THE NEW ZEALAND beekeeper

MARCH 1981

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EDITORIAL

The arbitrator cometh

by Trevor Walton

IT'S NOT LONG before the arbitrator in the HMA assets ownership dispute brings down his report to the minister of agriculture.

It will be wise if the minister decides to make the arbitrator's report public, along with a clear statement of government intentions.

If he doesn't, he will be opening the door for further legal machinations and doubt.

As NBA president Paul Marshall points out, the report will only determine the ownership of the authority's assets if and when they are dispersed. There will still be all the problems of "the if and when" and what form – if any – an export regulatory authority would take.

At the 1980 NBA conference, the government representative on the HMA, Don Hayman, warned that if the industry did not accept the findings of the arbitrator, the government would probably impose a solution of its own.

It will therefore be for HMA members to heed the wishes of the last NBA conference and to advance finance for the establishment of the new honey marketing co-operative in line with the recommendations of the arbitrator . . . regardless of the opinions of those who feel his decision is not quite what they would have required.

The next step will be to determine the date when the HMA's trading operations will cease and to set up a mechanism for determining whether the industry requires an export regulatory authority once the HMA has gone. (The 1979 industry conference clearly wanted such an authority, but so much has gone under the bridge, the mandate now requires reviewing.)

A new era in honey marketing is just around the corner. The arbitration costs (borne by the hive levy payer) will leave little change out of $15 000. The co-op's investigatory costs are probably of a similar order.

It's going to be time to quit debating and get on with the job. We can't afford any other course of action.

NATIONAL BEEKEEPERS' ASSOCIATION

OF N.Z. INCORPORATED

President:
Paul Marshall, The Honey House Ltd, Wakefield St., Napier.
Phone: 437-412 (business)
58-348 (home).

Vice-President:
Michael Stuckey, P.O. Box 35233, Browns Bay, Auckland.
Phone 4781-284 (home)
4781-133 (business)

Executive:
S.J. Lyttle, No.2 R.D., Geraldine. Phone 1189.

M.C. Cloake, Fairview R.D., Timaru. Phone 80-723.

Ian Berry, P.O. Box 16, Havelock North. Phone 775-400 and 777-300 (business) and 778-772 (home).

Tony Clissold,
No.5 R.D., Gore.
Phone 866, Willowbank.

General Secretary:
David Dobson, Level 14, Pastoral House, P.O. Box 4048, Wellington. Phone 721-541.

Hon. Librarian:
M.J. Heineman, Box 112, Milton, Otago. Phone 4613 (home)
4614 (business).

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Secretary: Mrs W. Macpherson, R.D.3, Kaitaia.

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Beekeeper Rates

Advertising at these rates is available to registered beekeepers advertising products or services directly relating to their beekeeping enterprise only. In cases where the appropriate rate is in doubt, the editor's decision will be final.

Half page $65, Quarter page $35, 1/8 page $20, $3 col/cm. Production charges will be made for single insertions of a minimum of $5. (This does not apply to classified advertisements.) No deduction for contracts. Colour extra.

Subscriptions

The N.Z. Beekeeper is distributed free to all beekeepers owning more than 49 hives who, after paying their compulsory hive levy, automatically become members of the National Beekeepers' Association of New Zealand (Inc).

Beekeepers owning less than 50 hives, will pay an annual subscription of $9.00 which includes the cost of a subscription to the N.Z. Beekeeper.

KING BEE

(WHERE THE NBA HAS ITS STING)

Hawkes Bay quiet

The Hawkes Bay branch of the National Beekeepers Association is holding in abeyance its request for additional advisory staff in the Hawkes Bay area until after the Flock House conference.

Better insecticide labels

The NBA executive has informed Mr Grahame Walton of the Ministry of Agriculture of its concern about insecticide labels which do not all warn of the danger of spraying crops when clover is flowering nearby. It appears that many orchardists are not appreciative of the effect of insecticides on bees working clover flowers under kiwifruit or other crops.

If you need it, ask for it

The NBA executive has resolved that active branches requiring grants to subsidise their activities, should forward an explanation and budget to the association's head office at the beginning of each year.

The executive is concerned that branches which are very active should have the finance to proceed with their plans for the year. However, a suggestion from Canterbury branch that its capitation grant be built up to $500 at the beginning of each year was not acceptable.

The executive's decision means that the capitation grants to branches will remain at the same level, but that branches which are particularly active will get extra funding according to their needs. In this way inactive branches will not be given additional funds when they are not fully using the grant already provided to them.

No part-time staff

The 1980 NBA Conference remit requesting the MAF to investigate the use of part-time apiary staff as well as part-time apiary inspectors, has drawn a blank. The Ministry of Agriculture and Fisheries has informed the National Beekeepers Association that State Services Commission employment principles do not allow such a formula to be applied to the ministry's advisory service.

Gloomy 1981 budget

A draft budget for 1981 indicates that the NBA will finish up with a deficit of about $7000 for its 1981 operations. If this occurs, the association reserves will be reduced from approximately $15 000 to $8000 by the end of the year.

NBA executive members expressed their concern about the cost of arbitration and the cost of the investigation by Mr Dellow on the co-operative – costs which may have to be met out of the hive levy in the future.

Queenstown conference

It has been confirmed that the annual conference of the National Beekeepers Association will be held in Queenstown during the week of July 20 to 24, 1981. Hosts will be the Southland branch of the NBA.

The Ministry of Agriculture and Fisheries has confirmed that it will be prepared to run a seminar on the Tuesday preceding the conference at Queenstown.

Keeping informed

The December meeting of the NBA executive resolved that individual beekeepers could receive the same information as sent to branch secretaries for a subscription of $10 per year. The decision was made as a result of a request by Mr N.C. Mossop.

Phacelia grant accepted

Massey University researchers have accepted the NBA grant of $200 to assist with their study of Phacelia Tanectifolia, a plant rated as one of the top 20 in the honey producing stakes. While $420 was requested by researchers, the executive only advanced $200 even though the researchers had indicated that they would have to terminate the trials if they didn't get what they asked for.

Centennial bee stamp

At the suggestion of executive member Tony Clissold, NBA secretary David Dobson has asked the postmaster general if a stamp could be produced commemorating the 100th anniversary of beekeeping in New Zealand in 1983.

Passionvine hopper research

The research into the passionvine hopper at Waikato University is being financially assisted by the National Beekeepers' Association. After receiving a second request for financial assistance from the university, the executive has decided that Ms P. Gerard be offered a grant in aid of $250 for the 1980–81 year. The executive however agreed to consider a further application for financial assistance from Ms Gerard if she should present a further progress report on her research in September this year.

Getting incentivised

The secretary of the NBA has received a letter from the Department of Trade and Industry explaining that honeydew is eligible for the Export Performance Taxation Incentive (EPTI).

Council members had earlier been unsure if this was the case, as it is with natural extracted, and comb honey. Like those honies, it too has to be packed in retail packs, and does not qualify for EPTI in bulk lines.

At present all three forms of honey are also eligible for the Increased Exports Taxation Incentive (IETI) in consumer packs weighing 3 kg or less.

This IETI will be completely phased out by March 31, 1983 when it will be replaced by the EPTI. In the meantime it is operable as an alternative to the EPTI.

Bulk lines of honey are also eligible for the promotion export incentives. One, at least, of these incentives requires quite a considerable value of honey ($1 million f.o.b.) to have been exported in a given 12 month period.

If this should not make the matter perfectly clear please get in touch with your understanding officer from the Department of Trade and Industry!

CORRESPONDENTS

SUGAR FEEDING IN TRANSIT

Dear Sir,

I have recently received several inquiries concerning methods of preparation of small quantities of fondant from refined sugar for use in feeding stock in transit.

The following method may be of use to some of your subscribers. It summarises the information published in the "Technical Papers and Proceedings of the Sugar Industry Technologists – Paper No. 449":

- Place 800 grams of refined sugar in a 4-5 litre (4 quart) saucepan together with 220 millilitres of water.
- Heat as rapidly as possible.
- Stir until the sugar dissolves and then boil undisturbed until the temperature reaches 115.5 deg C (240 deg F).
- Remove the pan from the stove and pour the contents into a mixing bowl.
- Cover and leave to cool. The cooling can be accelerated by standing the bowl in cold water.
- When the temperature falls below 43 deg C (110 deg F) beat at low speed with a paddle attachment on the kitchen mixer until a fondant is formed.
- Place the fondant in a closed container or spread out for cutting into bars or squares.

Yours,

G.W. Hutchinson
Grader/Analyst
H.M.A.

JOPSON DEFENDS HAYMAN

Dear Sir,

My attention has been drawn to certain comments made in an article entitled "Injunction, Arbitration, Dispersal" in the December 1980 issue of the "New Zealand Beekeeper" on page 7 regarding the goverment role with regards to the Honey Marketing Authority.

The first point this ministry wishes to take exception to is the suggestion that merely because the government member may on some occasions have the deciding vote that this is an unacceptable power. Indeed it is pointed out that this is a possibility wherever you may draw the line and that when in October 1978 Mr Bolger the then Associate Minister of Agriculture wrote to the National Beekeepers Association suggesting an increase in the number of producer representatives that this proposal was not accepted by the industry.

If the numerical membership of the Honey Marketing Authority as it is, is acceptable to the industry then perhaps you would like to explain in what way the power to exercise a vote by the government member is in itself unacceptable.

The second point at issue is the suggestion that the government member on the authority, Mr Don Hayman has held centre stage and that it was his taking an active part both in debate and voting on proposals to transfer the HMA's capital to the co-operative that resulted in the current impasse. Here it should be noted that Mr Hayman is only one member amongst five and as such could not be said to have held "centre stage".

By the same token blaming him for the impasse when all that he has done is to represent the government's viewpoint on matters, ignores the fact that the other four producer members have an equal say on matters affecting the authority and that there is no evidence to suggest that his attitudes any more than those of the other four members were responsible for the present situation.

Furthermore, the suggestion that the Minister of Agriculture and his under secretary's support for the establishment of a co-operative in supporting one side in what was an otherwise fairly evenly divided debate was painting a false picture of the true producer support for proposals dealing with their money ignores the following factors.

Firstly it ignores the factor of government contributions towards the finances of the authority. Secondly it ignores the fact that at no stage has the government or its representative stated how the authority's assets should be distributed but instead have taken the stand that this is a matter for arbitration, and that the funds should be lent to the new co-operative and then only on an interim basis.

Either way the article overlooks the fact that the government support for the establishment of a co-operative is motivated by a desire to minimise government involvement to the greatest extent possible.

Accordingly it is this ministry's view that the comments concerned have gone beyond what can reasonably be described as fair comment and therefore a suitably worded retraction in the next issue of the "New Zealand Beekeeper" would be appreciated.

Yours,

W.L. Jopson for
Director-General, MAF.

Editor's comments:

We challenged the role of Mr Hayman in the HMA assets debate, not because of his persuasive powers and eloquence which have often placed him at centre stage, but because he failed to stand aside and let the industry make its own decisions about its future once he had clearly stated the government case.

Naturally, as a representative of a body (government) with a stake in the industry, he is duty bound to debate issues which come before the board and to vote with the best interests of the industry in mind. Here, however, was an issue where the general rule did not apply:

- *Because any vote by Mr Hayman would be seen as partisan by one or other of the two camps dividing the industry, and would therefore tend to hinder conciliation rather than foster it.*
- *Because the vote concerned the future structure of the industry – a future where government by its own admission neither desired nor intended to be involved.*

In criticising Mr Hayman's action we are exercising our democratic right to a contrary viewpoint. Just as in other situations we have given great prominence to Mr Hayman's views because we have deemed them to be important or appropriate.

As government representative on a producer body which is entwined in government red tape, Mr Hayman has played an important role and played it well. In many situations (remember the last two conferences) only he could advise what was in the minds of his political masters and only he could indicate the policy options they would find acceptable.

At the September 16 and 17 meeting of the HMA he made what we consider to be a bad decision. Mr Jopson does not say it was a good one.

PENPAL

Dear Sir,

I find your publication to be a very fine one and would like to correspond with one or more beekeepers from New Zealand. I am a hobbyist with 150 hives and have been beekeeping for about 30 years.

So, if anyone would like to hear about Pennsylvania – USA beekeeping, I would be most happy to write.

Sam Albright,
420 Seventh St,
New Cumberland,
Pennsylvania 17070, U.S.A.

by Simon Mill

Paul Marshall - No lend lease but unify and plan

MORE THAN ever before, New Zealand beekeepers need a unified voice – an "official" voice that can speak authoritatively for the many varied voices of the industry. "United we stand, divided we fall" may yet be the catch phrase that could make or break the industry.

