarely. The bogey is very useful in honey-house work. It can be made relatively light loads, or it can be made of more rugged construction for heavier loads. The honey-house bogey has been used to handle full supers of honey in many honey-houses. A sturdier concept could be constructed to allow for the use of heavier loads such as 28 kg drums or even 300 kg drums. In handling 300 kg drums, naturally, the construction must be somewhat heavier and the castors need to be broader so that the weight is transmitted to a bigger floor area. This is quite a successful, handy, and compact type of barrow.

I have described the damage likely to be caused when tilting 300 kg drums. To my way of thinking the direct lift is the only satisfactory way of moving these drums about the honey house, or even on the back of the vehicle. The second type of lifting device, specially designed for larger drums, is a type of hand barrow that could be constructed by any reasonable engineer. It embraces the pivoting or the lifting of the drum at a point above the centre line — in other words, towards the top of the drum. When the purchase comes onto the hand-piece of the barrow the drum is lifted squarely. It remains square to the floor as the hand barrow is pulled back, at which stage a buffer on the bottom of the barrow will allow the drum to rest evenly on the barrow as it tilts back. This drum can be lowered again simply by raising the hand-barrow to the upright position. The weight of the drum keeps it square with the floor and it sits perfectly flat again, without damage to the floor.

For those who have a little bit more money in the bank or perhaps are on more friendly terms with the bank manager a type of barrow with a hydraulic lift similar to the principle employed in the motor trade could be implemented. I think you are all familiar with the types of hydraulic jacks that the motor industry use. This sort of concept could have tremendous application in a honey-house. Of course it requires the use of pallets. The principle indeed is an excellent one in that the handle is brought back by a simple single motion or perhaps a double pump motion to lift the load clearly off the floor by only a half an inch or an inch or so.

These are the principles, Gentlemen, that I think are essential in being able to handle the larger weights in and around the confined areas of honey-houses. These weights today are accepted as part of the, shall we say, progress of the times and we have got to go along in our thinking with them and especially in the handling of them. We must gear ourselves by appropriate mechanisation. It not only saves us time and labour but it also spares our backs, not to mention the floors. Moving weights, around a honey-house is unavoidable and with a little forethought this can be done relatively easily.

BEEKEEPERS TECHNICAL LIBRARY

Hon. Librarian: CHRIS DAWSON, P.O. Box 423, Timaru

The Library wishes to thank the following donors:

From Mr G. M. Walton, Apicultural Advisory Officer, Palmerston North:

Proceedings of the 1974 Beekeeping Seminar, Taupo, August 13-15, 1974. Two copies.

From A. Ecroyd and Sons Ltd, Christchurch:

How to keep Bees and Sell Honey by Walter T. Kelley, 7th Edition 1973. 144 pages.

A good selection of Library Books is available to Members of the National Beekeepers Association. Catalogue free on request. Branch Secretaries have copies of the Catalogue.

In addition to books on bees and beekeeping, there are two film strips suitable for elementary instruction and magazines. Send 20 cents to borrow a bundle of magazines from various parts of the world (in English).

BEEKEEPERS TECHNICAL LIBRARY, P.O. BOX 423, TIMARU

BOOK REVIEW

Two books by Dr Richard Taylor, a long-term contributor to **"Gleanings in Bee Culture"** and **"The American Bee Journal."**

"The How to do it Book of Beekeeping" uses the unusual method of stating a problem and answering it in each section. It is eminently readable, clear and concise. $US2.95.

"Beeswax Moulding and Candle Making" covers every aspect of collecting, refining and handling of beeswax as well as the interesting art of candle making. $US1.95.

Both books are obtainable direct from the Walnut Press, Napies, New York, 45212, USA.

Paper presented at 1974 Taupo Seminar

HONEY-HOUSE FLOORING

By R. (Dick) H. Hobbs, Apiary Instructor, Palmerston North

UNDER THE NEW Food Hygiene Regulations 1974, that come into effect on January 1975 honey-house floors are required to be constructed either of impervious and easily cleaned material that is resistant to wear and corrosion, or constructed of wood with the boards laid on a firm foundation and tightly clamped together. In both cases the angles between the floors and walls must be rounded off. For impervious materials such as polyvinyls, the flooring must extend up the wall to a height of no less than 76 mm (3 inches).

Wooden Floors

Because of its versatility, timber plays a very important part in the construction of floors in many honey-houses, and will for many years to come. To avoid shrinkage, it is important that timber used for flooring is thoroughly dry. Today, with the building boom, it is a problem to obtain dry flooring. This can be overcome by the use of particle board. Particle board can be obtained in sizes ranging from 8ft by 3ft to 12ft by 6ft and is slightly dearer than tongued and grooved flooring.

Wooden floors, including particle board, should be sanded down and the nail holes stopped then coated with a polyurethane clear plastic varnish or some other suitable material. Wooden floors that are not sealed against moisture are liable to become havens for honey yeasts that cause fermentation

Concrete Floors

Today, with more mechanisation in honey-houses such as forklifts etc., there are now more concrete floors being put down in the new larger honey-houses. Considerable planning is required for a satisfactory floor.

The thickness of concrete may vary from one area to another. The minimum thickness of the floor is 3-4 inches for light loading, to 6 inches on which heavy machinery or trucks will be driven and parked. A membrane of P.V.C. sheeting should be laid before concrete is poured. This acts as a seal to prevent moisture working up through the concrete. This will eliminate problems that could occur later by moisture-drawing materials positioned on concrete floors.

As concrete dries it shrinks slightly causing cracks to appear. To prevent cracking the floor area should be cast in strips and when finished the joints between the strips should be sealed with a suitable plastic compound. Adequate steel reinforcement should be used in concrete floors. The use of steel reinforcement does not contribute significantly to the load-carrying capacity of the floor, so it does not permit any reduction to be made in slab thickness.

In the extracting room, where the floor is washed down with water after extraction, correct falls should be built into the floor to allow for drainage. The fall should range from 1 in 80 as the minimum, down to 1 in 60.

Concrete

Concrete is only as good as the ingredients that go into the mix. The

approximate mix proportions by volume are: Cement 1 part, sand (dry) 2 1/4 parts, coarse aggregate ($\frac{3}{4}$in.) 2 5/8 parts. Only sufficient water should be incorporated in the mix to produce a material having a consistency which will permit maximum compaction. The use of ready mixed concrete as supplied by a local firm could have many advantages. Wear resistance, impermeability, and strength of the concrete will be greatly affected by the degree of compaction. The most effective method of compaction of concrete floors is with a surface vibrating screed, manual vibrator, or by hand tamping.

Finishing

Since corrosion starts at the surface of the concrete, finishing is of great importance. Plastering of the surface must be avoided at all costs as such a surface has low resistance wear, it dusts and crumbles easily, is porous and is very subject to corrosion. Steel trowelling will produce a surface having good wear resistance, and good corrosion resistance. Greater protection can be obtained by using a power float for final finishing. This machine consists of a rotating steel disc which puts a good finish to the top of the concrete that is superior to anything that can be obtained by hand methods.

If high wear resistance and imperviousness is required, a topping of specially selected high grade aggregate can be spread dry over the surface during the finishing operation and compacted into place with a power float. This is a specialised operation which should only be entrusted to contractors experienced in this class of work.

There are a number of products of modern technology developed and perfected over the years that can be used for waterproofing, hardening and dustproofing concrete. Some are added to the concrete mix while others are painted or sprayed on soon after the concrete is laid.

Today many beekeepers still paint wooden and concrete floors in their honey-houses. Some of the modern acrylic and epoxy resin based paints are very durable and when applied improve the imperviousness and appearance of floors.

Floor coatings

In recent years we have seen an increase in the number of spray-on seamless coatings which are applied as a multi-coat system to a prepared surface, which then becomes an integral part of the surface. Coatings of polyurethane and other chemical products of this type have several years of good performance to their credit in some honey-houses.

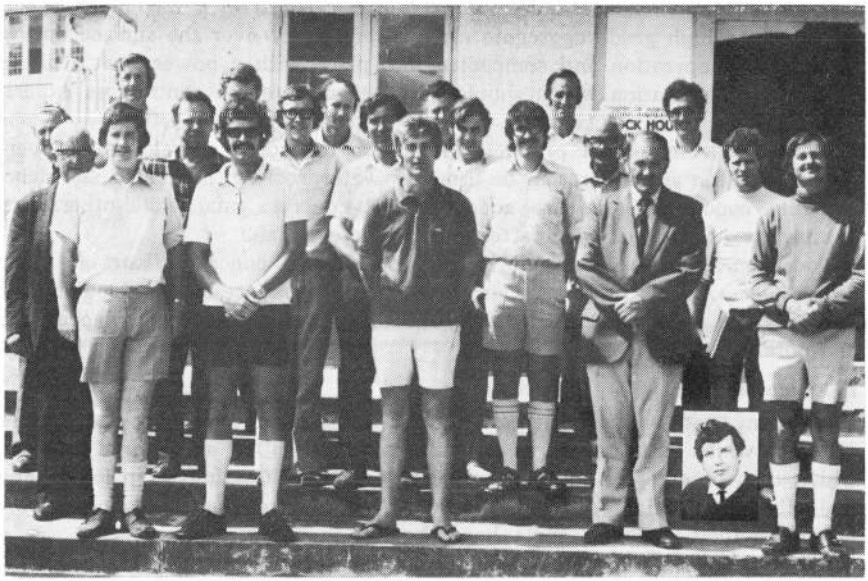
Polyvinyl Chloride (PVC) sheeting is used on many types of floors including honey-houses. It is completely flexible and may be installed around corners, right angled bends and over contours.

PVC sheeting may be repaired should damage occur in a small area without having to remove the whole sheet. These flooring coatings are applied by firms with trained applicators who are conversant with all preparation and application details. Because of the high cost of materials and laying cost of these floor coatings a written guarantee should be obtained from the firm of contractors who do the installation in case of poor workmanship or failure because of incorrect laying techniques.

Successful Queen Bee Producers' Course

SIXTEEN BEEKEEPERS attended the recent course on "Queen Bee Production" organised by the Ministry of Agriculture and Fisheries. It was held on January 20-24 at the Ministry's Flock House Farm Training Institute, near Bulls, in the Manawatu.

Facilities provided for the beekeepers attending this course included a 15-hive apiary, a range of beekeeping equipment, microscopes, beekeeping films, and a comprehensive file of reference material. The opportunity to examine in detail external and internal anatomy of workers, queens and drones was appreciated by all. The various large-scale queen rearing methods were demonstrated and discussed in the apiary. "Buzz group" sessions considered such topics as selecting breeding queens, preparing breeding programmes and the export of queen bees to Canada. Open discussion was encouraged throughout the course. The course programme was prepared by Apicultural Advisory Officers Murray Reid,



Left to right: Dudley Ward (Dannevirke) — a day visitor, Bill Haines (Kaitaia), Alan Hill (Rangiora), Keith Leadley (Mangakino), Ian Berry (Havelock North), Gerrard Martin (Galatea) — partly obscured, Murray Reid (Apicultural Advisory Officer, M.A.F. Christchurch), Roger Bray (Irwell), Noel Rothwell (Horarata), Don Gibbons (Foxton), Gavin White (Rolleston), Maurice Deadman (Tirau), Ernest Adamson (Wedderburn), Grahame Walton (Apicultural Advisory Officer, M.A.F. Palmerston North), Robin Jansen (Taupo), Don Appleton (U.K.) — a member of the British Isles Bee Breeders' Association, John Stewart, (Principal, Flock House Farm Training Institute), Milton McKenzie (Waimate), Robert Swetman (Kihikihi), Bruce Stanley (Whakatane). Insert: Brian Milnes (Apiary Instructor, M.A.F. Auckland).

(Christchurch) and Graeme Walton, (Palmerston North) and assisted by Brian Milnes, Apiary Instructor, Auckland.

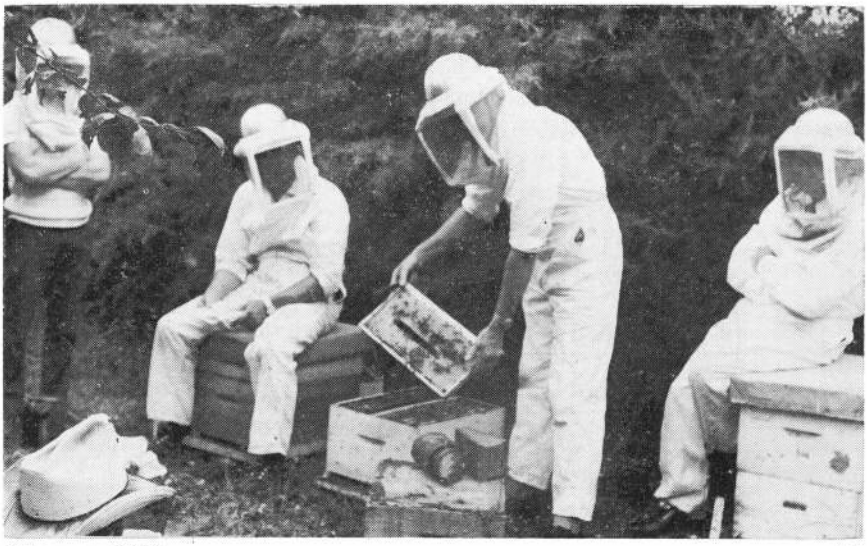
Although over 30 people made applications to attend this course, numbers were limited to 16 persons. This encouraged full individual participation in discussions and exercises.

The 1133 hectares (2800 acres) Flock House farm is run by the Advisory Services Division of the Ministry of Agriculture and Fisheries. It provides three types of courses. First there is a year's course in farm practices and theory for 60 lads between 16-18. Secondly, training courses are held regularly for most Ministry staff e.g. Veterinarians, Farm Advisors, Livestock Instructors. Recently the facilities at Flock House have been extended to include short courses for farmers, farming staff and farm servicing personnel. The recent "Queen Bee Production" Course was the first occasion that the beekeeping industry has had the opportunity to use the Flock House facilities.

Following the successful outcome of the January Beekeepers' Course the possibility of holding a repeat course next year is now receiving consideration. Many farmer courses on most aspects of agriculture have already been proposed for 1976 and each will be evaluated on its own merit. If it is decided to hold another "Queen Bee Production" course at Flock House it will be notified in *"The New Zealand Beekeeper"*.

THOSE ATTENDING THE QUEEN BEE PRODUCTION COURSE DEMONSTRATING THE "ALLEY" QUEEN REARING METHOD.

From Left: Robert Sweetman, Maurice Deadman, Gerrard Martin, Bill Haines, Gavin White (in front, partly obscured).



Notes for Beginners

AND OTHERS

By CHRIS DAWSON

After a lapse of ten years, Mr Chris Dawson writes Beginners Notes again. For the last 25 years, his special interests have been breeding bees and developing a system of permanent small colonies that are more economical for Queen Rearing.

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.

Aug. 31: Spring opening, examination of equipment and general maintenance.

Sept. 28: Preparation for Queen Rearing and preparing a two-queen hive.

Oct. 26: Examination of willow flow, equalising food stores and hive management, also check for signs of swarming.

After a very cold wet winter the early flow was surprisingly good this season. Some hives even had to have boxes added at the Sptember meeting.

Unfortunately we have since had long wet cold spells which has brought on the production of queen cells, up to five in one particular hive.

We are still hoping for a bumper crop when the sun does shine.

[This report received Nov.]

So you have decided to keep bees!

Whether it is to be as a hobbyist or as a commercial apiarist, you have decided to become involved in an interest that will deeply occupy your mind and completely fill as many hours of day or night as you can spend on it. It is an interest that has gripped men and women of all stations in life from the most humble to scientists and rulers.

One reason why professional men become involved with bees is because they provide a mental stimulation so different from the day's work and an opportunity to steal away from the stresses of life to a place where they can have fellowship with their friends, the bees. There, they can relax and learn some of the absorbing facts about bee behaviour. The fact that there might be some honey to be harvested is only a side issue which happens to sweeten their palates and sometimes provides profit.

The behaviour of bees has caught the attention of people for thousands of years. So that today there are beekeepers in every trade and profession in our own country. I have met beekeepers who are farmers, doctors, watersiders, school teachers, students, school boys and girls and in many other

occupations. Many of them hurry home after a day's work to check on how their thousands of employees in the beehives have been working during the day. In the evenings, they read books on bee behaviour and assemble hive equipment.

Let me give you your first warning — the bees are going to capture you and make a slave of you for ever:—

Now to the practical instruction.

Make sure you are permitted to keep bees.

Some cities and boroughs have restrictions that make the keeping of bees in built-up areas subject to control. These are necessary because bees have habits that some people do not like. The Town Clerk should be interviewed to obtain details.

If you find you are not allowed to keep bees on your own property, there are often farmers and fruitgrowers who will be glad to have bees on their property to provide pollination.

Obtain your registered number

After you have obtained your permit from your own local body, you will need to register with the Apiary Section of the Ministry of Agriculture and Fisheries. There you will receive a registered number to display on one hive. This safeguards you so that your hives will be inspected free of charge every year and the inspector is after just the right person to ask all those questions you have been storing up for weeks. He is always a widely experienced beekeeper and is pleased to help towards more skillful beekeeping. Also, when you register at the Ministry of Agriculture and Fisheries, you will meet the local Apiculture Instructor who is an expert on solving the many

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.

The following extract from their Club Newsletter will give an insight into their workings:

It seems this season could be the one we have been looking for. Apparently most members have taken good crops. In some apairies honey has been virtually running out the front landing boards and most have put out everything they could lay their hands on to catch the crop.

The first indications of a good year possibly coming were the early appearances of swarms when the weather settles. Many of these swarms were very big and plenty of them, as most of you will now know. The sight of beekeepers collecting swarms around Wellington was an everday event, many of us having several calls in one day. In most cases the honey flow started early and was very steady for several weeks and due to the good weather most colonies were in good shape to make the most of the harvest. Gear supply was an embarrassment but this was caused mainly by freight delays betwixt North and South Islands. Some imported gear has apparently still not arrived.

It is safe to say the picnic/ field day in December was a great success, and all attending enjoyed the day out. We owe a lot of thanks

to Bill Bly for organising the site, and to Joe Bodmin for the patient way he demonstrated clearly the inner workings of a hive in the field. Judging by the questions asked it seems those present learnt quite a bit on the site. An opportunity was also taken on the day to present Mr Bodmin with a pair of field glasses from the members as a token of thanks for his long years of service to the association. Those who made this much appreciated gift possible are sincerely thanked.

AUCKLAND BEEKEEPERS' CLUB

President: W. B. Metcalfe.
Secretary: R. T. J. Anderson, P.O. Box 3672, Auckland.

Extraction Day was held on Feb. 22 at the Pasadena Intermediate School Hall, when the surplus from our club apiary, about 12 supers were extracted, a very satisfactory result. Our Annual Honey Show will be held on April 19 next in the same hall in conjunction with an Annual General Meeting.

SNIPPETS

THOSE STINGING VARMINTS

I think many more people would keep bees but for two things, stinging and swarming. The honey is good and precious, but just as the bees get strong and the weather is right, the bees swarm and unless the swarm is captured and utilised, the hive produces but little surplus, and the beekeeper is disappointed and loses heart.

Then those stings; but take to heart, they are no worse than the doctor gives you with his syringe. Think of the diabetic who has to give him-

problems that a beginner beekeeper is likely to be faced with.

Don't let the though of all these preliminaries put you off your aim. It sounds more difficult that it is but you must start off right with bees.

Keep a diary

There are many things happening right now that you will want to refer to in a year or so. Start a diary, straight away — Take a walk around your garden, the fruit trees, the paddocks, hedges and gullies near where the bees will live. Take a note of everything in flower and whether you saw bees collecting nectar or pollen. You will not see much use for this exercise right now but I guarantee you will find this information useful in years to come. You are going to need to know what time of the year the nectar flows come so that your hive management will be planned to suit.

Read Books

You are going to gain experience by working with bees but there is a deep mine of experience in the writings of those who have handled bees and written about them over the last two hundred years. Books on this subject will be available from your local library and they can be obtained for you from the National Library. Books on a number of aspects of the life history, habits and behaviour of bees as well as the writings on beekeeping.

The Beekeepers Technical Library has an excellent assortment of books suitable for beginners, learners and hobbyists. While you will be anxious to read about the keeping of bees, I want to strongly urge you to study bees — their behaviour, life history etc. Your

work in the future is going to be much easier if you understand what bees do, how they do it, and why. I have discussed problems with beekeepers that would not have been problems if they had studied bees. You will much more quickly master the craft of beekeeping by reading books about bee behaviour than by any other way. This knowledge will give you the confidence you need in handling bees and reaching successful colony management.

The following books are my recommendations:—

"The Life of the Bee", by Maeterlinck.
"The World of the Honeybee", by Butler.
"The Lore of the Honeybee", by Tichner Edwardes.
"City of the Bees", by Stuart.
"The Golden Throng", by Teale.
"The Dancing Bees", by Frisch.
"Bees — their Vision, Chemical Senses and Language", Frisch.
"Natural History of Bees", Huber.
"Wonders of the Hive", Lavine.

In reading these books, there are some things about which you need warnings. Methods of treating the disease Bacillus larvae (or foul brood) are often described. In this modern world of science, it has not been possible to find any cure for this disease. The law in New Zealand requires any person who discovers this disease in a hive to report the find immediately to the Apicultural Advisor of the Ministry of Agriculture so that he can take urgent action.

Most books about bees and beekeeping that are produced in the British Isles give details of the various kinds of hives available in that country. We are fortunate in having readily available the hive most suitable to our conditions. You can completely disregard all other kinds.

self daily doses of insulin, or of the drug addict who gives himself doses of drug by means of a syringe.

But bee stings have many virtues. In Germany there is a school of bee venom therapy. First and foremost, it is a wonderful protection against rheumatism and kindred complaints. The writer of this little note is no longer young but has no rheumatism at all.

What other benefits are there? Bee stings stimulate the heart. One of the daily newspapers the other day told of a doctor, I think it was a lady, who kept the bees in a room of the house so that patients could go there and be stung, as part of the treatment for the strengthening the heart against thrombosis, which is a very common complaint today . . .

* *

Unlike their Swiss neighbours, the Germans and Austrians have determined to abandon colour-breeding, and insist on honey production only. Other characteristics, such as gentleness, non-swarming, etc., though not entirely lost sight of, are to occupy a very secondary position!

* *

Soviet apiculturists, at one of their research stations, have determined that a colony of bees, making some 30,000 flights daily, needs at least two full glasses of water each day. As the bees prefer salted water this can be supplied by adding 50 grammes of salt to eight litres of water.

* *

Japan boasts of having 8,800 beekeepers with 251,000 hives of bees. Disease appears to be confined to Afb, a little Acarine and Nosema but the ex-parasitic mite **Yarroa jacobsoni,** is very widespread and

clearly a problem. Smoking in winter time is successful. In 1971 Japan produced 7,708 tons of honey and 141 tons of beeswax.

* * *

Ethiopia is said to have approximately 20,000 tons of honey for export but demand is not likely to be good. China has lowered prices of her honey by 5-10 cents per lb.