To see how, and why, the National Beekeepers Association sees its role, I prised valuable time away from Paul Marshall the association's president to seek his opinions.

First up, of course, is the size of the association. All beekeepers with more than 49 hives are regarded as commercial and automatically join the association and pay the levy of 17.5c per hive. As the "average" commercial beekeeper has 550 hives, Mr Averages' levy to the association amounts to about $96.25 a year. There are 377 commercial beekeepers in New Zealand, all members of the association. A commercial member gets one vote per 100 hives (with a maximum of 12 votes) at NBA business.

But at the bottom end of the scale are 4800 "amateur" beekeepers with under 50 hives, averaging five hives per keeper. Just under 12 per cent of these small beekeepers belong to the association. 541 members paying an annual subscription of $9 to become members of the association. This entitles them to one vote each at NBA meetings and includes an annual subscription to the NZ Beekeeper. These members may also include non practising beekeepers.

So far so good. And the casual observer could be forgiven for believing that such a specialised industry would have a strong national association and executive that could voice the industry problems and gripes with unanimity.

But such a belief would owe nothing to the individualism of the individual beekeeper. Commercial keepers fragment themselves into no less than five smaller groups. All independent associations with their own overheads.

There is the Honey Suppliers' Association; the Comb Honey Producers' Association; the Honeydew Producers' Association; the Queen Breeders' Association and the Honey Packers' Association. And as has been so patently apparent in the saga of the HMA, the views both within and between these groups are very diverse.

"I enjoyed being vice president of the NBA," says Paul, "and was quite happy in that position. But when you are asked to have your name put forward for president, you have little option but to accept." And so Paul Marshall found his and Mike Stuckey's roles reversed – two years ago. A role that remained unchanged after last year's AGM.

For a one-man beekeeper, the timing probably couldn't have been worse, and the fact that his business survived regardless must be due in no small part to his wife Alison, who mans their Wakefield Street door sales honey shop and handles the export comb honey consignments.

His first year in the president's seat saw all the travelling to the meetings about the proposed co-op, and while he doesn't say so, there must have been countless working moments when his thoughts were seduced by NBA affairs and policies.

After all, it was at Paul's instigation that the November 1979 "all parties" meeting was arranged with the NBA executive and HMA board. This was chaired by agriculture under-secretary Rob Talbot and was successful enough for a follow up in March of last year. In essence it probably smoothed the way for the AGM being so cut and dried an affair until debate on the co-op intruded.

Paul Marshall's avowed intention is to make the NBA the foremost official authority for beekeepers. "In the past the HMA has really been the dominant force in the beekeeping industry. It has set the honey price, controlled exports and accepted honey from producers who do not wish to market their own. In essence it has rather been the tail that wags the dog," he said.

"But if the HMA's days are numbered, as seems likely, producers will be left in limbo without some strong organisation to attend to their needs. I feel that the NBA is the obvious choice, and all beekeepers should get behind it. At present I have a very strong and capable young team on the executive.

"They represent a wide range of the industry and are seeing more of the problems as a whole spectrum, rather than the narrower, perhaps more parochial views of the various individual associations, to which they belong.

"To further the lead the NBA should be giving, we have arranged in conjunction with MAF an industry workshop for invited people interested in the honey industry to be held for five days at Flock House in April. (See story on page 9).

So much for visions. In years gone by, the NBA's value to beekeepers has often been intensely practical. Two years ago, for instance, when the Agricultural Chemicals Board was being revamped there were about 50 interested groups vying for the nine seats to be on the board.

"Our factual and concise submissions to the select committee enabled us to retain a seat on the new board, in preference to groups, such as Friends of the Earth. A pretty important position for an industry so often under threat from spraying activities," says Paul.

"Furthermore through being on the board, I was able to make sure that certain spraying regulations were gazetted under the Pesticides Act and not under the Apiaries Act. The former was far more relevant to a contract sprayer who would read the limitations under the act governing pesticide sprays, rather than thinking (or bothering) to find the restriction in the Apiaries Act."

This year is going to be a difficult one for Paul Marshall and his executive. It may also be expensive for beekeepers. There are the costs incurred by the proposed co-op. There is the cost of arbitration which will be borne by the hive levy payer. But there is no doubt that Paul Marshall has the interests of all beekeepers at heart when he and his executive try to strengthen the voice that can speak for all who produce honey.

Meantime Paul is left servicing his 600 hives which stretch from Elsthorpe to Wairoa; keeping in contact with the association's secretary, David Dobson; every two months flying to Wellington for the Agricultural Chemicals Board meeting and attending to NBA affairs in the afternoon before flying home again that night.

Then there are odd incursions into his

time like the week coming up at Flock House and three days in Tauranga in March with the pesticides field days.

So this busy man does his correspondence on a Sunday morning and thinks of how if he had stayed with MAF and not bought his honey business 10 years ago he could have played golf, and his handicap might now be 10 or better.

Instead, it's work and the challenge of association affairs. And with an income based on export comb sales and gate sales, he always has to ensure that a sufficient supply has been left for Alison to sell while he is away. No wonder Paul paid tribute to Alison at the Tauranga AGM!

For beekeepers, the success of Paul Marshall and his executive in unifying and strengthening the NBA over the coming year is going to be of major importance to them and their industry. A realisation that is not always apparent to those who do not know the 'full facts'.

An evidence of this is an article in this very NZ Beekeeper, wherein Mr Warren Hutchinson, Grader/Analyst with the HMA, warns of the ramifications of a present bill before a select committee, if submissions are not made to it on a 'beekeeping industry' basis rather than a series of sectional views.

This is the very type of warning, and rationalisation that Paul Marshall is trying to drum into the industry.

With his calm and non-sectional approach he seems to be finding acceptance for his views through his reappointment to the president's role at the last AGM, which in itself, may have proved a very positive step for beekeeping.

Arbitration report on its way

HMA ASSETS arbitrator David Kaye is expected to meet the minister's deadline and deliver his report on the ownership of the HMA's assets to Mr MacIntyre by March 31.

Giving a warning to those who expect the report to come down on one side of the issue or another, Mr Kaye told the NZ Beekeeper that his report would probably not win him many friends in the beekeeping industry.

"If the ownership of the HMA assets had been a black and white issue you wouldn't have needed an arbitrator," he said. "But there are many very grey areas and there is going to have to be a degree of compromise all round."

Mr Kaye said that he had decided not to have formal hearings as some had suggested. He said that these would have required additional expense with lawyers involved and so on.

Rather, he has read all the submissions, circulating copies of all of them to each party, and has sought out additional information as required. This additional information has included two trips to Auckland to inspect HMA records and discuss various matters with HMA staff.

Mr Kaye said he did not wish to sound too harsh, but a general comment on the submissions would be that many of them were too negative, dwelling on what should not be done, rather than on positive directions for the future. "This has not made my job any easier," he said.

Many submissions were also faulted for not being supported by evidence. Rather they were just bald statements of opinion.

Because the arbitrator's report is being prepared at the direction of the Minister of Agriculture and Fisheries, it will be for the minister to decide to whom it should be released and when.

New procedures for honey export certifications

by Grahame M. Walton, Chief Advisory Officer (Apiculture).

AS A RESULT of the introduction of new Honey Export Certification Regulations on January 1, 1981, the government has, with the support of the beekeeping industry, adopted a new approach to the export certification of honey.

The new regulations are mainly designed to provide exporters of honey with an export certification service which recognises the standards imposed by importing countries, and which can quickly adapt to any changes in these standards. The new regulations revoke the obsolete 1950 regulations.

In essence the Ministry of Agriculture and Fisheries will adopt a 'quality assurance' role. The ministry will endeavour to assure importing authorities that the exported honey meets their specified standards by providing the required certification when honey meets these standards.

Export certification of honey will no longer be a mandatory requirement. An exporter will in future be able to export honey without ministry certification if he so prefers, however he may still be required to meet conditions which may be set by the New Zealand Honey Marketing Authority.

Where an exporter requests an export certificate from the ministry, the examination and certification will be carried out in terms of the new regulations.

The ministry's new 'export certificate for honey' will generally certify that the exported honey:

- Is a natural food product produced by the honey bee *(Apis mellifera)*.
- Is of New Zealand origin.
- Has been prepared for export in premises registered and complying with the Food Hygiene Regulations 1974.
- Is classed as: Extracted/comb/chunk/pressed/blossom honey/honeydew honey/liquid/crystallised/retail/bulk.

Where an importing country requires other additional information the ministry will be prepared to supply this by way of an appropriate endorsement or by providing an attachment to the standard certificate.

This additional certification may relate to the composition of honey, its freedom from diseases, pests, antibiotics and other substances.

Where such requirements have been clearly determined by the ministry, the director-general may establish these as certifiable standards by means of a notice in the New Zealand Gazette. Countries known to have specific honey certification requirements include Australia, Cyprus, France, French Territories, Italy, Japan, Portugal, Papua New Guinea, and Spain.

For purposes of export certification, the words 'honey', 'blossom honey', 'honeydew honey', 'extracted', 'comb', 'chunk', etc have been defined in line with the recommendations of the Codex Alimentarius Commission; definitions which have been widely accepted by honey importing countries.

The new regulations give appropriate emphasis to honey as a natural, pure product of the honeybee. Before a ministry certifying officer will issue an official export certificate for honey he must be satisfied that the honey presented for examination meets the specified standards and that it has been prepared for export in premises meeting approved food hygiene requirements. In particular, the honey presented for ministry examination:

- As far as practicable, shall be free from mould, insects, insect debris, pupal cases, brood, or any organic or inorganic substance foreign to the composition of honey.
- Does not have any foreign tastes or odours.
- Has not begun to ferment or effervesce.
- Has not been heated or stored to such an extent that its natural enzymes are destroyed or made inactive.
- Does not have an artificially changed acidity.
- Does not have a moisture content in excess of 19 per cent; but ling heather honey (which is described as such) shall not have a moisture content in excess of 20 per cent.
- Does not contain any natural toxic substance in such quantity as to endanger human health.

The above requirements again reflect the general standards set by a number of countries importing New Zealand honey.

The ministry's export certification service will be initiated upon receipt of an 'application for export certification of honey' from the exporter. It is intended that in most cases the ministry's field officers will undertake the examination and certification of honey for export on a regional or district basis, depending upon the availability of trained ministry staff.

Normally the examination of honey for export will be carried out at the exporter's premises, however the ministry reserves the right to specify or approve premises for this purpose. In approving premises for the examination of export honey a certifying officer will give due attention to a number of aspects such as the hygiene of the premises, its location (eg whether ministry staff are available for regular servicing) and its facilities (eg uplifting equipment to shift drums, containers).

Where an exporter intends to export a shipment procured from more than one producer it will be the exporter's responsibility to assemble the shipment and to present it for examination at an approved place.

In providing an export service, it will be the ministry's role to assist exporters by verifying that the quality of the honey as presented for export meets the prescribed standards for honey and where these standards have been met, will issue the appropriate export certificate.

It is the exporter's general responsibility to ensure that his honey for export, with or without ministry certification, meets the requirements of the importing country in regard to honey quality, labelling weights and measures, freedom from foreign antibiotics, residues, toxic substances, diseases and pests, and to supply the importer and importing authorities with the required documentation.

It can be anticipated that from time to time an exporter will request the ministry to supply endorsements or additional documents acting on the advice of an importer, or on the assumption that a particular importing country requires this extra certification. The ministry will only issue documentation of this type when the requirements of the importing country have been clearly ascertained and confirmed; when the ministry has the resources (staff, facilities, and time) to undertake the required certification; and when satisfactory national procedures have been established.

With the introduction of the new honey export certification regulations the ministry will no longer 'grade' honey for colour and flavour. Colour and flavour assessments are seen as matters for the buyers and sellers of honey to determine. No importing country controls the entry of honey on the basis of its natural colour or flavour.

Exporters will no longer be required to have a 'registered export brand' approved by the ministry prior to exporting, and nor will the ministry apply an export stamp to the honey containers. The export document itself is considered sufficient evidence of ministry certification.

Exporters of honey requiring further information about export certification procedures should contact their local ministry adviser.

Copies of the honey export certification regulations 1980 (SR 1980/253) can be obtained from government bookshops at twenty-five cents a copy.

EXPORT REQUESTS

Beekeepers selling queen bees, raw beeswax or beekeeping equipment should contact the Department of Trade and Industry. According to requests forwarded to the NBA office in Wellington, Iran has made a request for quotations for the supply of 20 000 queen bees and 100 tonnes of raw beeswax. Iraq has made a similar request for quotations for the supply of beekeeping equipment.