* * *

West Germany is buying little honey at present and this is having a depressing effect on export countries although it is hoped that the autumn and winter will increase consumer demand everywhere.

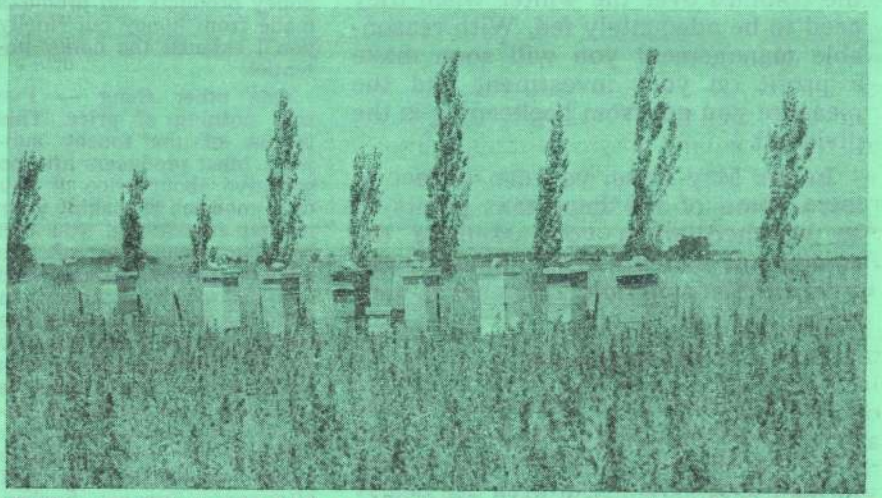
* * *

For a long time it has been assumed that Royal Jelly of the same consistency was fed to all the larvae in the colony irrespective of caste for the first three days. It is now believed that there are differences in both the amount and consistency of royal jelly fed to worker and drone larvae. Drone larvae can tolerate

Ordinary Equipment

Here is a list of the minimum you will require for two hives. You will tell me you want to start with one hive — I cannot discuss here the reasons why you should start with two hives but you, like many others, will agree that it is the best idea after you have kept bees for the first year.

2 Bottom boards
6 Full depth commercial storeys with half inch rebates.
2 Hive Roofs.
60 Hoffman self-spacing Frames (cheaper for 100).
1 Hive Tool, Woodman 10 inch.
1 Smoker — 3½ inch or 4 inch with shield.
1 Reel of Frame Wire.
1 Beekeeper's Helmet.
1 Beekeeper's Veil.
Sufficient bee nails to assemble storeys and frames. (A special coated nail is used.)
60 Sheets of Medium Brood Comb Foundation.
1 Pair Leather Beekeeping Gloves.



Californian and Scotch thistles gave these colonies a good nectar flow at the end of the season.

Join the Beekeepers' Association

At the meetings and field days of your local association, you will receive a lot of help. Lectures and demonstrations are arranged to assist beekeepers to better methods of securing a honey crop. There, too, you will meet the members who are always keen to talk about ways of doing things. When you are a member, you are entitled to borrow books from the Beekeepers Technical Library.

Order your Bees

There are beekeepers in every area who will part with a hive or two for reasonable payment. A small colony of three or four frames of bees and brood is called a nucleus hive (or nuc.) These are available at $15 to $20 each. A single storey hive can be purchased usually for $30 to $40. It pays to buy good quality bees and the colony should have a new season queen. The best time to take delivery is August or later. This allows the beekeeper to take care of the colonies over the winter when they need to be adequately fed. With reasonable management you will soon make a profit on your investment and the pleasure you get from beekeeping is the dividend.

In the May issue, you can expect to learn some of the important points to be watched when you assemble the equipment. You will need a hammer and a cramp that will hold 21 inches is very useful.

It Happened!

Every gathering of beekeepers brings out an unlikely story. This week, I was checking through a four-storey colony as the honey flow in our area has nearly finished. I took off two supers of honey worker larvae food but workers cannot thrive on drone larvae fare .

DOOR SALES

Roadside retailing is an enormously variable business — variable in prices charged, in product variety offered, in quality of product sold and in physical environment of the marketplace. Each market is an expression of what the person running it thinks a market should be, tempered with how hard he wishes to work. For some operators it is an exciting challenge, while for others it is a too demanding, seven-day-a-week master. Some thrive on farm retailing and others hate it.

Anyone can hang up a sign, 'Honey', and make a surprising amount of honey sales, regardless of location. However, for most, selling only one product is neither satisfying nor profitable. It's like tasting one potato chip. Of course, you can offer a wider choice in honey flavours, sizes and types, than honey products and products made from honey but finally you'll exhaust the honey potential.

One other thing — I've said nothing of price. This is one of the touchy subjects. Most producers are too sensitive about price. If you do a good job of making your market interesting, you can have a reputation of the highest prices around and still sell a lot of honey. **In fact, if you don't have some complaints on price you are almost certainly selling at a price that is lower than is justified.** Looking at it another way — suppose you can sell your honey at 35c a pound wholesale and loaf afterwards. Suppose, further, that you put 15c additional

per pound into packaging and labelling for retail. I'd like to establish a principle — the higher retail price will return the higher net return even though it substantially reduces retail sales. Actually there is no strong evidence that somewhat higher prices will materially reduce sales at the average farm retail or roadside market.

Unfortunately many small sellers appear to base prices on last year's price, or at some other out-dated level. And, even with good, well-run markets, the mark-up policy differs widely. While in California, I found identical one-pound jars of honey on sale at two markets only 20 miles apart — one at 75c and the other at 95c. The 95c price was in the larger. more competitive market. Unless one is in a highly competitive area, or unless one is trying to make selling at the lower (rather than higher) price is almost certainly reducing its net returns.

After looking at the problems of retailing, many of you may well decide that the possible extra returns from retailing are not worth the time and effort it would take. Unless you feel that retailing would be fun, I'd say, "Stick to wholesaling your honey."

and then found in the super above the queen excluder some brood. I found the queen — she had sneaked through the excluders. Under the excluder, I found a brood nest full from one side to the other of eggs and brood in all stages. As it seemed the queen above the excluder had not laid all these eggs, I started to carefully examine every frame and found one empty queen cell. On the other side was a mature queen who was so busy laying eggs she took no notice of me. I was looking through the other frames when I saw another empty queen cell and another mature queen working quietly at her job. Surely, I thought, the first queen dropped from the pane and here she is again. Just to be sure, I placed the frame with this queen into an empty hive while I looked through again. Soon I spotted the other queen. Three queens in one hive! I liked the look of all of them — I liked the crop they gave — I liked the possibility that they could be good breeding stock so the three queens are now heading three small colonies. Also, they have those desirable qualities of quietness, good colour, steady on the comb and the inclnation to create supersedure queens rather than to swarm.

Any Questions, gentlemen?

CADETSHIPS

By MIKE STUCKEY, North Island Executive Member

WHERE IS your next reliable employee coming from? If the time came when you needed a manager, where would you find him?

Are the young beekeepers in the industry being given a sufficiently broad training? Is the son you hope will take over your business being trained to carry on doing things the way you do them when perhaps it could be of value if he were to learn how other businesses do them?

Ask yourself the above questions and if you find you are scratching your head perhaps it is time you thought about taking on a beekeeping cadet.

In order to get the scheme off the ground it is envisaged that it would be necessary to start with at least three cadets. In that way an employer would get a 1st year cadet then a 2nd year one and then a third year one.

Here is a short list of the advantages, disadvantages and requirements which you would need to consider.

DISADVANTAGES

1. If you take on a cadet and have a bad year you are committed to employing him.
2. It could mean more work for your wife if you have to provide him with full board.
3. You would not just give him all the dirty, boring or repetitive jobs about the place because he is supposed to be getting experience.
4. You will only have him for one year then you will get another boy whom you will have to get to know.
5. You will have to pay him about the same as in other trade apprentices such as carpentry.

ADVANTAGES

1. The boy you have a part in training may wish to come back and work for you at the end of his cadetship, bringing more experience than you imparted.
2. You will have a continuity of employment for the three years.
3. Any expenses incurred such as board are tax deductible.
4. The more experienced beekeepers there are in the industry the healthier the industry is and the more your business is worth.
5. You will get an intelligent and keen boy.

REQUIREMENTS

1. You will be required to give the boy as much knowledge as you can impart.
2. You will need to be a reliable employer.
3. Accommodation would need to be available or provided.

If you require more information about the Cadet Scheme, please contact the General Secretary — Mr G. A. Beard, P.O. Box 4048, Wellington.

BEES IN NEW ZEALAND

Part V: ALKALI BEES IN NEW ZEALAND

By D. J. Donovan, DSIR, Christchurch

ALKALI BEES, or *Nomia Melanderi* Cockerell, are important pollinators of lucerne (= alfalfa), in western North America, where many lucerne seed growers foster and manage large populations expressly for lucerne pollination. In recent years the alkali bee has been introduced to New Zealand for this same purpose.

In order to explain why the introduction of the alkali bee to New Zealand has been undertaken, the pollination requirements of lucerne must be examined.

Pollination of Lucerne

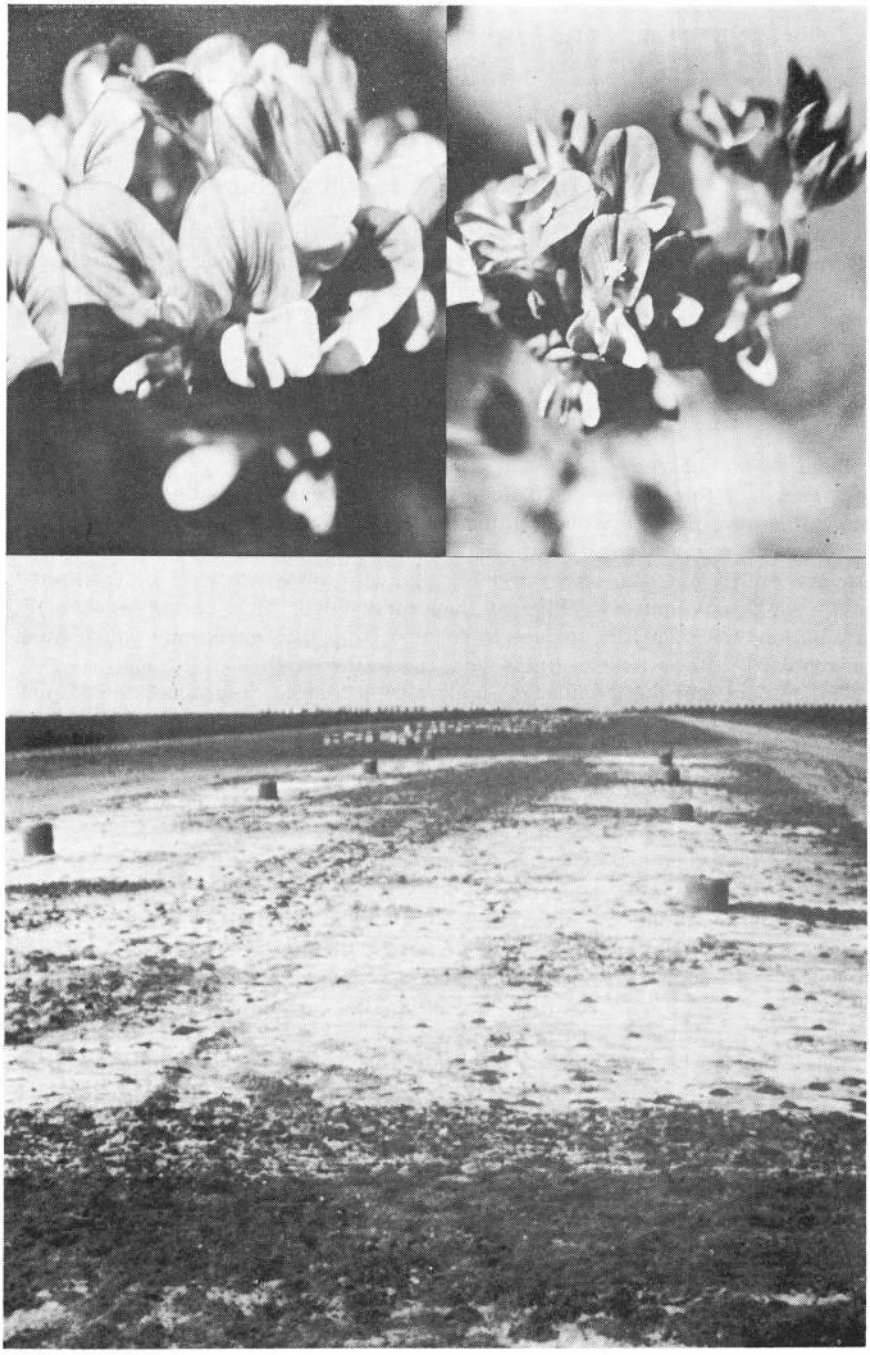
In Part I of this series, I explained that some bees physically "fitted" some flowers better than other bees. Lucerne florets are so constructed that the reproductive parts normally exposed in most flowers — the anthers which produce pollen and the stigma which receives pollen are enclosed within 2 petals which are joined together at their inner edges by a line of weak cells. In addition, the stigmatic surface is covered by a thin membrane which must be ruptured before pollen grains can reach the stigmatic surface.

The anthers and the stigma are supported on a stout "reproductive column" which, as the floret matures, becomes strongly tensed within the 2 enclosing petals. Normally the floret cannot be pollinated unless and until the reproductive column bursts through the enclosing petals. With this action the pollen is released, and the stigma, with the membrane now ruptured, is able to receive pollen. The floret in this state is said to be tripped. (Fig. 1).

The unusual structure of lucerne florets appears to be "designed" to help ensure cross-pollination. Numerous studies have shown that a floret pollinated with its own pollen or pollen of florets on the same plant, produces fewer (up to half as many) and less viable seeds than a floret which has been pollinated with pollen from another plant. The stigmatic membrane prevents pollen from that floret reaching the stigmatic surface before the floret is tripped. When tripped, the reproductive column flies up with considerable force. If an insect body lies in its path, the anthers deposit pollen on the insect, and the stigmatic surface receives pollen from other florets which previously have been deposited there. After the insect moves away, the reproductive column comes to rest against the standard petal. Within a few hours the floret begins to wither, and several days later a curled seed pod is formed.

Lucerne originated in the Middle Eastern to North Eastern Asian areas, but because of its value as forage for man's grazing animals, is now found in

Fig. 1 Untripped and tripped florets.
Fig. 2 A large artificial alkali bee nest site in California.



most areas of the world suitable for its culture. In its original home range, there must be a species or several species of bees which are very well suited to the lucerne floret tripping mechanism, but these bee species did not (with one likely exception, the lucerne leafcutter bee to be discussed in Part VI of this Series) follow the expansion of lucerne. In most parts of its extended range therefore, suitable bee species were absent or bee numbers were few. Lucerne seed yields were generally low, but occasional high yields were localised high populations of pollinating bees did occur, indicated that there was great scope for increasing seed yields.

Honey Bees and Lucerne Florets

Honey bees are usually very numerous in flowering lucerne in New Zealand, but close examination of the crop usually reveals that few florets are tripped and no honey bees are collecting pollen. Studies of flowering lucerne by Palmer-Jones and Forster (1964) showed that an average of only 10% of available florets were being tripped. In 5 years of work with flowering lucerne I have seen only 4 honey bees deliberately tripping florets and collecting pollen in their pollen baskets.

Observation of the behaviour of honey bees visiting lucerne florets reveals that the bees are alighting on the petals in such a way that pressure on the line of weak cells joining the two petals enclosing the tensed reproductive column is avoided, and the bees are taking only nectar from the nectaries in the throat of the floret. The question arises: why are the honey bees avoiding tripping the florets?

The force with which a reproductive column flies up is usually considerable. In the world of bees honey bees are lightly built; their external skeleton is much thinner than that of many other species of bee. It appears that they are not sufficiently heavily protected to avoid the likelihood of being damaged by tripping lucerne florets. I have found a bee in a lucerne crop with a bent tongue, and other workers have observed honey bees extracting themselves from tripped florets with some difficulty. In New Zealand honey bees can usually obtain their required pollen from plants other than lucerne, and it seems that most honey bees purposely avoid tripping florets. Occasionally however, in pollen dearths honey bees will collect enough pollen for their needs from lucerne, and in doing so will trip enough florets to yield a reasonable seed crop.

Bumble Bees and Lucerne Florets

Bumble bees are heavily built as far as bees go, and one species in New Zealand *Bombus terrestris*, is an excellent pollinator of lucerne. This short-tongued species will collect both pollen and nectar from florets, and when bee numbers are high — about one per 2 square metres, seed yields may be

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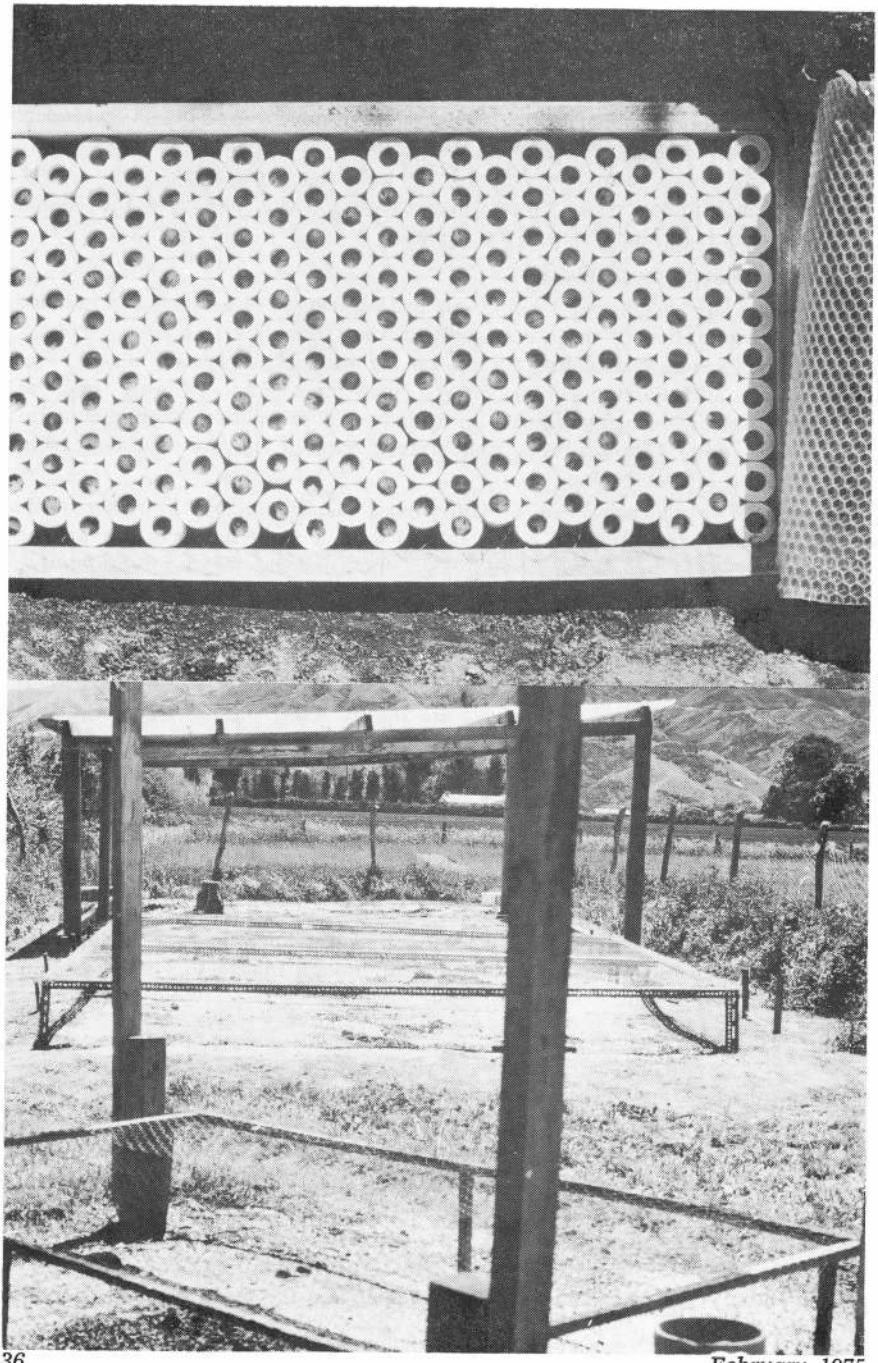
Fig. 3 A release flat containing alkali bee pupae.

Fig. 4 Artificial nest sites at Spring Creek, Blenheim. The site in the foreground was the original site. The large site in the background was constructed 17 months ago to accommodate the expanding bee population.



good. Bumble bee numbers are usually quite low however in lucerne seed crops, and because a grower has no control over bee numbers in his crop, are unreliable as pollinators.

Alkali Bees in the U.S.A.

The alkali bee is a native of the western desert areas of the U.S.A. In this area, high mountain ranges separate valleys that receive low rainfall, and which are watered mainly by snow melt from the mountains. The water leaches salts from the eroding mountain slopes, and in the valley floors the salts rise to the surface where white crustry areas form. It is in these areas that alkali bee nests are usually found, hence the name.

In size, alkali bees are similar to honey bees, but are distinguishable from all other bees in New Zealand by the presence of four stripes or bands across the abdomen which are bright green, orange or yellow. Both sexes are very fast and powerful fliers.

The life cycle of alkali bees is very similar to that of most of our native ground-nesting bees in the family Colletidae. Bees emerge in early summer, and after mating, each female excavates a vertical tunnel down to 10 cm to 30 cm and there rounds out a series of acorn-shaped cells about 1.5 cm deep and 0.8 cm in diameter. Pollen and nectar are stored in each cell, an egg laid, and the cells sealed with a plug of earth. A female bee can complete one cell a day in favourable weather, and in her lifetime of about 6 weeks can complete about 24 cells. Eggs hatch into small larvae which consume all the stored pollen and nectar in about 6 days, and within three days after this the larvae transform into the prepupal stage. (Bohart, and Cross, 1955). In the warmer areas of western U.S.A., such as the Sacramento Valley in California, the prepupae will transform directly to pupae and then bees that same summer, and up to three generations of bees may be obtained in one summer. However, in cooler areas such as parts of Oregon and Idaho, the prepupae stay in that condition until the following early summer. Adult bees die at summers end, so for long winter months there are no adult bees about.

In the late 1940's, observant lucerne seed growers noticed a great increase in alkali bee populations as the area of lucerne saved for seed expanded, and a corresponding increase in seed yield/ha as alkali bee numbers increased. Researchers soon discovered that female alkali bees were tripping lucerne florets at such a rate that it was calculated that each female could, in her lifetime, trip enough florets to produce about 500 gm of seed. By chance, this species of bee which had had no previous contact with lucerne, was proving to be an excellent pollinator. Alkali bees are strongly built, and females were not bothered by blows from tripping florets. Progressive growers soon protected alkali bee nest sites with fences, and attempted to expand areas suitable for bee nests. Growers in areas without bees wished to establish bees in their areas.