New direction at Flock House

BEEKEEPING THROUGH the 1980's could take a forward step as a result of a workshop next month, which aims to decide on the industry's advantages and problems and recommend how to implement changes if they are necessary.

Leaders of New Zealand's beekeeping industry will be invited to attend a five day workshop at Flock House from April 27, to discuss thoroughly the present beekeeping industry in New Zealand.

Topics will start at plant source and range right through to marketing of products and services. Problems and advantages will be analysed along the way and if changes are recommended the best way will be found for these to be carried out.

One of the aspects that will be of interest to most beekeepers will be the recommendations the workshop may conclude are necessary for re-organisation and communication within the present industry. NBA president Paul Marshall, will present the initial discussion of key issues in this session, a subject he is known to have strong opinions about, with the possible wind down of the HMA.

Also raising a question in the minds of many beekeepers, is how the future of the New Zealand honey industry can cope with increasing demand for hives for pollination.

Many beekeepers, having found that the present system of moving hives around to pollinate is both time consuming and uneconomic, will look forward to revisions in the NBA's present stance on importing non-honey making pollinators. The rigorously increasing horticultural industry may justify change, but the repercussions pollinators could have on our honey producing industry will have to be considered.

The workshop, will take the form of an "ideas generating forum" and will be divided into 11 sessions discussing all aspects of the industry.

In each session nominated speakers from outside the industry plus industry leaders from within, will prepare a paper on their speciality and outline the key issues to promote discussion.

Discussion will follow, and the end of the session will see a summary of the issues that the workshop have identified.

The final two days of the workshop – Thursday and Friday – will examine these issues in depth and where necessary recommend changes and how these changes should be brought about.

If it is necessary the changes could be made immediately but it is more likely they will require detailed consideration by the NBA, HMA or other relevant groups as it is anticipated they will have great effect on beekeeping strategy throughout the 1980's.

No compo for EBD

THE GOVERNMENT has not accepted the NBA's recommendation to have European Brood Disease classified as a compensationable bee disease under the first schedule of the Apiaries Act.

"There are thousands of diseases and pests overseas which could affect New Zealand's agricultural, horticultural, foresting and fishing industries, and government is only prepared to pay compensation for a few more serious diseases and pests which, if introduced, would likely to have an intolerable economic effect on production and marketing; (e.g. foot and mouth disease) and which if introduced could be eradicated," said MAF senior advisory officer, Grahame Walton.

Two bee diseases, Acarine and Varroa, are listed in the compensationable class. Based on overseas information, MAF is of the opinion that if European Brood Disease gained entry it would not be as serious as American Brood Disease, but it does warrant the vigorous disease control measures

MAF PREDICTIONS FOR 1981 HONEY CROP
(as at January 31 1981)

	Tonnes	Last Season
Northland – Auckland	780	(550)
Bay of Plenty	150	(400)
Waikato	1400	(1129)
Lower North Island	790	(810)
Nelson – West Coast – Marlborough	500	(590)
Canterbury	950	(1250)
Oamaru Region	1000	(1225)
Southland	1035	(1050)
	6605 tonnes	(7004)

Correspondence course?

THE NBA HAS agreed to meet the principal of the New Zealand Technical Correspondence Institute to discuss the possibility of offering a correspondence course in beekeeping.

In a letter to Mr A. Kinsella, principal of the school, NBA secretary David Dobson said that the increasing interest in beekeeping on a full and part time basis warranted the investigation into some sort of long distance training programme. He said that in particular the training programmes would be advantageous for people employed at the management level or those who would not aspire to management but need adequate skills to handle the day to day operations in the beekeeping industry.

The latest Ministry of Agriculture and Fisheries figures for numbers of part-time beekeepers state an increase of 43 per cent in the last three years. A similar increase has been recorded in the numbers of beekeepers owning between 51 and 100 hives.

Mr Dobson also cites the excellent export prospects for New Zealand honey products as another reason to consider a tertiary education in beekeeping. Also that the horticultural industry in New Zealand is going to be dependent on the beekeeping industry to provide pollination requirements for many horticultural crops.

The meeting between the two will probably occur in late March.

Kiwifruit blooming

MAF REPORTS that more than 7 000 hives were moved into kiwifruit orchards of the Bay of Plenty for pollination purposes this season. An extensive publicity campaign was launched to warn or remind orchardists of the risks of bee mortality through incorrect pesticide use.

To help orchardists to identify the location of beehives a map plotting system was used. Orchardists were asked not to spray toxic pesticides within 2 km of hive sites indicated by the map plots. Very few cases of bee mortality were reported in orchards and this in part can be attributed to this map system.

The demand for hives for kiwifruit pollination is increasing at a rate of 40 per cent per year. By mid-1980s MAF anticipate that 20 000 hives will be required, based on current plantings. On top of this, kiwifruit development is expanding rapidly in many other districts, including North Auckland, Gisborne, Hawkes Bay and Nelson.

Product recall procedures - an industry matter?

by Warren Hutchinson, Grader/Analyst HMA

THE "FOOD BILL", currently before the Parliamentary Select Committee on Health and Welfare, proposes to place a responsibility on any manufacturer or seller of food to undertake a product recall operation if required. Should the Bill become law in its present form, then it seems likely that every beekeeper who packs honey for retail consumption will be required to develop a plan for a product recall procedure and keep the records necessary to operate it.

A product recall procedure is a formalised method of withdrawing from sale or use any product (food or otherwise) which may not be of a quality which is generally regarded as safe for the consumer to use.

Some of the essential parts of a product recall procedure include: A previously developed plan of action, date or batch marking of all products sold, and maintenance of appropriate records. Also needed is action to withdraw the affected product, action to identify and correct the problem and advice to customers, press, and government departments of action taken.

The advantages to be expected from the effective use of a product recall procedure include minimised customer health risk and improved goodwill, potential reduction in product liability costs (such as legal costs and product liability insurance premiums), reduction in potential for unfavourable industry publicity and improved business management information.

The major disadvantage is an increase in capital equipment for product marking and an increase in operating costs for materials and the maintenance of records.

If, as appears possible, the present provisions of the Food Bill become law, then it is suggested that the co-ordinated development of plans by an industry-wide body may be more effective than separate planning by many individuals. Reasons for suggesting an industry approach to the bill are enumerated as:

- A reduction in the amount of research and work required from individual members to develop personal plans.
- Industry discussion with the Health Department could possibly lead to the need for smaller record systems than will be generally required from the food industry.
- Some of the beekeeping industry's major customers are the wholesale and retail grocers. As the whole food industry may be code marking their products, the grocery trade will no doubt have a policy regarding the code marks and methods they would prefer to see used. It will naturally be easier to discuss this with them on an industry basis.
- An opportunity to minimise capital and operating costs. At least one major supplier of marking equipment has indicated willingness to deal with an industry approach on a discount basis. In addition, investigation may indicate a basis for an industry approach for taxation relief on capital expenditure for marking equipment.
- An essential part of a recall procedure is a statement to customers and the media concerning the product fault. It is considered desirable that this statement should be vetted so that it protects not only the customers and interests of the producer involved, but also the reputation and interests of honey and the industry as a whole.
- Industry co-ordination could facilitate the provision of ready and prompt access to such sources of professional, commercial and technical advice as the MAF, Health Department, DSIR and HMA in the event of a problem arising.

The only apparent disadvantage which can be seen in an industry approach is the possibility of delays in dealing with a problem in some circumstances. It is felt that good planning could materially reduce this possibility.

Apiaries act amended

A NUMBER of sections of the Apiaries Act 1969 were amended by parliament late last year and became law on January 1, 1981. Most of the changes were based upon recommendations of the National Beekeepers' Association.

The major area of change relates to the updating of the Act to facilitate the introduction of new honey export certification regulations (see article in this issue). A change to the definition of the word "honey"; powers to appoint certifying officers, analysts and others; and greater flexibility in establishing quality standards to recognise and reflect the requirements of importing countries have been included in the Act.

New Zealand no longer makes a product distinction between "honey" and "honeydew". "Honeydew honey" is regarded as a category of honey just as "blossom honey" is another category of honey. The definitions for honey now reflect the internationally-accepted interpretations for the word. The new definition for honey also removes an anomaly in the 1969 Act where powers were given to inspectors to control the spread of bee diseases transmitted through honey, but not honeydew.

Another amendment extends by one month the period in which a beekeeper must make at least one examination of his hives for the presence of serious brood diseases of bees. A beekeeper now has a four month period (August to November inclusive) to carry out this examination.

The 1980 amendment also modifies the content of the form issued by the ministry to beekeepers. In future the ministry will supply the beekeeper with a list of his/her registered apiary locations and the beekeeper will be required to confirm or otherwise amend this list. The beekeeper will also be required to state the number and location of diseased hives and the action taken in controlling any serious disease.

Copies of the amendment, 1980 No.61, will be available shortly from government bookshops.

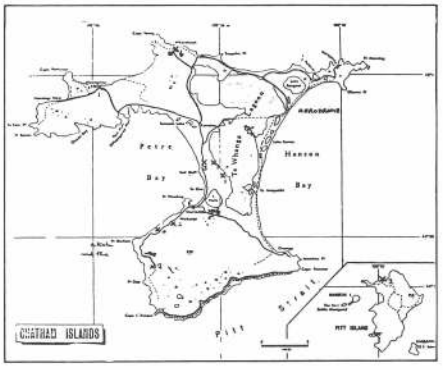
Intending to import honey?

THE DEPARTMENT of Trade and Industry has recently modified its import control regulations and has called tenders for import licences for a number of products, including honey. Tenderers were asked to familiarise themselves with all other importing requirements which must be met, including quarantine and health approvals.

Before intending importers set themselves high hopes they should be made aware that the importation of honey is controlled under the Apiaries Act 1969, and its entry is generally prohibited. MAF will only consider the entry of honey from countries, or states, free from European Brood Disease, *streptococcus pluton,* which have effective bee disease control measures underway, and which can provide the required export certification.

The prospects of importing honey are slim except perhaps for a few Australian states, and a country or two in the Pacific.

Beekeeper ballotee for Chathams?



IN ASSOCIATION with MAF's apicultural advisory officer John Smith, the Department of Lands and Survey is at present evaluating the economics of beekeeping on the Chatham Islands, and is expected to make some announcement soon on their proposals to encourage a resident beekeeper there.

Mr Mark Kefferman, senior field officer with the Department of Lands and Survey in Wellington said that they had been keeping hives on the island for four or five years now, but had been more concerned with building up numbers than with honey extraction.

However, now that they had reached 40 hives they felt the time had come to test the potential, and commercial quality of the honey from the island.

Mr Smith and beekeeper Mr M. Gosset had both earlier expressed the opinion to the Lands and Survey Department, that the clover honey on the island was the equal, both in quality and yield, to Canterbury clover produced honey.

At a very conservative estimate it was thought the island would support about 200 hives, and at present there were about 80 all told.

The department of Lands and Survey is of course interested in furthering beekeeping on the Chathams from the pollination angle, but has to temper this desire with economic reality, before financing a would-be hopeful.

It is likely that the form of encouragement will be some type of settlement loan, as in other sectors of the farming industry, and most probably an advertised land ballot.

It is understood the Lands and Survey Department have already bought a property which would be ideal for the launching of a beekeeping industry on the Chathams, but more will probably be revealed officially in the next Beekeeper.

Propolis - the ginseng of the west

by Bronwyn Falconer

FIRST IT WAS ginseng – now the debate is centred on bee propolis which has been found to have curative properties as an antibiotic.

Bee propolis has recently come to public attention as a result of studies by Danish naturalist K. Lund Aagard who after 20 years of study invented an edible form of bee propolis which is claimed to cure and prevent many ailments.

Bee propolis can be used as an antibiotic without causing the after effects of many drugs and because of its noted protection against many bacteria in the hive, creates special interest medically, because of the resistance of bacteria to many strains of synthetic antibiotics. The president of the Consumer Health Association in Europe has gone as far to say that to the medical world "bee propolis is perhaps as important as the discovery of penicillin . . . "

Propolis is the substance that bees use to protect their hives from fungi and bacteria. The bees make it from a mixture of resinous substances from tree buds, pollen and beeswax, combined (some say) with a special glandular secretion from the bees. Placed in the cracks and crevices inside the hive that might hide insects and germs, propolis guards against foreign bodies which could otherwise harm the hive.

Aagard says he first realised the potential of propolis for humans when he noticed a dead mouse in one of his hives. The bees had been unable to move it and so they had covered it with propolis. During a visit a week later, Aagard noticed the animal still in its embalmed state and exhibiting no signs of decay.

Many years of study later, Aagard developed an edible compound consisting of 11 different propolis components which he formed by a secret process. This propolis product has been used extensively by doctors in Europe and has received the "thumbs up".

In Austria, Dr Klemens used bee propolis on 300 patients with duodenal and gastric ulcers. Regular treatment was applied to half of the patients and the other half were treated with propolis. Dr Klemen noted that after three days 70 per cent of the propolis-treated patients had received some relief while only 10 per cent of the other group in the same time lapse.

Other scientists have claimed that bee propolis could speed up cell growth, help with diseases of the mucus membranes, bring down high blood pressure and cure people with teeth and gum problems. Indeed the answer for any hypochondriac.

Some scepticism, however, remains for the wonder drug, whether in fact as Aagard says, the bees do add some glandular secretion to the propolis while making it, thus changing the nature of the product to make it peculiar to the honey bee.

Dr Roger Morse, apicultural professor at Cornell University, New York, is not certain that bees do add a glandular secretion when making the propolis. He says that raw propolis collected from buds and wounds of plants has much the same effect on the plant – protecting it from infection – as it does in the hive interior.

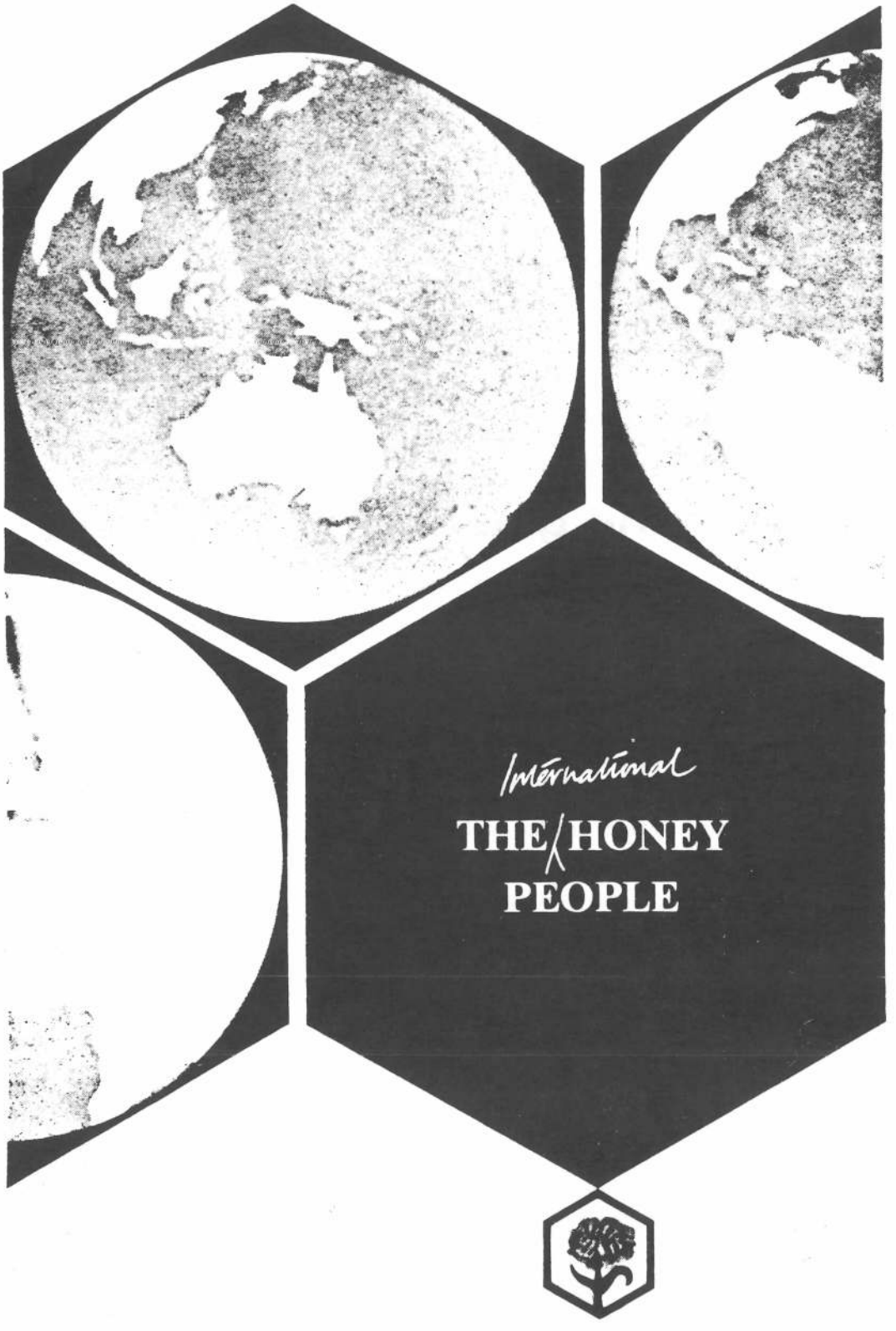
Propolis has a long history of being used in embalming and ancient medicine but as far as Dr Morse knows, no recognised laboratory in the United States is researching propolis at the moment.

He says, however, that there should be no great complications in testing for the disputable bee secretions. Bees are inclined to collect propolis substitutes like caulking compound and road tar and also smear these around the hives. In controlled tests, allowing the bees to collect such inert materials it should be relatively easy to determine if the bees do indeed add anything to it.

The public don't seem to be concerned if propolis is another health giving product of the honey bee or not. Thousands of people have faith in the newly-discovered medication and already health conscious people are eating propolis as a supplement to their every day diet, as they claim that it helps prevent infection and builds up the body's own immunity system.

Propolis comes in chewable, granulated and powdered forms, each form having its own particular advantages.

Propolis has been likened to the "medicine of tomorrow" by one Yugoslav, but whether bees can lay claim to this remarkable discovery, or if it is in fact a natural part of protective mechanisms of many plants and insects has yet to be proved.



BURRCOMB

from the editor

Editorial scissors

The editor received a missive from Waikato "From the colonies" correspondent Cliff Bird after the last issue.

"You deleted a portion of Waikato Branch notes with no reference to that fact. I discussed the points deleted with my president and we feel they should have been printed."

Cliff went on to list the points we edited from his text.

Sorry Cliff, but printing the "edits" is not on. A magazine doesn't just fall into place. Articles sometimes have to be stretched to fill a space, others have to be edited. Some have to be re-written to make them intelligible.

Unless there is a risk that a change of meaning might occur, there is no reference to the fact that editing has taken place, it's just a normal fact of publishing life.

For example; Time magazine readers may wonder why all the letters to the editor of that August journal are so pithy – they've been edited. Similarly, television news stories and features lasting a few minutes are often culled from hours of filming.

The items culled from your article Cliff were interesting but not vital. Certainly you will not have been embarrased in the eyes of your peers by their omission. Editorial scissors have done far worse in the past!

Bags to the rescue

If there's a risk of getting exposure while tending those hives out in the backwoods, a Sirius rescue sheet or bag may be the answer to your survival.

Rescue bags and sheets are big enough to cover a large man and will reflect back 80 per cent of a persons body heat due to a "mirror" effect created by the composition of the silver side of the sheet.

The sheet can also be used to insulate against heat. When spread loosely over a body with the silver side facing upwards, all heat rays are reflected. The rescue bags and sheets also keep off rain and wind, and will even survive a lightning bolt up to 1½ million volts.

They are available from Northrop Instruments and Systems Limited in Wellington and come in a wide range of fungus resistant colours.

Bee display draws crowds

One of the highlights at the annual Martinborough Country Fair held during the Waitangi Day weekend was this visual display of bees working frames.

The fair which is held twice a year attracted 111 stall holders who came from as far afield as Paihia in the Bay of Islands, to Blenheim in the South, to offer their various craftware for sale.

Although this bee display was an entirely amateur effort, the real interest and appeal that beekeeping has to people today was proven by the crowds flocking round it. The amateur's interest is confirmed by one of the stock and station agencies which carries kitset beehives and accessories.

It has proved to be one of its busiest sides, and they were constantly running short of supplies before Christmas.

Such goodwill as is obviously being engendered here by a citizen of the next generation must bide well for future beekeepers!

Expert wanted!

Needed. Translator for the editorial department of the New Zealand Beekeeper.

Already in this issue we have an ingenious Italian invention indescribably intoned in unintelligible English.

And now a German device of great teutonic worth which "solves the big problem of transport and centrifugation of honeycombs in a most simple way in hot countries." And the covering letter states "we hope that a good cooperation can rise between us and are looking forward with great interest to the echo of your publication"!

No, it's not a translator the office needs, but a word processor, because the language problem arises in the English continentals write to us. Next issue will hopefully contain details of this ITEX caoutchouc centre wall mould in English that any layman can understand, and its merits more readily discerned.

That is of course if we have addressed our letter to Intexfloor GmbH correctly – surely "Vertiebsgesellschaft" is not a town?

Below is the Italian press release that otherwise would have found its way into the editors rubbish tin.

Dear sirs,

we think to cooperate with you for giving the news to your readers, and we are pleased to inform you about the realisation of a new plant for processing honey. A new plant for processing honey.

This new plant manufactured by S.A. Bertuzzi (Brugherio – Milan – Italy), has solved the problem of honey producers.

In fact, they were obliged to find the machines from different manufacturers with the obvious difficulties in co-ordinating the functionality of the producing plants.

For the working process the concentrator is very important because permits to obtain the perfect humidity degree of the honey prescribed by the Italian regulations for its sale.

As known, the beekeepers are sometime obliged to harvest the product before its complete ripness, in consequence of atmospheric adversities or for necessity to move the beehives in other blooms places.

In this case, honey has not yet reached the humidity degree foreseen for its sale and necessary for its preservation.

This concentrator gives the possibility to harvest the honey in advance and the beekeepers can increase the harvest.

The honey is presently requested by a high number of consumers, as it has been recognised a completely natural product without contamination.

Don't import bees

The 1979 annual conference resolution calling for vigorous penalties for the importation of queen bees has been included in the new Apiaries Amendment Act.

In addition to the general penalty, which has been increased from a maximum fine of $200 to $2000, there is an additional penalty of $1000 for each queen bee introduced or attempted to be introduced without a permit. This latter penalty is a clear indication of how serious government, and the National Beekeepers' Association, regard the dangers of illegal importation of bees.

New Zealand is presently free from a number of the serious diseases and pests affecting beekeeping in other countries; including Varroa, Acarine, Chalkbrood and European Brood Diseases.

The MAF has not approved the importation of honeybees since 1956.

Acapulco apimondia

The 1981 International Congress will be held among ancient Mayan ruins and native stingless bees at the honeymooners paradise of Acapulco.

Mexico will host this 28th beekeeping congress from October 23 to 29, where a wide range of informative beekeeping topics will be discussed, along with numerous social gatherings, workshops and beekeeping exhibitions. The exhibition alone will cover a mere 4 000 square metres.

The congress will include presentations of prizes and medals for beekeeping achievements in the past year.

Study trips and tours are available and already plans are being made for a pre and post forum tour.

For further information about the International Congress, copies of the first information bulletin are available from the editor.

Kill those Kermits

Bee-eating toads are one problem that New Zealand beekeepers can be thankful they are without.

For beekeepers in the lowlands in Hawaii, toads are a major problem in running a successful beekeeping operation.

The toads are seldom found individually, instead it is likely that there will be hundreds in the same spot eating the bees. If hives are on the ground or on a low stand, a few toads can wipe out a whole yard.

One man in Hawaii has a novel approach to the problem. He cuts 55 gallon barrels in half and sets his hives on top of them. All the tops and bottoms of the barrels are cut out so the toads cannot jump onto them, thus the hives are standing on open ended cylinders.

This was not the solution to the problem though, young bees have to learn to fly and any bee that doesn't hit the landing platform and falls to the ground is immediately eaten.

The man finally bought a .22 rifle and a carton of bullets and set his son loose on the project. The son exterminated the toads by the thousands and they are no longer a severe threat in the yards – though the rifle comes out again when more toads are found.

AI problem in U.S.A.

In September "Beekeeper" we reported how John Smith of MAF had found that AI for beekeeping was still a bit too futuristic to be thoroughly commercial.

It could be done, it was being done, and some found it worked, but . . . !

Well confirmation that this is not just a New Zealand beekeepers' problem of technical ability seems to be confirmed in a letter the editor has had from the United States.