Artificial nest sites are now made as follows. An area of desired size — up to 60m x 120m but usually much smaller, is excavated to a depth of about 1m, the bottom levelled and the bottom and sides lined with plastic sheeting. Clean round river gravel from 2-4 cm in diameter is placed in the bottom 30

cm on the plastic, vertical pipes about 1.5m long and 20 cm in diameter are stood on the gravel, and the rest of the hole is filled with a loamy silty soil. About 10-20 kg of NaCl is then mixed into the top few cm of each square metre. Water is then run down the pipes to the gravel from where it slowly rises to the surface.

In an area where bees are already present, females will soon begin to populate the nest site. Where bees are absent, soil cores from existing beds are transplanted in winter to the new site. The bees which emerge from the prepupae in the soil cores will, if all goes well, build up economically worth while populations within a few summers.

Properly constructed nest sites in areas of high sunshine hours, low rainfall and many days with temperatures in excess of 20°C in summer, — conditions which are necessary for alkali bee propagation — can be very successful. Nest numbers per m^2 can reach over 400, and there are usually enough bees nesting in about $20m^2$ to fully pollinate one hectare of lucerne. Fig. 2 shows a large artificial nest site in California.

Introduction of Alkali Bees to New Zealand

Because alkali bees were so effective in increasing lucerne seed yields in western U.S.A., it seemed worth while to attempt to introduce the species to New Zealand. There were a number of problems to be faced however. Import permits issued by M.A.F. require that imported insects be free from parasites and diseases. Alkali bees are affected by several parasites in the U.S.A., and populations can be sometimes almost eliminated when parasite numbers are high. The position regarding disease is not clear, but there are no known diseases common to alkali bees and honey bees.

The northern hemisphere seasonal cycle is 6 months out of step with that of the southern hemisphere. Could the bees' activity cycle be synchronised with the southern hemisphere seasonal cycle? Did we have soils suitable for alkali bee nest construction? Could populations be established from a few thousand bees? Were our summer temperatures, sunshine hours and rainfall suitable for alkali bee propagation?

Alkali bees were first imported, as prepupae, on 16th November, 1964 from Idaho to the DSIR Lincoln. By importing naked prepupae, it was possible to ensure prepupae were free of other insects. Immersion of prepupae for several minutes in a mild bacteriocide surface-sterilised prepupae. By storing prepupae at 5°C through our autumn and winter, (the northern spring and summer), development to pupae and adult in our winter was prevented, and by incubating prepupae at 25°C in our spring, it was possible to initiate pupation and full development to the adult stage. For liberation in a nest site, prepupae were placed in short lengths of porcelain bead, the internal diameter and length of which was similar to that of natural bee cells. The beads were held together side by side in a wooden frame, and the free ends sealed with sheets of beeswax. Just before bee emergence, the whole "sandwich" or release flat was buried about 10cm beneath the surface of an artificial nest site (3).

After many trials, Mr Palmer, DSIR, Lincoln, did succeed in having 30 nests constructed at an artificial nest site at Earnscleugh near Alexandra in

Central Otago in early 1969. Because of difficulties with sub-irrigation and other factors, this population now appears to have died out. Since then however, alkali bees have been liberated in 6 other areas. Five areas proved unsuitable, but in one nest site, that at Spring Creek, Blenheim, (Fig. 4) nest numbers have increased steadily since liberation.

Nest numbers per year at Spring Creek, Blenheim

1971	1972	1973	1974	1975
70	95	220	925	2397 (to date — Feb. 1975)

In December 1971, 230 prepupae were removed from the Spring Creek nest site and transferred to 2 other nest sites, but nesting was not successful. In November 1973, 50 prepupae were removed for sampling and examination. It is obvious that the population is increasing rapidly, so soil and climate are suitable for alkali bees in this part of New Zealand.

Protective measures for nesting bees:

In the U.S.A., heavy rainfall when bees are actively nesting can drown adult bees and their progeny. To protect our Spring Creek nest site, we have built a roof of semi-clear corrugated roofing material which can be obtained commercially. Rain cannot reach the nest, but about 80% of the sunlight can, and bees nest very successfully under this roof. Birds, especially sparrows, are attracted by the salt crystals mixed into the surface of the nest site. On cool days sluggish bees are consumed, and in addition nest mounds are disturbed by bird scratchings. By surrounding the nest site with wire mesh with gaps about 2.7 cm wide, birds are excluded from the nest site but bees fly freely through the wire mesh.

Biology of Alkali Bees in New Zealand

The first alkali bees of the new season emerge about mid-December, but these are normally males, and the first nest mounds may not be seen until late December. Pollen carrying by females begins within a day or two of the appearance of the first nest mounds. The number of new nest mounds or tumuli per day increases rapidly to a peak in about the first to second week in January, and declines to nearly zero by about mid-February. The peak of male activity is reached by early January, but the peak of pollen carrying by females not until mid to late January. From then on the number of active females gradually decreases through February, until by early March the last bees have died. It is apparent though that as the population increases, bees are appearing earlier in December and lasting longer into March. Seasonal fluctuations of temperature in particular greatly influence the timing of all stages of bee activity. This year there is an indication of a small second generation in this summer.

The pollen collected by female alkali bees to date has been mostly that of composite flowers, chiefly the several species of yellow-flowered plants common in fields and roadsides in summer, and frequently known as hawksbit or catsear. Lucerne has recently been planted near the nest site, and when the bee population is higher, females should begin to collect pollen from lucerne.

(Continued on page 46)

HONEY CROP PROSPECTS

SEASON 1974-75

Summaries of reports from Apiary Instructors on seasonal conditions and honey crop prospects as at mid-January to the Superintendent Beekeeping, Advisory Services Division, Ministry of Agriculture and Fisheries, Wellington.

Auckland:

In most Northland and Auckland areas colonies wintered well with reasonable food reserves. Manuka commenced flowering in August in the northern areas, but the overall yield from this source was not up to expectations due to unsettled weather during the September-October period. Rainfall for the spring period was below average.

November weather in the north was showery with persistent cool winds, but rainfall in Auckland areas was below average.

In December clovers were drying-off in southern areas due to lack of rain.

Manuka crops were disappointing in most northern areas, but clover and pasture weed sources have yielded well as have Rewa Rewa and buttercup.

Honey crops overall are expected to be above average this season.

Hamilton:

Colonies wintered well in dry, warm conditions which prevailed to August, when the weather changed wet and cold temperatures, and bees flew only for short periods.

During August colonies were of good average strength. Natural stores were low and heavy sugar feeding was necessary although early nectar sources had flowered well. In some areas, wasps were troublesome and caused severe hive losses, particularly where these were close to bush.

Good colony strength was maintained throughout October with bush nectar sources, especially Rewa Rewa showing promise for good yields. Eventually, however, these produced very poor crops as did Barberry.

Yields from Tawari and Kamahi produced good average crops during November and December.

With December conditions being very dry, soaking rains were needed to maintain good clover growth. Pastures benefited from good rains during late December and early January.

Total crop for the season will be about 1120 tonnes, which is above the six year average. The honey is mainly of lighter colour.

Tauranga:

Climatic conditions in the Bay of Plenty district this year have been most erratic. Spring and early summer conditions were changeable with many rain squalls and cold temperatures. The build-up of hives was relatively slow and swarming in the early part of the season was not excessive.

Early floral sources bloomed reasonably well but were not worked to complete advantage by the bees because of the weather conditions that prevailed

at that time. With the month of December, weather conditions settled and high temperatures were experienced throughout this period. These high temperatures have continued into January. As a result of warm settled conditions that have prevailed over the last six weeks or so, pasture flora has bloomed very well and bees generally have worked these floral sources to great advantage. Some good quality honey has been procured and at this stage it would appear that above average crops could be harvested in this district. The quality of the honey appears to be very good.

Palmerston North:

Most colonies in all districts came through winter in good condition, but in some areas food supplies were light and some beekeepers had to start supplementary feeding early in the spring. In Taranaki and Manawatu rainfall was slightly above average while in Wairarapa and Hawkes Bay it was well above average.

Up till the end of October early nectar sources yielded little honey, except for Taihape where a light flow was obtained from Kowhais and from Barberry in Taranaki. In Hawkes Bay early manuka was disappointing and yielded little honey. Cold wet conditions continued until the middle of November causing a shortage of nectar and pollen with heavy feeding in many areas. Due to these conditions and lack of queen raising and re-queening by beekeepers many hives came into the honey flow in poor condition.

Conditions from then on were warm and dry with little wind, except in Northern Hawkes Bay where rainfall was well above average. Most native trees flowered the heaviest for many years and some good crops were gathered from these sources.

Warm weather continued during December in most areas with the honey flow commencing earlier than normal.

During early January heavy showers fell and revived pastures in many areas in Taranaki, the central high country and Hawkes Bay. Flowering of clover and other nectar sources at present is good.

With further settled weather the crop prospects in Taranaki, Manawatu, and central high country and Northern Wairarapa, are the best for many years and in Hawkes Bay is average to above average.

Nelson:

Marlborough and Nelson districts experienced a mild winter and spring with

above average rainfall and sunshine hours. Good pasture growth continued until mid-December when drought conditions prevailed and pastures burnt off. In spite of the hot dry conditions good crops are being harvested mainly from white clover, vipers bugloss. lucerne and pasture weed sources. Manuka did not flower as well as previous seasons. Prospects are for a crop slightly above the six year average.

West Coast experienced a mild dry winter and spring with absence of westerly conditions. Rainfall was below average with record sunshine hours and high temperatures. Kamahi and Hinau yielded well with only a light flowering of rata from Karamea to Barrytown and the odd tree flowering south of Barrytown. No rata honey will be harvested this year. Lotus major, white clover and pasture weed sources are flowering well on the river flats in South Westland and with continued good weather should yield well.

Extracting started in mid-December and prospects are for a crop above the six year average.

Christchurch:

Canterbury's winter was on the whole, cloudy unsettled with very few frosts and was the wettest for many years.

In fact rainfall to the end of October was 827 mm which is the highest since 1951, the record wet year.

November and December were very dry, with little or no rain and were warmer and sunnier than normal.

The very wet winter, followed by a warm November and December had the effect of putting the clover pastures the best for nectar secretion for many years, and while a little rain in December would have been welcome very good honey crops have been obtained.

Present indications are for an above average honey crop for this district.

Oamaru:

Plentiful rain produced abundant pasture growth in the spring. Early nectar sources such as willows, dandelion, brassicas and native bush yielded well.

Hives in some areas were slow to build up despite plentiful supplies of pollen and adequate honey stores. Nosema disease may have been the cause of this problem. There were serious nosema outbreaks in a few apiaries.

White clover began to yield nectar in late November, hives improved and the prospects then looked exceptionally good.

December was hot and dry and produced the earliest honey flow for many years. The whole district is now very dry. An average crop seems assured. Heavy rain could still improve the situation.

Gore:

Early spring weather was fine and warm and colony strength was normal with the willow flow better than normal.

November was the driest for many years, particularly in the Te Anau, Northern Southland and Central Otago areas.

Excellent December and early January weather promoted pasture growth and enabled clover to secrete. A good surplus was obtained a month earlier than in previous years.

Overall an above average crop is expected for the district.

NEW ZEALAND HONEY MARKETING AUTHORITY

CIRCULAR TO HONEY PRODUCERS. SEASON 1974/75

All suppliers are requested to pay special attention to following policy changes that will be taking place during the coming season.

(a) Store Advance payments. See para. 2.
Pro-Forma Advance payments. See para. 4.
Early delivery bonus. See para. 3.

(b) **The termination of our association with the following depot.**
Spencer Crust Gain Ltd., Dunedin.
Previous suppliers to this depot will now send their honey to either Pleasant Point or Invercargill depots, whichever is nearest to their honeyhouse.

(c) **Freight Delivery Charges.**
The N.Z.H.M.A. will pay all rail charges over and above the first 80 km (50 miles).