Lawrence J. Connor, soliciting business for his new found venture of "Beekeeping Education Service" (which provides matching slide sets and cassette tapes on aspects of beekeeping), says it is his preamble: "many of you who knew me while I was a graduate student at Michigan University, or as Extension Entomologist at Ohio State University, will recall that I then became head of the Florida project designed to mass-produce instrumentally inseminated hybrid honey bees.

"This company, called Genetic Systems, has run into some serious technical problems, and a decision was made to drastically reduce the production of AI queens."

He then says that he decided to "relocate" and moved closer to maternal family, schools and his new consulting business. Obviously no great bonanza in the commercial AI business even in the USA!!

Better pesticide law coming

The misuse of agricultural chemicals continues to be a problem, despite warnings and other attempts to educate chemical applicators. This last spring for instance, several bee colonies were killed by pesticides in Hawkes Bay pipfruit orchards.

Unfortunately legal protection under Section 35 of the Apiaries Act has been limited to specific crops, to particular methods of application, and to certain times.

It is now intended to broaden and strengthen the bee protection provisions by making any instruction which appears on the pesticide label after the words "toxic to bees" a legal requirement, e.g. "toxic to bees" will mean: "Do not apply to, or allow to drift onto plants in flower and attractive to bees." The label direction will vary, depending upon the pesticide and its intended use.

The new bee protection provisions will be contained in regulations to be made under the Pesticides Act 1979, and to be introduced later this year. Until they are introduced, Section 35 of the Apiaries Act will remain in force, according to MAF agricultural chief Grahame Walton.

Quotable quotes

Somerset Maugham, curious to discover the secret of H.G. Well's success with women reported:

"He was fat and homely. I once asked one of his mistresses what attracted her to him. I expected her to say his acute mind and sense of fun; not at all; she said that his body smelt of honey."

* * * * *

"The beautiful, I think, often remain unaware of their wealth, sweeter than honey in the honeycomb, taking for granted the smooth lawns, tapestry meadows and shimmering woods in which they are privileged to wander with their own kind:"

–Richard Adams

"Go home", said Nehemiah, "And regale yourselves with rich meat and honeyed wine, sharing your good things with those who have none. There must be no sadness on this day."

–Nem. chapter 8, vs 10

Harvest pollen from trial hives in a red gum eucalyptus area on farm land near Perth, Western Australia.

The role of pollen in the honey bee

by Elbert R. Jaycox, "Bees and Honey", University of Illinois.

MOST BEEKEEPERS realise that colonies of honey bees must have pollen in order to raise young bees. Beyond that, the details are sometimes hazy; and it is not uncommon to see popular articles on beekeeping that present old ideas and incorrect information about bees and pollen.

Earlier studies of pollen focused on its chemical analysis, sources, and the amounts collected and used by colonies of bees. More recent studies, especially those of John Free in England, have attempted to clarify the behaviour involved in pollen foraging, storage, and use. Because foragers that collect pollen are more valuable than nectar collectors in setting fruit and seed, we would like to be able to control, or at least increase, the number of pollen-gatherers fielded by colonies used for pollination. Although that is not yet possible, we do know some of the things that stimulate bees to collect pollen.

The brood, especially unsealed brood, stimulates foragers to collect pollen. Increasing the amount of brood also increases the pollen-foraging. When brood is removed the bees collect less pollen. In experiments at the University of Illinois, I increased pollen-foraging by giving extracts of worker larvae to small colonies of bees with caged queens. Although the responses to the extracts were not consistent, the indications were that a chemical substance associated with brood may affect pollen-foraging.

Even the location of the brood in relation to the hive entrance appears to be important. More bees forage for pollen when the brood nest is close to the entrance to the hive. This could be an important reason for "reversing" colonies in the spring, positioning the brood nest near the main entrance rather than in an upper hive body. If the colony has an upper entrance, such a rearrangement may be less important.

Feeding changes the amount of pollen colonies collect. Those given sugar syrup will collect significantly more pollen than unfed colonies, making them more valuable in pollinating crops. By contrast, colonies fed pollen during the summer will collect less pollen than ones not receiving any extra. Using pollen supplement and pollen substitute (with and without pollen, respectively) does not influence pollen-foraging during the summer as does the feeding of pure pollen.

The queen seems to have direct and indirect effects on the collection of pollen. Her presence probably stimulates some pollen-foraging directly. Indirectly, her effect on pollen-foraging seems more important because she stimulates foraging for nectar, during which the field bees also collect considerable amounts of pollen somewhat involuntarily. Of course, the queen's egg-laying produces brood that is a primary stimulus for pollen-foraging behaviour.

Where the pollen is stored is important to the bees and to the beekeeper. For efficient usage in the colony, the pollen must be stored within and around the brood nest. The beekeeper does not want it in his comb honey or in his combs for extracted honey.

Our knowledge of where and why bees store pollen has been greatly increased by the studies of John Free and Ingrid Williams in England. They found that bees prefer to store pollen in comb used previously for rearing brood rather than in new comb. The bees also like to put pollen in combs used before to store food, and they are stimulated to put pollen in combs that already contain some. These preferences and the other forces influencing the size and location of the brood nest produce a pollen-storage area that forms a shell around the edges and top of the brood nest adjacent to the cells in which brood is being reared.

The pollen stored in the combs is eaten almost entirely by young worker bees. Newly emerged workers begin to

consume pollen one to two hours after cutting their way out of the comb. As the bees begin to feed the larvae, pollen consumption peaks at three to five days of age and then drops to a low level by the time the bees are eight to 10 days old.

By that time, the hypopharyngeal (or brood food) glands have become fully developed because of the intake of pollen by the worker. These glands contribute practically all of the protein portion of the food given to larvae and to queens. The rest of the food consists of a fatty portion produced by the mandibular glands and a carbohydrate or sugar-containing portion from added honey or nectar. Pollen constitutes only a small, almost insignificant, part of the food eaten by the larvae.

John Simpson looked at the guts of fully grown larvae to learn how much pollen they eat before their cells are sealed. He could do this because the shells of pollen grains are not digested by the larva; they are retained in the body until the larva is finished feeding and is ready to spin a cocoon. Of the larvae Simpson looked at, many had eaten no pollen; others had received a considerable number of pollen grains. He concluded that the direct feeding of pollen does not supply an important part of the food for honey bee larvae. The pollen they receive probably is added by chance to the glandular secretions given to the larvae. The pollen comes from the nurse bee's stomach when she adds honey or nectar to the food.

Steve Taber has reported that the greatest amount of pollen is consumed near unsealed brood over two days old. Pollen in other locations is not consumed, according to Taber. He implies, incorrectly, that the growing larvae are eating the pollen.

In reality, the pollen is being consumed in large quantities by the young worker bees who are feeding their glandular secretions to the brood. Pollen near sealed brood is simply eaten less frequently until the brood emerges. When that happens, the new workers immediately begin to consume the pollen in that location. Pollen collection, storage, and usage is a dynamic process that changes continually as the cycles of brood mature in the comb and as the active season progresses.

The first round of brood in the late winter is reared on food produced by the already developed glands of the nurse bees in the colony, not on pollen. Stored or incoming pollen is essential so that the new bees can eat it, develop their brood food glands, and help rear the next round of brood.

If pollen is lacking or if the pollen substitutes we feed the bees are not suitable for good gland development, the bees may be unable to rear healthy brood, or any brood at all. Since the larvae receive such a minute quantity of pollen substitute directly, their ability to digest it is unimportant.

The primary concern is the ability of young worker bees, the nurses, to use the substitute in order to develop their glands so they in turn, can secrete larval food of high quality and in sufficient quantity to rear normal workers from egg to adult.

There is good evidence that soy flour and other substitutes American beekeepers now use in place of pollen allow bees to rear brood reasonably well for one generation. However, the resulting bees have problems. Their average length of life is shorter than normal and they do not feed brood well.

Recently, promising results have been produced by feeding fish meal to bees in place of pollen. However, after seeing many years of research on pollen substitutes and reading many overly optimistic reports of newly developed mixtures for feeding bees, we must still trap pollen and feed it to our bees if we want to produce the strongest possible colonies in the spring. And don't worry too much about Steve Taber's warning that you must place it only a couple of inches from the older, unsealed brood to get the colony to eat it. He evaluated his experiments after 24 hours because he found that if he waited longer the bees ate all of the pollen he placed above the combs regardless of its distance from the unsealed brood.

FROM THE COLONIES

WEST COAST

Far from the not so bright prospects indicated before Christmas, the outlook has been illuminated by the prolonged fine weather since then, and beekeepers who's spirits weren't dampened by the over damp spring, will reap a good harvest.

The harvest is varying greatly, not only from district to district and apiary to apiary, but from hive to hive. Some apiaries are yielding a stronger flavoured honey than usual while others are producing a really nice flavoured honey light in colour and very palatable.

In some cases a few hives race away ahead of their cobbers although all have received the same treatment, which is hard to account for. An indication of the improved prospects is the fact that a stepladder has been used to get the top supers down off some hives.

Recently it was mentioned at a discussion group at Rod Buchanan's, that in Europe honey type is checked by pollen grain count. How correct would this be in the case of bees collecting nectar from kamahi, and pollen from clover that wasn't secreting nectar, as was observed here this season?

If prolific flowering is any indication of honey source, then the following could supply the nectar: Kamahi, a limited amount because of rain, white clover, dandelion, catsear, thistle, cabbage tree.

After a spell of a year our field day was again held at the scout camp at the mouth of the Teremakau river. The weather was fine and the attendance good. Hobbiest beekeepers were well represented and well catered for.

There was a display of handy gadgets invented or adapted by beekeepers for the speedy handling of bees and their produce. Ralph Glasson Jnr. won a prize with a simple, but ingenious barrow for loading and unloading hives for shifting.

Peter Lucas
Harihari

FAR NORTH

Far North beekeepers had a spell from club activities during the holiday season but individual reports indicate that the honey flow has been patchy so far, and some members report very little progress in the hives over the last few weeks.

The rains over Christmas should ensure a good autumn flow. Kanuka (white ti tree) is yielding its first crop for eleven years, which could present extracting problems for some beekeepers. White and red rata flowered well and there seems a mile of penny royal about. So, the season could end quite well.

The Mangonui A and P Show has catered for a twelve entry beekeepers section. This promises to be keenly contested in all twelve classes with a special prize for the most points, donated by the Far North Branch N.B.A. We look forward to the show on February 27 and 28.

The Annual General Meeting will be held on the first Monday in March at 8 p.m. Any suggestions to assist the betterment of the operation of the branch will be greatly appreciated.

Guy Macpherson
Kaitaia

ROTORUA

Well, another near-disaster year for Rotorua beekeepers. This weather we get is so localised that I am thinking of declaring myself a disaster area and applying to the government for a relief grant.

It doesn't help to have these visitors up from the South Island saying that beekeepers down there are paying off the mortgages, or people from the Wairarapa saying they couldn't pile on the supers fast enough to keep up with the flow.

Last year we all missed out to some extent, but those who had their hives up to full strength by December 1 managed perhaps a super per hive on average. Those who did not, got nothing. That season was cold and wet and windy.

This year it was a little different. There were periods of rain, periods of sun, and periods of hot muggy weather. This, I thought, would have been ideal for a honeyflow, but no honey came out of it.

The bees progressed slowly and in fits and starts. A little honey would come in, then the flow would stop, the bees would seal the little they had, then eat it, then start again. Sections would be part sealed and then hang there, getting soiled but not sealed, frames would be lumpy and yellow rather than white.

Not a good season at all. Such a sequence affects everything. The bees were edgy and angry when disturbed. The weeds grew faster and thicker around the hives. Supers of foundation put on in the hope of the flow remained undrawn and rather chewed.

Hive re-arrangements never worked out quite as planned because sealed brood would hatch out and the cells be relaid in instead of being packed with honey to keep the queen down. We did everything right. The bees did what they could. But the season defeated both of us. Let's hope for better next year!

David Williams
Rotorua

SOUTHLAND

The winds from spring carried on blowing, if not from the nor' west then from some other direction.

Bees and beekeepers had to battle the winds. Pollen was plentiful but bees couldn't get to it, therefore pollen was non-existent in a lot of hives and they suffered for it later.

Bees were not able to forage so most late spring nectar sources had to be supplemented by feeding sugar syrup into late December. It went from famine to a feast over night but only hives that were strong in flying bees produced a good crop.

Over all, the Southland honey crop would be below average but better than last season. The crop has varied from area to area through drying out of pasture caused by winds, overstocking of sheep and poor growth through cool winds.

Sheltered apiary sites have produced good crops of honey. Also queen matings have been better than you would expect in this type of season.

Under cloudy conditions our field day held at Tony and Jill Clissold's Honey House was attended by a big crowd. Speakers from the HMA and NBA brought us up to date on the present situation. Kerry Simpson pointed out the problems facing high country beekeeping.

The talk and slides by Cliff van Eaton on bee stock improvement and beekeeping in Canada were very interesting as it involved queen bees from New Zealand and their comparison with Canadian reared queens.

A point Cliff made was that our New Zealand queens appeared to have been bred for climatic conditions as well as honey production.

Andy Booth

SOUTH CANTERBURY

It is all over, we either have or it did not get it. Generally South Canterbury beekeepers are satisfied, they have fared reasonably well, a good average crop would be a fair assessment.

Along the coast the pasture dried up very quickly and by the start of the new year it was all over. Further back however, things were much better.

Some good rains fell which kept the clover flowering until the end of January giving a very good honey flow and some very good honey crops.

The high country was a boomer, the best for many years, ample rain fell, growth was the best in memory and the absence of winds gave almost perfect conditions.

There is no doubt with further land development and the extension of irrigation, much more scope for beekeeping in the high country will be available in the future. At present accessibility is the problem and the unreliability of the seasons will hold back the development of honey production in these areas.

The extracting is well advanced and many beekeepers are now commencing the autumn requeening. This is now becoming more popular here, as it is quite definitely the most economic method, especially with those who use contract extracting.

There has been some interest in the production of comb honey and while prices are tempting, the costs associated with this type of production and the loss of production in forcing the bees to fill the foundation, could prove this is not for us. It has always been my personal opinion there is no substitute for efficient bulk honey production, it can be a straight-forward low-cost operation especially where contract extracting is available. This is an area which has never been properly examined and publicised. Far too many beekeepers want to be both producer and marketeer with the result they are bad at both.

It is the intention of the younger local beekeepers to get together after the season has ended to look at the whole question of production and costs. Those who participate in this should be prepared to place their own costs and operating methods before the others sharing in this project.

Harry Cloake

CANTERBURY

Good rains fell in November and December to revive the pastures, which resulted in a very quick flow for the hives that were ready. In early January a series of hot nor'westers and extreme temperatures, dried up pastures on light land even dessicated irrigated seed clover.

Inland and foothill areas received further rain and a higher clover yield during January. There is a wide variation in crops gathered this year due to rainfall distribution, but generally they are average to below average.

The honeydew hives have been gathering "on and off" over the spring and summer resulting in an average crop, however marketing of the crop has been affected by a delayed demand in Europe.

A busload of beekeepers from Canterbury and other areas ventured down to the Southland field day at Gore on February 7, and were treated to refreshments at Harry Cloake's and Ivan Dickinson's honey houses.

A very enjoyable and informative field day was organised by the Southland branch. Cliff van Eaton's talk and slides on his queen breeding programme was extremely well presented and enjoyed by all.

Thankyou Tony and Jill Clissold and Southland for your hospitality.

Tony Scott
Rangiora

NORTH OTAGO

The North Otago honey season is one that we would rather forget. It could be regarded as a non-event or the honey season that never was. In most areas it was all over by the first week in January.

After starting off with a reasonably good spring, the countryside gradually dried out and up until the time of writing no rain of any consequence has fallen. Any flowers that did bloom had little or no nectar in them. With the exception of isolated areas, most hives averaged one box of honey which means that some beekeepers did not even get winter stores.

However the optimistic among us are predicting a bumper season next year, they say hope springs in the breast of the faithful and that these setbacks are problems we must win in the end.

George Winslade

WAIKATO

If the wind blows for three months from the west without a break, then it must turn around and blow back from the east – to be back ready to start again next spring. (Goes on holiday in-between).

The Waikato season can be summed up as very windy, with wind coming all spring from the west, and from December strong north-east with copious quantities of rain. The low pressure just sat for a couple of weeks at a time, with a few fine days in-between.

A heavy flowering of tawari was ruined by a prolonged wet easterly. Rewa rewa didn't yield, while kamahi gave a good flow inland, probably the best for years. Buttercup gave some honey and clover was the worst for years, only areas away from the east doing any good. Nodding thistle – well there really isn't any as the wet summer last year germinated very little seed so there is no chance of a late flow.

Shelter was a major factor this year, as apiaries in sheltered areas did so much better than those in exposed areas. Nosema was widespread and in early December large numbers of bees could be seen crawling around the ground.

By early January apiaries in a lot of areas had lost most of their bees to the extent where they were little better than nuclei.

With the high cost involved today it seems as if a lot will barely recover their costs, and with honey now retailing at $2.90 per kg we will need more than $1.35 being offered by packers, and who knows how much it will cost next season to run the bees?

C. Bird
Matamata

NELSON

Because of the relatively unbroken drought that has persisted since the end of last November, the honey crop in the Nelson area has been rather average. The clover yielded poorly in some lowland areas while upland valleys produced reasonable quantities of honeydew, kamahi and manuka.

The last two did particularly well, as long fine warm spells meant bees could fly to higher altitudes to chase the ascending flows. Rata was almost non-existent this year.

Our group set up a display at our local A and P Show in Richmond Nelson, last November. Following its success, we are now planning ahead for the next show.

With the main flow now at a close, we are now waiting for the autumn honeydew to start pouring off the trees. A few inches of rain would sure help, as even the mountain valleys are very dry.

Well, with extracting winding down and the season with it, our bees will be getting prepared for a possibly cold winter, the type which usually follows dry summers.

Jeff Lukey
Nelson

BAY OF PLENTY

We have experienced a poor to moderate season overall, with honey production being very patchy.

The anticipated early November main flow from rewarewa failed due to bad weather during the critical flowering stage. Some early rewarewa was taken but generally only sufficient to provide some additional stores.

Clover showed its unreliable nature again. Pastures generally held as much clover as we've seen for some years and through December and January showed the potential for excellent crops. However, cool winds and changeable weather cancelled our chances of good flows.

Approximately 7000 hives were shifted this season for kiwifruit pollination in this region. In the Te Puke area, as a consequence of a detailed hive monitoring programme, carried out with assistance from orchardists, beekeepers, Fruit Federation and MAF, no spray damage was sustained. Hives were pinpointed on a map as they moved in and out of the area, with a voluntary no insecticide spray within 2 km of hives.

However, spray damage has occured in new orcharding areas. It is hoped that further liaison meetings and publicity programmes may resolve this problem.

Bruce Stanley
Whakatane

SOUTH WESTERN

With January now behind us we should know how successful our beekeeping methods are, for if one thing is certain, it could be a long time again before we get another perfect month for a honeyflow. Throughout the South Western districts the crops should be above average.

With the difficult spring months before January and a heavy sugar feeding programme, a good season was just what we needed.

The new price rise will be welcomed by all who try to carry out the production of honey as a business in times of soaring inflation.

Many will remember the late Ted Feilds of Foxton, a large producer and packer in his day and also a well-known identity in our industry's affairs.

This extracting and packing plant has been taken over by Keith Rodie son of our apiary instructor Bill Rodie. With the beekeeping area which surrounds the plant it could have great promise for the future. With the large markets nearby, Keith should not look back.

Hoping you have all had a profitable year.

Stuart Tweedale
Taihape

OTAGO

Sitting down to write these notes my thoughts are going out to the Garraway family. John Garraway is our branch president and a personal friend. His son Rex was taken from them early yesterday morning as a result of a car accident. Rex was also very interested in beekeeping, often attended branch meetings and field days and helped his father with bee work. He could have become a very good apiarist.

After our optimism expressed in the previous Beekeeper, we had a very difficult month of November. Here in South Otago rain fell on 28 out of 30 days. Young queens and older ones alike came to grief. After introduction they superceded or just fizzled out in many cases.

A number of hives which were in good condition in October were well behind just before Christmas. Sugar feeding has been done as never before and we all know what that costs.

But lo and behold, on February 1 the country is drier than it has been for years, the sun was shining on many days and

the temperature was up. The clover was there to give those colonies which were in good condition the opportunity to gather a very reasonable crop. So, even if all over the district it may be somewhat patchy, most of us who make their living from bees will keep the wolf from the door for another year and others will gain a fair bit as a reward for slogging after work and over the weekends.

Dunedin now has a flourishing beekeepers club, thanks to the hard work of John Garraway. Good instruction and fellowship is available for those who just have a few hives or are starting and don't feel ready to join a branch. At a recent field day Cliff van Eaton, our temporary advisory officer made very sure that all those present should be able to recognize B.L. as he had a few combs with the real thing to show. We all should reap the benefits of these endeavours.

John Heineman
Milton

POVERTY BAY

Spring and early summer weather were good this season and prospects for a good honey season seemed to be in store. That was until it started to rain over the Christmas period.

The rivers rose and parts of the flats were flooded. It was the worst flooding since 1948 and it could have been worse if it were not for the stop banks and river diversions.

In parts of the high country 13 inches of rain fell in two to three days and this caused slips and problems to farmers and beekeepers alike.

No hives that I know of were destroyed by flooding, but a number did get silted up inside the bottom boxes.

The main damage done was the loss of honey crop at a critical time of the year. Parts of the low country had reasonable sources of nectar up until December, as no dry weather had really come.

In the high country the tawari and kamahi were in full flower and would have continued for at least another couple of weeks. All this stopped with the rain and the bees sat at home and ate.

In early parts of January we had some fine weather and the bees were able to get out and forage. But more rainy weather helped reduce the honey crop still further, until recently when the weather picked up and hives are doing well especially on the high country clover. Nectar sources in the lower areas are beginning to dry up.

Quite a bit of pollination work was done by beekeepers for kiwifruit growers but it was unfortunate that price cutting and undercutting by some beekeepers for pollination fees came in. Undercutting is a useless exercise as the fee is basically to cover crop loss over this period and ultimately comes back to the beekeeper if he gets hives below strength.

There is plenty of kiwifruit to be pollinated now and more in the future. As orchards already planted come into production the demand for hives will increase.

Barry Foster
Gisborne

HAWKES BAY

It has been a fluctuating season here this year. It started with a beautiful spring leading into the start of an abundant nectar flow with causal warm rain, but as usual nothing is done in half measures in Hawkes Bay. The biggest flood since 1960, right on Christmas, made all clover flowers disappear for two weeks and never recover in some areas.

Where clover did reappear a reasonable crop is forthcoming giving the province an average over-all crop.

Our field day is March 14 at Peter and Snow Pegrams factory at Frasertown, Wairoa.

A tour of Australian beekeepers will be here on that week-end and members of the new branch from Gisborne and district have been invited, so a large number of people are expected. Anybody interested from other branches are cordially invited.

Visitors to Hawkes Bay should visit the Aquarium in Napier where there is an observation hive which is proving very popular with the public.

We have another new factory in the Hawkes Bay. The residential area has caught up with Ashcrofts Honey House in Havelock North, so Paul has moved into a new building which must be a delight to work in.

Keith Leadley

BEEKEEPERS TECHNICAL LIBRARY

Telford course. Bill Houston from Dunedin has been so kind to make another copy of these very popular and useful notes. It will help to go through the waiting list twice as fast.

Mrs I.J. McIllraith from Dunedin presented a 1909 edition of Alexander's writings, a collection of articles published in gleanings early this century. It may be old but it is far from obsolete. It would not hurt any beekeeper to take the time to read it.