(d) **Witholding payments.** See para. 6.
(i) **Kamahi** Extra Strong and Strong flavours 5 cents kg
(ii) **Thyme** All flavours 5 cents kg.

(e) **New 20 litre metric cans.** Refer para. 10 (e).

(1) ADVANCE PAYMENTS FOR HONEY SEASON 1974/75

The following advance payments will be paid on honey supplied during production Season 1974/75.

It should be noted that any previous season's honey 1973/74 supplied, does not qualify for these advance apyments, but is subject to negotiation for a straight purchase price.

(2) HONEY DELIVERED TO DEPOTS

(a) An advance of 20 cents per kilo will automatically be credited to Suppliers account immediately the Depot receipt is received by Auckland Office. Such advance is subject to grading and compliance with the Authority's Conditions of Supply of Honey.

This advance does not commit the Authority to a contract for purchase.

All honey delivered to a Depot under these conditions of Supply will be accepted for purchase under the **PRO-RATA** scheme unless the honey does not qualify for an export grading certificate, in which case the Authority will make a Straight Purchase offer.

(b) The Authority will not agree under any circumstances to a supplier's request that he may wish to reclaim honey delivered to any depot under these Conditions of Supply.

(c) The exception to this ruling may arise when honey has been graded as below Export standard, and will then become subject to the conditions set out in paragraph 19.

(3) EARLY DELIVERY INCENTIVE BONUS

(a) With a view to encouraging early delivery of new season's honey, an extra Bonus Payment of 1c per kilo will be paid for Export Quality Honey delivered to any Depot from 1st December, 1974 to 31st March, 1975. This Bonus will also be paid on first deliveries made from 1st April, 1975 to 31st May, 1975, up to but not exceeding the quantity supplied prior to 31st March, 1975.

(b) Any supplier making deliveries outside the terms of (a) above will receive ½c per kilo for April deliveries only.

(c) At the end of the season when the final payment is made this extra bonus payment **will not be included** with the total of pro-rata payments made during the season.

The final payment cheque is calculated on the basis of total kilos honey delivered and paid for at the seasons payout price per kilo, less pro-rata payments made during the season.

In other words this bonus is an extra payment.

The bonus payment will be made at time of delivery to the depot and will be recovered if the honey does not grade to Export Standard.

(4) ADVANCE ON GRADING

(a) Upon grading of honey acceptable under the Authority's Conditions for Supply of Honey an additional amount up to 20 cents per kilo of actual honey will be credited on receipt of a grade certificate by the Authority. (Payment subject to Treasury Approval).

(b) All credit balances will be paid during month following receipt and/or grading of honey.

(5) PREMIUM BONUS

An additional premium bonus of 1 cent per kilo will be made for all honey with a colour grading of 0-9 mm on the P fund scale.

(6) WITHOLDING PAYMENTS

KAMAHI Extra Strong and Strong flavours ..... 5 cents kg.
THYME All flavours ..... 5 cents kg.

(7) FINAL PAYMENT AT END OF SEASON

After the close of the Authority's Financial Year on August 31st 1975, the financial position will be reviewed and a final payment will be made on the basis of honey supplied other than purchases made under Straight Purchase agreements. The final payment cheque is calculated on the basis of total kilos honey delivered less the total of payments made during the season, but excluding early delivery bonus, and premium bonus.

(8) ADVICE NOTES AND LABELS

Advice notes and labels wil lbe posted at the same time as any containers are despatched but also are freely available on request.

IT IS ESSENTIAL THAT THE ADVICE NOTES REACH THE DEPOT BEFORE THE ARRIVAL OF THE HONEY.

The labels must show the Supplier's number and extraction mark, to be printed on, before being applied to the top side of cans, or on the **top and side** of the 44 gallon (200 litre) drums.

(9) FREIGHT REFUNDS

(a) The Authority will pay all freight charges over and above the first 80 km, based on Rail Tonne Miles.

(b) Under no circumstances should a supplier send his honey "FREIGHT FORWARD".

THIS REQUIREMENT IS VERY IMPORTANT

(c) When a supplier delivers by his own vehicle he will be refunded only that amount as if he sent his honey by rail.

(d) Where private road transport is the only means of transport the producer will be refunded at the same rate as in (c) above.

(10) CONTAINERS

All containers will be charged at standard values and will be credited in full on return. Containers will be despatched on request freight paid to the nearest Rail Head.

ALWAYS ORDER EARLY IN THE SEASON

(a) All 44 gallon drums (200 litre) to be supplied will be "closed end" with a tare of:—
47½ lbs or 21.50 kg.
Drums to be filled to capacity and tightly sealed after filling with starter added:— See para. 11.

(b) **5 gallon Cans**
5 gallon cans should be filled as follows:
Fill to 33.0 kg Net Weight.
If you do not have metric scales: 33.0 kg equals 72 lbs 12 ozs.
The Tare weight of a can will be accepted as: 2.0 kg equals 4 lbs 6 ozs.
Gross weights will therefore be: 35.00 kg equals 77 lbs 2 ozs.
As mentioned earlier in this circular honey will be paid for in Kilos.

Plastic inserts and caps for cans must be firmly screwed on.
Starter honey to be added. (See para. 11).

(c) **20 litre (METRIC) cans**
The old imperial size can of 5 gallon has been phased out of production and any **new** containers forwarded to a supplier will be known under this name and will be white in colour overprinted in BLUE. The overprinting colour will change each season. The new 20 litre cans should be filled as follows:
Fill to **29.00 kg Net Weight**
If you do not have metric scales: 29.00 kg equals 64.00 lbs.
Tare Weight 1.75 kg equals 4.00 lbs.
Gross weights will be 30.75 kg equals 68.00 lbs.

(11) CONDITION OF HONEY
The honey may be granulated or liquid, with starter added. Starter should be fine grained, free from fermentation or sourness, and closely resemble the quality of the liquid honey.

(12) EMPTY CONTAINERS NOT RECEIVED OR DAMAGED
Producers are requested to pay special attention to this section.
Should the producer accept from the Railways a smaller quantity than shown on the Railway Consignment note he should:—
(a) Obtain a signature from a Railway Officer to this effect duly noted on the green copy of the Railway Consignment Note.
(b) As suppliers now being charged for containers it is their responsibility to make claim for loss or damage.

(13) DEPOTS
The following Depots will operate this season in addition to the Auckland Store.
(a) INVERCARGILL:
New Zealand Express Co (Inv.) Ltd.,
P.O. Box 38,
INVERCARGILL. Phone: 89-049.
(b) SOUTH CANTERBURY:
N.Z.H.M.A.,
16 Horton Street,
PLEASANT POINT. Phone: Pl. Pt. 625.
RAIL TO TIMARU RAILWAY STATION
(c) CHRISTCHURCH:
N.Z.H.M.A.,
235 Buchanans Road,
HORNBY. Phone: Ch.Ch. 499-344.
RAIL ALL HONEY TO HORNBY RAILWAY STATION (Not Christchurch)
(d) PALMERSTON NORTH:
Jarratt Sandes & Co. Ltd.,
564 Tremaine Avenue, P.O. Box 997,
PALMERSTON NORTH. Phone: 71-143.

(14) TABLE FOR POINTS SYSTEM AND GRADING DETAILS
See attached details.

(15) CLOSING DATE FOR SEASON.
Only deliveries up to and including 30th June, 1975 will be included in the seasons final payout.
Deliveries after this date are subject to a negotiated straight purchase offer.

CONDITIONS FOR THE SUPPLY OF HONEY

(16) GRADING OF HONEY:
All honey will be graded by the Ministry of Agriculture and Fisheries under the terms and provisions of the Honey Export Regulations 1950. Grading is usually prompt, but at the height of the season, some delay may be unavoidable.

(17) PREPARATION OF HONEY FOR MARKET:
The Ministry of Agriculture and Fisheries operates an efficient advisory service which is pleased to assist suppliers who wish to improve the quality of their

honey. If a supplier has any problems, he should contact the local Apiary Instructor. He may have the knowledge the supplier requires or can obtain it for him from the specialist officers and many Government Agencies at his disposal.

(18) ACCEPTANCE OF HONEY — EXPORT QUALITY:

Honey which grades in compliance with the standards prescribed for export grades shall be purchased by the New Zealand Honey Marketing Authority in accordance with its "pro-rata" system and the prices paid will depend on market returns during the season.

The qualities of Colour, Flavour and Condition are all taken into account and details are shown on the table attached.

Alternatively the Authority may purchase after negotiation and offer a "straight purchase" price per kilo should this be the express wish of the supplier, but in general the Authority's "straight purchase" offers will be conservative and not likely to meet the payout to those suppliers who elect to offer their honey under the "pro-rata" scheme.

(19) BELOW EXPORT STANDARD:

Honey which does not meet the standards prescribed for export grades shall be subject to purchase by negotiation, but the Authority reserves the right to withold an offer for any honey which at the time, and for any reason, appears of unmarketable Flavour, Colour or Condition. Such honey must be removed at the suppliers own expense, and any advances refunded.

(20) In the past seasons, many suppliers have sent in small samples for grading. These created many problems because, more often than not they differed greatly from the consignment they were alleged to represent. Because such samples have seldom served any useful purpose, they are no longer encouraged. If a supplier is in doubt as to whether or not an extraction of indifferent honey will meet export standards it is recommended that he sends one **can** or **drum** of the suspect honey to the depot in the usual manner. After this container has been graded he will be in a better position to decide how best to dispose of the rest of the extraction.

ALKALI BEES IN NEW ZEALAND (Continued from page 39)

diseases. The only predators have been sparrows, and no more than a dozen or so bees have been killed.

The future of Alkali Bees in New Zealand.

Beginning this spring, small numbers of prepupae will be transferred to new artificial nest sites adjacent to commercial lucerne seed fields, and some to naturally occurring salty patches in the Blenheim area. It is hoped that within 5 years, some bee populations may be sufficiently high to be economically worth while as lucerne pollinators. If this stage can be reached, commercial use of alkali bees for lucerne seed pollination may increase rapidly. Because alkali bees require moist salty soil for nesting, populations will only survive well in a few naturally salty and moist areas. The only large populations will be found in artifically constructed nest sites so apart from a few areas of the country, alkali bees will be confined to locations where man desires them for lucerne pollination. Because of this, these distinctive bees will probably become familiar to only a small number of people.

REFERENCES

Bohart, G. E., and Cross, E. A. 1955:
Time relationships in the nest construction and life cycle of the alkali bee
Annals of the Entomological Society of America 48: 403-406.

Palmer-Jones, T., and Forster, I. W. 1964:
Observations on the pollination of lucerne (**Medicago sativa** Linn.)
New Zealand Journal of Agricultural Research 8: 340-349.

NEWS FROM AROUND THE WORLD

IN THIS and following issues, an attempt will be made to review as many as possible of the Beekeeping publications which come to the editor from overseas. Naturally it will not be possible to give this in full detail since many of these are monthly publications whereas this magazine is a quarterly.

As soon as the material is published, the magazine reviewed will be sent to the Librarian, P.O. Box 423, Timaru who will be pleased to arrange the loan of any material you may wish to study in detail. He also has a great many back issues of these and other beekeeping magazines.

GLEANING IN BEE CULTURE

Published by A. I. Root Co., Medina, Ohio, U.S.A., 44256. Subscriptions are $US5.50 for 1 year and $US10.50 for 2 years of monthly publication.

This magazine has been in continuous publication for more than 100 years and some of the regular contributors such as Dr Richard Taylor ("Bee Talk"), Dr Roger A. Morse ("Research Review"), W. A. Stephen ("Fundamentals For All"), have a long history of writing about beekeeping. Some of the material may be specifically localised but in general most would apply to the *New Zealand Beekeeper,* with approprate modifications.