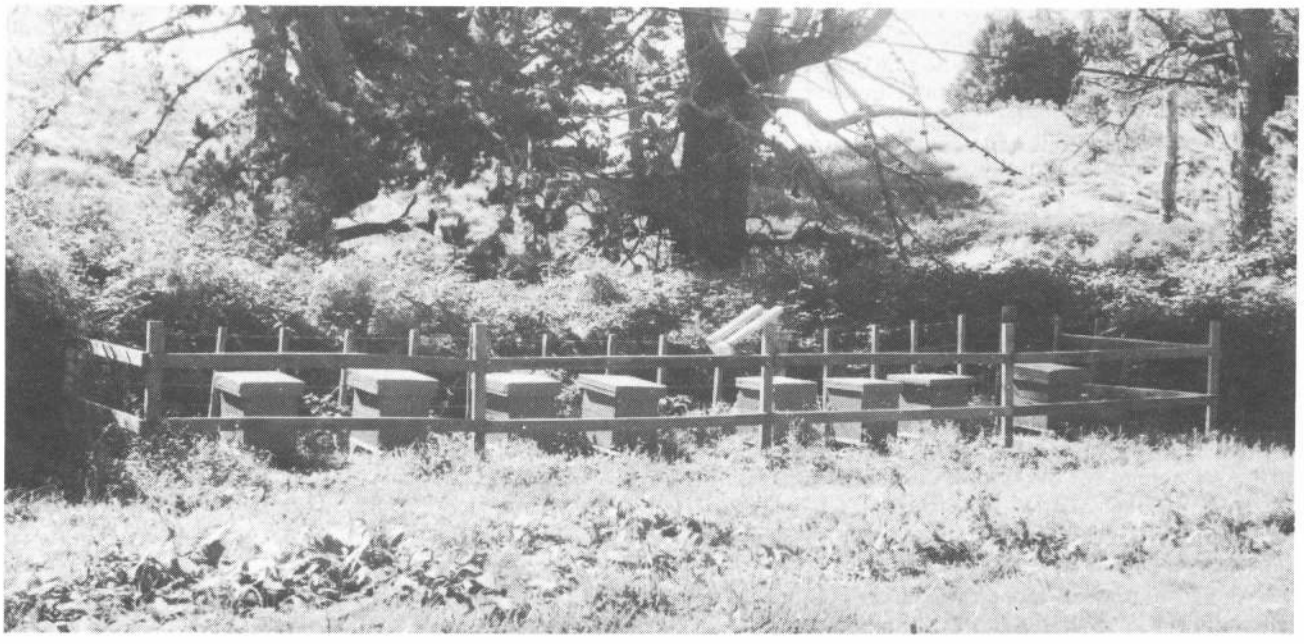
From Mrs McIllraith also comes a cute little book: Modern Beekeeping, a 1903 publication of the British Beekeepers Association. Modern indeed, but interesting. Some of the contents could be reprinted in this journal's future issues for a good laugh.

You cannot learn beekeeping from books. You have to do it. But books are a help. It is your library, the books are there for the asking (but send your $3 please).

N.B.A. Technical Library, Hon. Librarian: John Heineman, P.O. Box 112, Milton.

A FRESH START

by David Williams. Photos Allan Warren.



A good sheltered site, well fenced.

SITES AND HIVES

IF YOU HAVE to choose a site – say you're a hobbyist moving hives from the backyard for the first time, here are a few factors you may care to consider.

The site

You get a site the same way everybody else gets one, by picking a likely spot, finding out who owns it and going and asking. I have a few of my hives sited a very convenient 3 km out of Rotorua and got the site simply by putting a note in our internal newsletter where I work.

The site is on a farm managed by a friend of a friend who was quite happy for me to put bees there. I picked a good, well-concealed spot, chopped the blackberries back to the fence line, put up a rather inadequate stockade, and moved the hives – as simple as that.

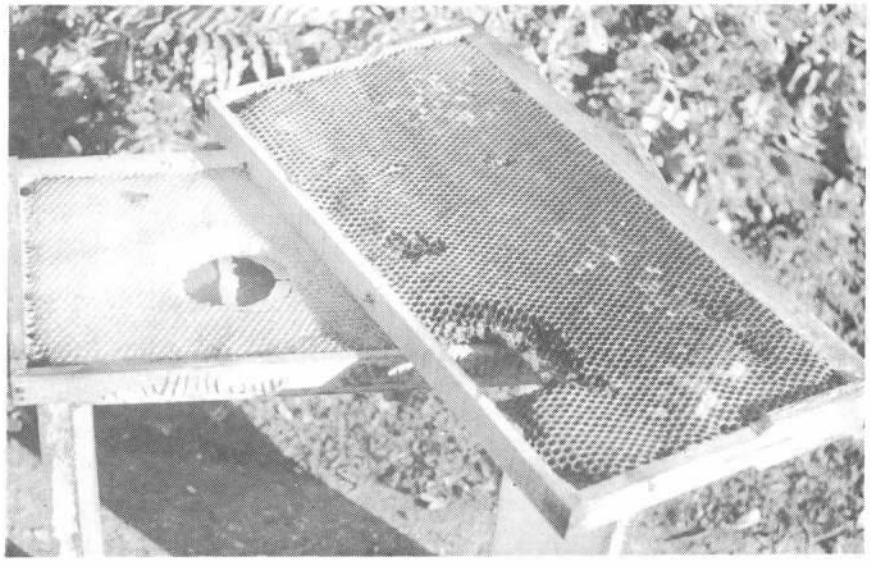
I'd like to discuss a few of the things that may enable you to draw up a balance sheet of some sort, on site suitability. We have dealt with some major factors in earlier articles – full sunlight, absence of hurricanes, avoidance of cold and particularly damp, and correct orientation. Other factors are:

Permanency – When securing a site for hives it is wise to check if you'll be allowed to keep the hives in the same spot for the full year and if the person who owns the site is likely to move on. It also pays to find out if the area is likely to change its nature by being developed or brought into cultivation.

Access – As it is unbelievably inconvenient to have to lug hives and supers across the countryside, even if the countryside is only a paddock, vehicle access close to the site would be an advantage. Access through a locked gate may be a problem if you aren't allowed a key. It becomes inconvenient if you have to go and ask each time when often the key cannot be found or the key-holder is absent.

If access to the hives is public, or within view of the public, vandalism may be a problem. It may be courteous if there are any occupied buildings close by to check if the occupants are for or against bees.

Vegetation – A hive requires a 3m square plot in which to stand, careful



You run the risks in the country you may not have in the back garden – mouse damage is one.

Brood chambers should be marked with registered number – best to do at home and change over in the field.

siting may save extensive and exhausting slasher work. It is wise to check that the plant species around your hives are not the kind that grow a couple of metres a week. Bear in mind that even grass can grow and block an entrance in a week, in the first flush of spring.

Animals – Both sheep and cattle can annoy your hives as they may push the hives off stands when there isn't a tonne of honey up above to hold them down. It takes a substantial stock fence to keep out cattle, but a fence that keeps out cattle won't keep out sheep. The sheep could crop the grass around the hives for you but probably will suffer for it.

Wasps – Other than careful siting, remember you can't keep a close eye on country hives, and there isn't a reliable wasp bait. Wasps can break down even the strongest hives through autumn.

Sprays – Though by an orchard may appear a good site as it is a prime nectar source, remember some orchards are sprayed with bee killer every week or 10 days. Practically every issue of the American Bee Journal gives statistics on thousands of hives annihilated by sprays, check if poisonous sprays are likely to be used in your neighbourhood.

Traffic and tension – If the site is near constant traffic or high-tension lines, you may end up with a hive of bad-tempered bees.

Nectar sources – One of the most important considerations in siting hives is the honey crop. Evaluate the worth of putting hives in a particular area. The area may not foster enough nectar sources to make a honey crop consistently good, are you going to have to feed from the end of August to the beginning of December just to keep hives alive?

There needs to be a safe source of water around and you would need to check if there's any poisonous nectar sources around. If there are other hives in the area go and have a look. They may decide the suitability of the site. Check how well-maintained the hives are, the health of the bees, and if the hives are registered. Is there enough nectar source to feed your hives too?

The balance sheet

A balance sheet has both asset and liability columns. Some debits may lead you straight into bankruptcy in the beekeeping world. Some credits may keep you solvent – for a while, success is a constant struggle.

By moving hives away from home you presumably hope to be able to keep more of them (or just get them away from the neighbours!) and get more honey – the two do not necessarily go together.

To do this you are investing more time, you are going to have to travel. The upkeep and maintenance will be something you have to plan, there are greater risks to the hives – risks of disturbance, neglect and damage.

You will have to remember to take everything you could conceivably need on each visit.

The most successful operations are always those based upon full awareness of all factors involved and this is so for out-apiaries as for all other projects.

Consideration of the above points and other relevant ones will enable you to make a decision based on the realities. It still depends upon you – and the bees!

READER QUERIES

Send your queries direct to David Williams at 26 Otonga Road, Rotorua.

Dear Mr Williams,

I was very interested in your article on Hive Division in December's "Beekeeper" and wonder if you would answer some questions for me.

I lost one hive (of two) last winter from what I think was inadequate feeding. The other hive is thriving with a year old queen I planned to replace after the summer.

Nelson keeps pretty warm and sunny through March and April and I wonder what would be an appropriate time in autumn for hive division and how do you relate it to extracting honey? And how much honey would you leave these hives for the winter?

The article below yours, "Beginners Action Pack", suggests three full frames of honey for hives which seems a little light to me.

I would be most grateful if you could find time to answer the question.

Regards,
Bryan Hardie Boys.

Dear Bryan,

Always good to get down from the general to the particular. Sorry to hear you lost a hive through starvation. Such a tragedy and so unnecessary.

As for your query on division – the honeyflow is over by mid-January effectively and extraction can start any time after that.

By the first week in March, the ideal division date, all that is well over and out of the way.

The hive to be divided must be a strong one – it is asking for trouble to divide a moderate one, so you need two laying queens, preferably both bought and delivered at that time.

Each half division is to go into two brood chambers; sealed brood in centre of bottom box, unsealed and queen in centre of second. Honey frames should go outside these with ten frames of honey per division to see them through winter and into the next flow.

The timing of your honeyflow and extraction may be a little behind ours here but not enough to change the deadline of March 1st. I think this covers most points you raised and the rest is as per the article.

Good luck, and do let me know how you get on.

Yours,
David Williams

Cells versus queens

WE NOW come to the crunch question. Having raised your cells, what do you do with them? Remembering that your objective is simply to replace the queens you now have with queens that will emerge from the cells you have now raised.

There are three major alternatives:

Nuclei

Make up the requisite number of two to three frame nucs from the two home hives, or bring them in from country hives if necessary. Give each a cell as detailed later, allow the queen to emerge, mate and lay and then use these nucs to requeen all hives, either by reuniting nuc and hive or by queen removal, caging, and introduction.

Using nucs means that you need a lot of extra equipment, including frames, boxes, feeders, floorboards. You have to feed them heavily at each stage as nothing improves the chances of success in any beekeeping manipulation as a good feed of sugar syrup.

You will have a wait of a month while all this happens and unfortunately everything the amateur is trying to prevent also happens during this time, but it does give a check on the new queens before use.

Remember that many young queens are killed by the bees during any move. Commercial queen breeders use this method in various refined forms but the amateur should not.

Hive division

This involves using the formal queen cells in half-hives raised above the bottom brood chamber by a separator board with a restricted rear entrance. I have referred in an earlier article to poor results obtained by this method. The two essentials for success appear to be a large intial colony and ample stores for both halves.

It is usual to re-unite after some six weeks, either by killing off the original queen and joining by the newspaper method, or by simply removing the separator board and letting the two halves fight it out.

NB. Please note that in my lectionary, a **separator** board goes across and a **division** board goes down.

Mention should also be made here of Murray Reid's article in the September Beekeeper on "Requeening honeybee colonies without dequeening using protected queen cells".

Those interested should go straight to that article for details, or write to Murray or myself for a Xerox copy.

Queen/cell exhange

This is the actual removal of the queen and her replacement with a queen cell in each colony.

According to our theoretical timetable you have to make a decision as to immediately exchange the queen/cell on the 19th, or remove the queen three days (or two, or one) earlier.

The best acceptance is normally with removing the queen cell as the bees

You too will get swarms like this monster if you don't requeen and check for cells.

A little light reading

THIS ISN'T a review or any nonsense like that, but my holiday reading this year included Morse's "Comb Honey Production" – a bit personal and general for my taste, but I propose to say no more on that, and Beetsma's research article.

We so casually say something along the lines of "the larva gets fed special food and that makes it turn into a queen" or some such over-simplified statement. That's rather like saying "We have a cake so it must be someone's birthday".

What we must realise is that the process is an incredibly complex chemical one and that it is the action of these chemicals that either stimulate or inhibit action right down to the molecular level – in fact it all takes place at the molecular level!

These thoughts have been stimulated by reading Beetsma's paper and by the fact that we have been talking and thinking of queen rearing in the last few issues – admittedly at a very primitive and amateur level, but one which all depends upon this reaction and one that should whet our appetite for a better understanding to its background.

A short note on cell protection

I have mentioned wrapping with electricians tape. The accompanying photograph will show you how this should look (although your actual cell base will not look like this unless you have adopted my cell/punch method).

Murray Reid has advocated the use of a short length of garden hose slid over the cell. I never manage to do this without a certain amount of squeezing and crushing, but this is not to say that it doesn't work.

All methods of cell protection reason that you are putting an alien cell into a colony and the bees are programmed to reject such foreign bodies just as our bodies may reject transplants.