September, 1974: "How About Dr C. C. Miller As a Man and as a Beekeeper", by Grant D. Morse. Although Dr Miller has been dead for more than 50 years most of his methods have stood the test of time, as also have some of his comments. He writes: "If I were to meet a man perfect in the entire science and art of beekeeping, and were allowed just one question, I would ask for the best and easiest way to prevent swarming." American methods of treating A.F.B. make interesting reading in "NO FAE in Virginia", FAE, of course, refers to the ethylene oxide-fuelled type of bomb which is the same basic material used in the treatment described. Complete destruction as practised in this country is not common in U.S.A. Other features such as "De-Beeing Supers the No-Drip Way" and "Box Hive Transfer" make interesting reading. "Their "Innovations section is interesting even if some of the ideas seem strange to us.

October, 1974: "My Most Valuable Tip in 16 Years of Beekeeping" by Harry J. Morris gives a good carefully detailed method for hive inspection which will interest commercial men and amateurs alike. "Why I Don't Use Bee Excluders" by Claude Hunt presents another point of view. "Life as Seen from a Beehive" by Lynn Reynolds includes an interesting statement about the man who had an incurable disease for 50 years, "Bee Fever!" Also there is an interesting theory propounded that AFB is more likely to occur in places with certain soil types such as sandy than it is in others.

November, 1974: Beautiful cover picture of a woman confidently handling bees. "My Experience With the African Honey Bee" by Dr William F. Lyon an entomologist who went on loan to Kenya for two years gives some very

pertinent reasons why we must be vigilant to see that this or any other preventable problem is not imported into New Zealand. "How About Keeping the Bee Yard Full" by Dr Grant D. Morse covers the making up of nuclei as well as some points about over-wintering colonies in colder areas which may have local application. "Pollen Trapping Did Not Prevent Bee Kill from Gypsey Moth Spray (Sevin)" by E. G. Martin, Entomologist. This insecticide, also known as carbaryl, can kill larvae fed on pollen from contaminated sources for some time after spraying has finished in the field. "The People Behind the Bee Research Association" gives a very good account of this British organisation's people and activities by an American member who visited its headquarters outside London recently.

December 1974: "How to Conduct a Bee School" by Dr L. J. Connor. Full Index to Volume 102, 1974. Plus the usual regular features.

AMERICAN BEE JOURNAL

Published by Dadant & Sons from Hamilton, Ill., 62341 U.S.A. Subscriptions are $US5.25 for one year and $US9.75 for two years of monthly publication.

This is the second of the "Big Two" Bee publications in U.S.A. Regular monthly features, "How-to-Do-It" by Dr Richard Taylor; "The Classroom", a series of questions and answers by the editors; "The World Honey Market" notes and information on production and marketing from the main producing and consuming countries.

September 1974: "The Wax Glands of the Honey Bee" by Michael J. Turrell. "The Biology of Pollen" By Dr Patrick Echlin, Botany School, University of Cambridge, England. The second part of an article started in August issue.

October 1974: Did not reach the editor.

November 1974: "Stanley's System of Queen Breeding" by H. H. D. Atfield and Claude Rouillard, Mauritius. "The Flexible Brood Nest" by James Walton, England. Two articles on African Bees in South America are of interest, especially to those who would import queens or other bees into this country. A distinct pattern of tightening regulations as more imformation becomes known about these bees is emerging in the United States. Not only are they more aggressive but they carry more disease and parasites.

December 1974: "Seventy Years of Beekeeping are Sweeter Than Honey" by H. D. Hoffman, now aged 95. "Relative Toxicity of Two Juvenile Hormone Analogues" by R. E. Redfern and D. A. Knox, United States Department of Agriculture. These compounds show promise as a substitute for carbaryl which has caused so much damage to bees.

THE AUSTRALASIAN BEEKEEPER

Published monthly by Pender Bros. Ltd., Elgin St., Maitland, NSW 2320, Australia. Subscriptions: Australia and N.Z. $4.80A, Other Countries $A5.40. Editor: Morris W. Morgan.

Regular Monthly Features: Market Reports, Talks to Beginners, Novices Notebook, "Beelines" notes from Apiary Officers.

October 1974: "The Woodchip and Pine Planting Tragedy" has a familiar ring to N.Z. ears. "Sicilian Pot-Pourri" by James Walton, Sussex, England; an interesting travelogue with a beekeeping flavour.

November 1974: The editorial "Acarine Disease Causes Concern" is of special interest to New Zealand Beekeepers since it reports on efforts being made to

BEE WORLD

Official organ of the Bee Research Association. Editor: Eva Crane. Subscriptions: Individual Membership with "Bee World" $US11. Non-members $US14.

Bee World is noted for its technical as well as practical articles. See Page . . . for the 25th Anniversary Lecture for N.Z. of the Bee Research Association. The article on page 141 of No. 4, 1975 is reprinted in full in this issue *of N.Z. Beekeeper*. Other articles and features of this issue are:

. **No. 4, 1975:** List of new members. New Zealanders are conspicuous by their absence. World Honey Crop Reports. Also conspicious is the fact that beekeepers in Morocco still use fixed frame hives and from these report an average honey production of only 4 kg per hive. **Bees as Pollinators of Entomophilous Crops** by Oldrich Haragsim, Czechoslovakia. **Direction in which Bees Build Combs** by Eva Crane. Index to 1974 (Volume 55).

THE SCOTTISH BEEKEEPER

Magazine of the Scottish Beekeepers' Association, international in appeal. Sample copy free from A. B. Ferguson, Schoolhouse, Kirkpatrick Fleming, Locerbie, Dumfrieshire, DG11 3 AU, Scotland. Annual Membership of £2.50 stg includes the magazine post paid.

October 1974: *It's an Ill Wind* will make some N.Z. Beekeepers who have had poor crops in the past think again. The main tone of this issue is the poor season, dearth of sugar for feeding and doubt as to the value of sugar for feeding anyway.

November 1974: The regular feature *Looking Ahead* by "Sou'wester" gives a detailed account of work which should be done in the apiary at that time of the year. One cannot help note, with their very poor crops in comparison with what is regarded as 'normal' in this country that there must be very few truly commercial beekeepers in Scotland. This issue continues a list of members started in earlier magazines.

THE SCOTTISH BEE JOURNAL

Editor: Robert N. H. Skilling, 34 Rennie Street, Killmarnock, Scotland. Subscription: £1 p.a.

This modest journal offers good value both in its quotes from overseas and in its local news. It was indeed a thrill to hear that the editor, Mr Skilling, on holiday in Canada, missed the party of N.Z. Beekeepers on tour by only one day, and saw fit to send a personal note with his next magazine to this effect From his comments about Beekeeping, it appears that Beekeeping in Scotland is for incurable optimists only.

September and October 1974 (the last two issues to hand): The feature "A Man and His Bees" (Ronald Wright, Hudson Heights, Quebec) by the editor

is good reading and worthy of the best Beekeeping Journals. I can detect a touch of envy when Skilling writes . . . he produced in excess of 4 tons from 50 colonies last year! His account of his travels in Canada which have lots of Beekeeping information included, are also good. I was struck with the story about the Beekeeper in Ontario who, in standard Canadian practice in that area, kills off his bees after the main flow then buys packages in April from California to start off again. But he also has a 40w electric light bulb under the floorboard of each hive to make sure the new packages get off to a good start!

CANADIAN BEEKEEPING

Published Monthly from Orono, Ontario, Canada. J. H. Arnott, Professor of Agriculture Editor. Subscription: $CAN7.00 per year.

This magazine tends to deal mainly with localised events and management techniques. An article on over-wintering of bees in the issue of December 1974 makes interesting reading where it speaks of the "Recent changes in the price of honey, sugar, package bees, and queens and sometimes the uncertainty of obtaining package bees created a considerable interest among beekeepers in the wintering of honey bees." When one considers their extremes of climate and the fact that hives must be packed down for six months or more, they must be desperate. This should be of special interest to Queen Breeders in New Zealand. Also of interest is a story about Mrs Ilya Jung of Peace River, British Columbia who has ben appointed as a "Bee Inspector" . . . believed to be the first woman to have this honour in the whole of North America.

In the second issue of 1975 the editor acknowledges a letter which covers the possibility of breeding disease-resistant stocks in a similar way to that which he has done by an Apiary in Louisiana, U.S.A. Also, an article showing the type of legal form which Beekeepers should have as a contract with the owners of the land on which they have their apiaries is shown. A case is quoted in which, on sale of land everything on the property was deemed to belong to the new owner, including the Beekeepers Apiary, this could have local application.

A COMPARISON OF QUEENS FROM NEW ZEALAND AND CALIFORNIA FOR PRODUCTION OF HONEY AND PACKAGE BEES IN CANADA*

by P. PANKIW

Research Station, Agriculture Canada, Beaverlodge, Alberta, TOH OCO, Canada

Reprinted from "Bee World", November, 1974

The problem

The beekeeping industry in Western Canada is dependent on importation of package bees from the USA. Over 250,000 two-pound packages (about 1 kg), each consisting of adult bees and a queen, are purchased annually in the spring, produce honey in the summer, and are killed off in the autumn. To make Western Canada more self-sufficient, part of this demand could be met by package bees or "divisions" produced from colonies wintered in the warmer areas of British Columbia[3]. Divisions can be made in March and April, whereas packages are shaken and assembled

in late April and early May. However, queens are needed to head these packages or divisions and the climate in Canada at this time is too cold for rearing queens and for adequate mating. At present the only source of queens is USA (primarily California), and increased demands of the USA package bee industry restrict the availability of queens until 1st May.

The importation of queens from countries other than the USA has been restricted because of the danger of introducing acarine disease into Canada. However, New Zealand—which has not reported this disease in the last two decades[1]—could supply Canada with a limited number of early queens, because bee breeders there can incorporate queen rearing into their autumn management practices in March and early April. The queens produced were sent 16,000km to Canada, in the opposite hemisphere, where they arrived in springtime and headed colonies at the start of their active season.

To determine the adaptability and performance of New Zealand queens in Canada, importations began in 1968 on a restricted quarantine basis, with the co-operation of the New Zealand Department of Agriculture and the Canada Department of Agriculture. In 1968 and 1969 queens were obtained from two reputable and progressive beekeepers. In 1970 queens were purchased from A. Graham of Coaldale, Alberta, the Canadian representative of the New Zealand Bee Breeders' Association, who also imported them on a supervised basis. Queens from progressive beekeepers in California were used as controls.

Queens were sent by air-express from Auckland, New Zealand to Vancouver, BC, where they were collected; queens from California arrived either by air-mail or by truck. The travelling time was similar for both groups, and the queens were in good condition when introduced to the packages.

In the tests such factors as spring brood rearing, honey production, and wintering performance for package bee production were compared, together with other intrinsic factors such as gentleness, disease resistance and swarming.

Experimental procedures and results

Queens were introduced into 1-kg packages shaken in late April from colonies overwintered in southern British Columbia[3]. Each package was supplied with 0.8 kg of 60% sugar syrup. These packages were then transported 1300 km to Beaverlodge, Alberta, and hived there. The time between shaking of packages and installing in hives ranged from 48 to 60 hours.

As a preventative for bee diseases, colonies were fed 40 mg of fumagillin (Fumidil B) and 100 mg of either oxytetracycline (Terramycin) or tetracycline (Tetra B) in 1½ litres of 60% sugar syrup shortly after hiving. Further treatments of 200 mg tetracycline in approximately 25 grams of icing sugar were provided in late May and in mid-June. Thereafter no medication was given, to preclude contamination of honey by anti-biotics.

Brood rearing, honey production, gentleness, disease resistance

The rate of the queens' egg laying approximately 1 and 4 weeks after hiving was determined using a grid calculation of the capped brood area[2]. The major nectar flows in the Beaverlodge area usually commence in late June and terminate by mid-August. To determine honey production, colonies were weighed before and after the main flow, adjustments being made for the weight of supers added between weighings. The end of the nectar flow was determined by monitoring colonies on platform scales and by observing bee forage in the vicinity of the apiaries. Observations on gentleness and on bee diseases were made throughout the spring and summer during examination of the colonies.

New Zealand queens tended to lay fewer eggs per day than California queens during the first week after hiving, but after 4-5 weeks the two groups were similar (Table 1). One New Zealand strain developed sacbrood in 9 of 23 colonies in 1969. European foul brood occurred in July in certain colonies of both groups (despite preventive feeding until mid-June) and reduced the honey production of these colonies. However, both groups gave a similar average honey production per colony. This is surprising, since the queens came from opposite hemispheres; there is however some similarity in the types of honey plants in New Zealand and Canada.

Swarming tendencies were similar and light, and swarming was controlled throughout the duration of the experiment. Queens imported from New Zealand in 1968 were very docile; subsequent importations were less docile, but they were more gentle than the California strains.

Wintering

Colonies were selected for wintering in mid-August on the basis of a good brood pattern, a vigorous queen, at least 5 kg of adult bees and an average (or greater) honey production record. Each colony was provided with 5 frames of pollen and 25 kg of honey in 2 supers. Colonies were treated with 40 mg of fumagillin and 200 mg of tetracycline in 1½ litres of 60% syrup in early to mid-September. Colonies were moved for overwintering to Clearbrook, BC, in early October, at which time 0.9 kg of pollen supplement (water, sugar, soya-bean meal with 50% protein, and natural pollen, in the ratio 8 : 4 : 3 : 1) was placed between the first and second supers. Further feedings of pollen supplement and antibiotics were given in February and March. A third super with 20 kg of honey was added in February.

Colonies were examined to determine disease incidence, brood production, and adult bee populations, on 25th February and 25th March in 1969, and on 15th February in 1970. Due to cold weather in 1971, colonies were not examined until the first shaking.

Each spring packages were shaken from the colonies at the wintering site (Clearbrook), transported to Beaverlodge within 2 weeks, and additional packages shaken. The shaking dates were 1st and 20th May in 1969, 23rd April and 15th May in 1970 and 26th April and 18th May in 1971.

The wintering studies (Table 2) indicate that both groups consumed similar amounts of stores. In the years when brood counts and estimates of bees were taken,

TABLE 1, Comparison of queens from New Zealand (two strains) and California for brood rearing, disease and honey production*.

A. 1968

	Strain of queen		
	Calif.	*NZ 1*	*NZ 2*
No. packages hived	18	15	15
No. queenless colonies	3	1	1
No. eggs/day 6 days after hiving	646 a	677 a	682 a
No. eggs/day 25 days after hiving	1036 a	1073 a	1079 a
Mean honey production, 19.6-14.8 (kg)	69 a	72 a	81 a

B. 1969

	Apiary 1		*Apiary 2*	
	Calif.	*NZ*	*Calif.*	*NZ*
No. packages hived	15	23	15	13
No. queenless colonies	2	3	1	0
No. eggs/day 7 days after hiving	940 a	671 b	865 a	738 a
No. eggs/day 35 days after hiving	1634 a	1150 b	1475 a	1199 a
Mean honey production, 30.6-13.8 (kg)	53 a	51 a	68 a	67 a

	Apiary 1		*Apiary 2*	
	Calif.	*NZ*	*Calif.*	*NZ*
C. 1970				
No. colonies with sacbrood	1	9	1	0
No. colonies with EFB in July	1	8	0	1
No. packages hived	23	22	22	9
No. queenless colonies	1	1	—	—
No. eggs/day 4 days after hiving	561 a	455 b	553 a	492 a
No. eggs/day 25 days after hiving	1081 a	1027 a	1034 a	997 a
Mean honey production, 24.6-19.8 (kg)	73 a	79 a	64 a	57 a
No. colonies with EFB in July	2	3	4	1
Mean honey prod. of these colonies (kg)	70	65	49	54

* Figures in rows 1968 (or in apiaries in 1969, 1970) followed by the same letter are not significantly different at $P = 0.05$.

it was evident that New Zealand colonies produced less brood, resulting in smaller bee populations. This was reflected in the lower production of package bees in all 3 years. New Zealand colonies were also slightly more susceptible to EFB, which undoubtedly reduced their population potential.

TABLE 2. Performance of queens from California and New Zealand in wintering and package bee production*. All weights are in kg.

	Caifornia	*New Zealand*
A. 1968/69		
No colonies overwintered	17	23
No. colonies alive in spring	16	20
Wt food consumed in 8.3 months	36 a	37 a
No. eggs/day 15 Feb	140 a	145 a
Estimated weight of bees 25 Feb.	5.6 a	3.5 b
No. eggs/day 15 March	1200 a	950 b
Estimated weight of bees 15 March	5.1 a	4.0 b
Wt of bees in first shaking, 1 May	3.0	2.8
Wt of bees in second shaking, 20 May	3.1	2.4
Total wt of bees shaken	6.1 a	5.2 b
B. 1969/70		
No. colonies overwintered	17	22
No. colonies alive in spring	16	22
Wt food consumed in 7.5 months	43 a	40 a
No. eggs/day 5 Feb.	645 a	550 b
Estimated wt of bees 15 Feb.	7.0 a	6.1 b
Wt of bees in first shaking, 23 April	4.2	2.9
Wt of bees in second shaking, 15 May	5.1	3.9
Total wt of bees shaken	9.3 a	6.8 b
C. 1970/71		
No. colonies overwintered	18	18
No. colonies alive in spring	18	18
Wt food consumed in 8.3 months	37 a	34 a
Wt of bees in first shaking, 26 April	2.4	1.8
Wt of bees in second shaking, 18 May	3.8	3.4
Total wt of bees shaken	6.2 a	5.2 b

* Figures in rows followed by the same letter are not significantly different at $P = 0.05$.

The results show that, in Canada, New Zealand queens can provide a satisfactory substitute for California queens, in packages or divisions used for honey production In over-wintered colonies used for commercial production of package bees, it would be advisable to use California queens, but beekeepers interested primarily in maintaining their colonies or making a few divisions should find New Zealand queens satisfactory. These are also recommended for beekeeper beginners, 4-H bee clubs, schools and other demonstration purposes, because of their gentle nature. They should be of particular value in areas of high population densities, where protection of the public against bee stings is a primary consideration to the beekeeper.

New Zealand queens are now being imported into Canada, particularly British Columbia, for heading divisions from overwintered colonies; the numbers are expected to increase.

An understanding of the genetics of gentleness and of brood production is needed, so that gentleness could be incorporated into the California strain without reducing its superior brood production abilities. A mixing of the two strains is to be expected, as many progressive queen breeders from California select queens that perform extra well in Canada, and use them as breeder queens the following year.

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BRANCH NOTES

WEST COAST (South Island)

With temperatures consistently high and rainfall minimal the bee population built up quickly early, with the result that swarming was excessive in our area.

The weather conditions also brought on a heavy flowering of kamahi and other flora, the flow from which was heavy and further encouraged the bees to go touring with their queen, never to return.

Even after the normal swarming time, and without apparent reason some hives swarmed themselves to extinction or near enough to it, by Christmas.

In spite of the spate of swarming a much heavier crop than usual was collected, but, although there is a super-abundance of clover and lotus major bloom and fine weather with temperatures hovering arough thirty degrees centigrade day after day the bees have gone since early January and are showing little enthusiasm to refill the supers.

As there is a complete lack of rata bloom here in the south our best hope for a further crop of good honey is for the rata vines to flower early and prolifically and for the bees to wake up.

In the historic town of Ross and on the site where Johnnie Murdoch, a pioneer beekeeper once kept bees, a field day was held on the second of November in Keith Detlaff's brand new honeyhouse and adjacent to his queen-rearing yard.

Surrounded by piles of tailings of the goldmining era and now covered by regrowth, a more historic and picturesque setting could hardly be found.

Keith has made an excellent job of the honeyhouse and with a dozer has terraced some of the old tailings on which he has set out his batteries of nuclei colonies for queen raising near his parent colonies.

It was pleasing to have Mr Poole, Chairman of the Honey Marketing

Keith Detlaff discoursing on his operation. Here he has hives on terraced dredge tailings and parent colonies on lowest level. Bush clad tailings in background.

Authority, and Ivan Dickinson, President of N.Z. Beekeepers Association present to talk on activities in their respective spheres.

A demonstration of how to capture a queen quickly in a strong hive by the use of a blower and queen excluders was given by Keith Detlaff and John Glasson.

Jack Varley, Apiary Instructor, had a carefully cellophane-covered frame of B.L. affected brood to show what to look for when inspecting hives for disease in the spring or any other time.

WAIKATO

On February 7, members of the Waikato Branch attended a Queen Rearing School at the residence of Mr Maurice Deadman, Tirau.

The session was attended by 34 beekeepers with guests from Auckland and Tauranga.

Lectures were given by Mr Cliff Bird, Mr Jim Hisham and Mr Alan Hansen; with comments from Mr Maurice Deadman and Mr Doug Briscoe.

Most speakers agreed that young Queens were thrown out if the hives were disturbed before the Queen really started laying.

Cliff felt that better mating was achieved by baby nucs and Maurice said a queenless baby nuc will not accept another cell.

In discussing caged Queens Cliff stated that in the spring if the Queen wasn't released in under 12 hours the hive would raise their own cells — but in the autumn Queens needed to be at least three days in the cage before release.

Jim liked to leave his hives five days queenless before the introduction of cells, and said, that a young queen should not be thrusted onto an old queen unless brood is hatching.

Speakers agreed that when a pollen shortage occurs Nosema appears to be more prevalent.

During the discussion on drones, Doug Briscoe endorsed the speakers' comments on essential drone selection which has been lacking.

The Waikato Branch will be holding their field day on the 15th March,

1975, at the Okauia Hot Springs. A warm welcome is extended to all beekeepers, their families and friends who may wish to attend.

The honey crop in the Waikato with a few exceptions is by far the best for over 20 years. Near drought conditions in the Huntly, Te Kauwhata region during November, December put paid to a good crop in these areas.

The average yield appears to be 2 to 3 supers well filled, with ample stores in the brood chambers. This could result in a six ton to the 100 hive crop, which is very good by our standards. — Tony Lorimer

SOUTHLAND

The crop is a good one, as in most districts but some areas did suffer from drought conditions. Because of general hot dry conditions, the main clover flow started very early and also finished early, yet the hives could still fill out nicely from thistle and cats ear if warm weather prevails. Also, after heavy rains in some areas, further flowering of white clover looks promising.

Some good-quality honey is retailing in Dunedin at 33 cents lb and this is surely cause for some concern. It is to be hoped that no more honey is "dumped" onto the local market just because of good crops.

Disease cases reported for the season are well down on last year, but also reported were 20 hives poisoned, evidently from indiscriminate spraying.

A picnic-type Field Day at Dolamore Park was the scene for Southland Branch this year. On Feb. 1st, locals and visitors met in delightful surroundings and swapped tales of good fortune.

After the official opening by Mr J. Gilchrist, Superintendent of Parks and Reserves, the following speakers addressed the gathering:

Ivan Dickinson, N.B.A. matters; Kevin Ecroyd, H.M.A.; Trevor Bryant, Apiary Instructor, "Spring and Autumn requeening; Murray Reid, Apicultural Advisory Officer, "Single Brood-nest wintering".

Guest speaker was Michael Deaker, a well-known personality.

— A. M. Ward

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