When bees tear such a cell down they do so towards the base, chewing holes in the cell wall and dragging out the contents. By leaving only the tip exposed it is hoped that the bees will have time to get used to it and accept it and allow it to remain and the queen to emerge. It ups the odds in favour of success. Do it.

will then be queenless and know it. They will have started to make queen cells and are in the right mood to accept one given to them.

The cell given to them will be far in advance of their own and will have precedence so, on September 16th, go through each hive, find the queen, grab her by the wings, place her on the ground, and put your foot firmly on her – this is no time for sentiment. On September 19th, the cells are removed from hive 1, brushing the adhering bees gently off with a 100mm clean paintbrush. Be extremely careful not to allow the cells to become chilled in any way, so rush into a pre-warmed working area in which you have a pre-warmed slide box or similar, half-filled with cotton wool.

Quickly wrap a prepared length of electrician's tape round the body of each cell from base to near the tip, leaving just the tip free and pinching tape in to fit snugly round.

Put each one gently in the box and, when all are in, cover with cotton wool, close up but do not squeeze. Rush them out to the hives and place a queen cell gently between two central frames of brood in the bottom box, the cell to hang between the top bars. Check quietly a week later for emergence and for other queen cells if necessary.

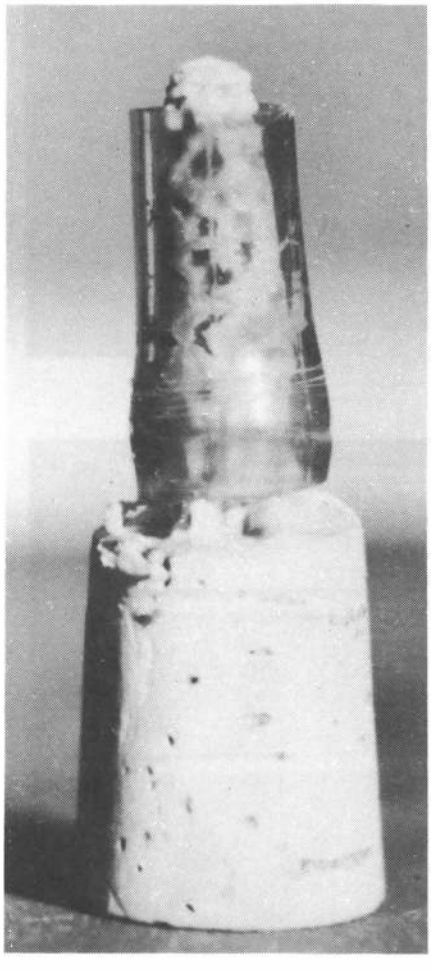
If it has safely emerged, leave alone for one month apart from ensuring there is ample stores available and, of course, you do exactly the same thing with the two home hives, rejoining two adjacent halves of hive 1.

And that is that. Once again, please realise that you **must** adopt positive hive management and that this means; requeening to prevent swarms, plus all precautions against swarming and feeding to keep the hives happy, healthy, vigorous and progressive.

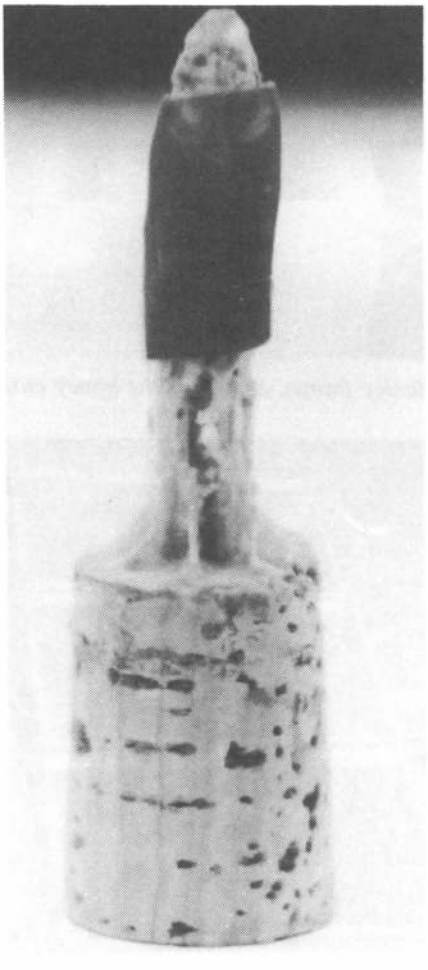
Queen cells care

Look after your queen cells. Remember that they are valuable both in economic and personal terms. Any failure with them means failure in the hive management plan.

Use as little smoke as possible when opening up the cell-raising colony and none at all if possible. Do not smoke directly on the cells or around the frame holding them, do not breathe or blow on the cells and examine them only in good conditions and expose for minimum time.



The garden hose – not easy to put on without a certain amount of crushing, I find.



Electrician's tape – easy to use, readily available, less cooling effect.

Capping for the small-scale beekeeper

THE QUESTION of dealing with cappings comes up every year. This is one of the minor embarrassments for the beginner, what to do with the mixture of wax and honey after extraction.

A surprising amount of honey stays with the cappings even when they have been drained or strained and it always seems a pity to waste it.

The formally recommended method of handling this for the small beekeeper is as shown in the sketch. The essential requirement is a half-depth tin-lined (although some line with plastic sheet, tinfoil or sisilation) top feeder.

This has a floor full width but not quite full length, leaving a 20 mm gap at one end, with the end wall interior to this rising 12 cm of the 13.3 cm height of the box, in effect leaving a narrow gap up the inside end of the box and in over the lip.

This half-depth feeder is placed on top of the two brood chambers and a queen excluder placed on top of that, with an empty super, full depth, above that again.

A mound of cappings is poured into this and onto the excluder before the normal top covering and lid is replaced very firmly.

The bees have adequate but limited access to the cappings, working away at them through the excluder, the wax fragments dropping through into the tin tray. It will take the bees a few days to work their way through but that is no problem.

As a guide be quite certain none of the cappings come from hives with even the slightest hint of disease and start as soon as convenient after extracting – do not leave until the cold weather sets in. Pile the cappings towards the back but do not overload – it is easier to put in two or three medium lots than one over-large one.

Make sure the hive is bee proof, that there are no cracks between boxes or passages via the roof.

Load in the evening and allow ample time for the bees to clear the cappings.

Go in the top with plenty of smoke, remove down to the feeder, take that off and bang if gently on the ground until the last bee flies out, tip the now-clean cappings into a suitable container ready for melting down, reassemble and re-use until all have been processed, and you have dealt with one of those sticky problems that keep coming up in beekeeping.

David Williams asks . . . .

Whose enthusiasm for Manley frames?

THERE SEEMS a persistent and steady trend to Manley frames in the country, a trend that while it may not be official MAF policy, is certainly touted and encouraged by MAF officers.

This seems to have come about with no discussion, no public debate on the subject and no weighing up of the pros and cons of these ¾-depth frames. It seems to have happened almost by stealth and very early in the morning.

To go over to Manley, either for supers only or, as a standard for both brood chambers and honey boxes, would appear to be a change so radical that it might have been expected to become a major topic of discussion in the New Zealand beekeeping world, yet all there has been is a deafening hush.

We might have expected some public statement from the experts on the merits of this relatively new development (new in the sense of being recently endorsed commercially as a system of management) but – not a murmur.

This may be merely an oversight. Let us hope it is an oversight that will soon be rectified.

The Langstroth box and its accompanying Hoffman frame have served beekeeping well since their general introduction. They have allowed for total standardisation of hives and frames, have given us flexibility of management within this standardisation, and have allowed we amateurs to handle individual frames where whole supers were too heavy.

They have also proved easy to make where this was necessary on grounds of economy and have allowed complete interchange between brood chamber and honey super where required. The frames proved easy to uncap and extractors were designed for that sized frame, and even the change to metrics did nothing to reduce the value of the standard sizes.

If we are to change to the Manley frame, what of the extra width?

I have just popped downstairs and measured this as 42 mm – the book says 43 mm but these are 42 mm – which is a very large increase over the Hoffman and one that may do very well for honey storage but not nearly so well for brood rearing.

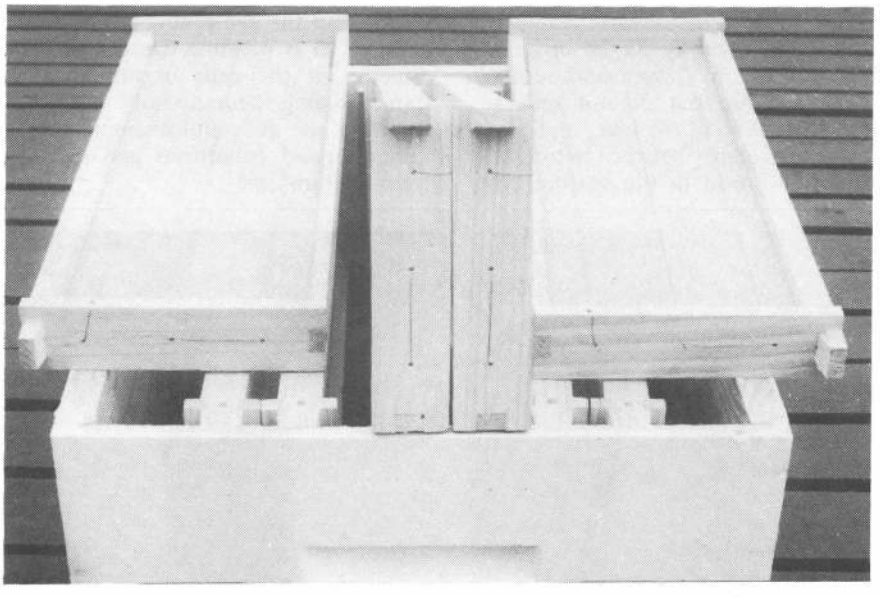
Manley frames are box-ended. Does there have to be a passage for bees through at least the bottom halves of the ends of frames? If not, why have we had them in our standard frames for all these years? Are they necessary at all, or only preferential? Do they serve a useful function in the brood frames only and, if so, will the manufacturers be asked to add (or rather subtract) them from the Manley in future?

If Manleys are to be used for honey storage only, who amongst us is prepared to guarantee that queen excluders will always be used in conjunction with them? Or that we will so manage our hives that the queen is totally restrained from entering them? Few indeed. And what is to happen to those hives in which the queen somehow finds her way up into the Manley area in due course?

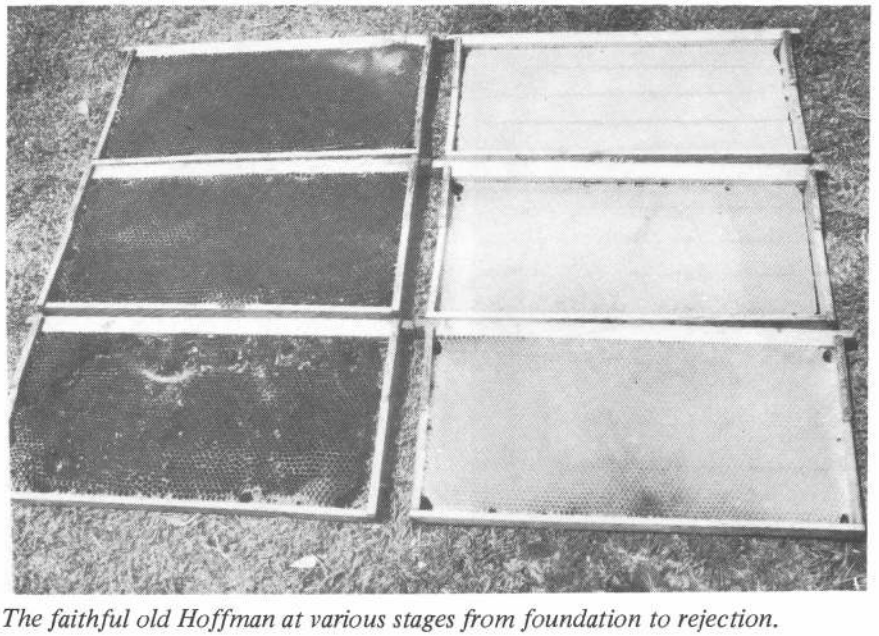
Such an arrangement seems a surefire prescription for chaos unless standards of management reach levels never before attained in either the commercial or the amateur world – an unlikely prospect, even the most sanguine of us would admit.

What can Manley offer us that Langstroth cannot, except a moderate reduction in the weight of filled supers? Are there any real advantages to the use of a ¾-depth module, either in part or in whole?

Let us hear from the Manley men!

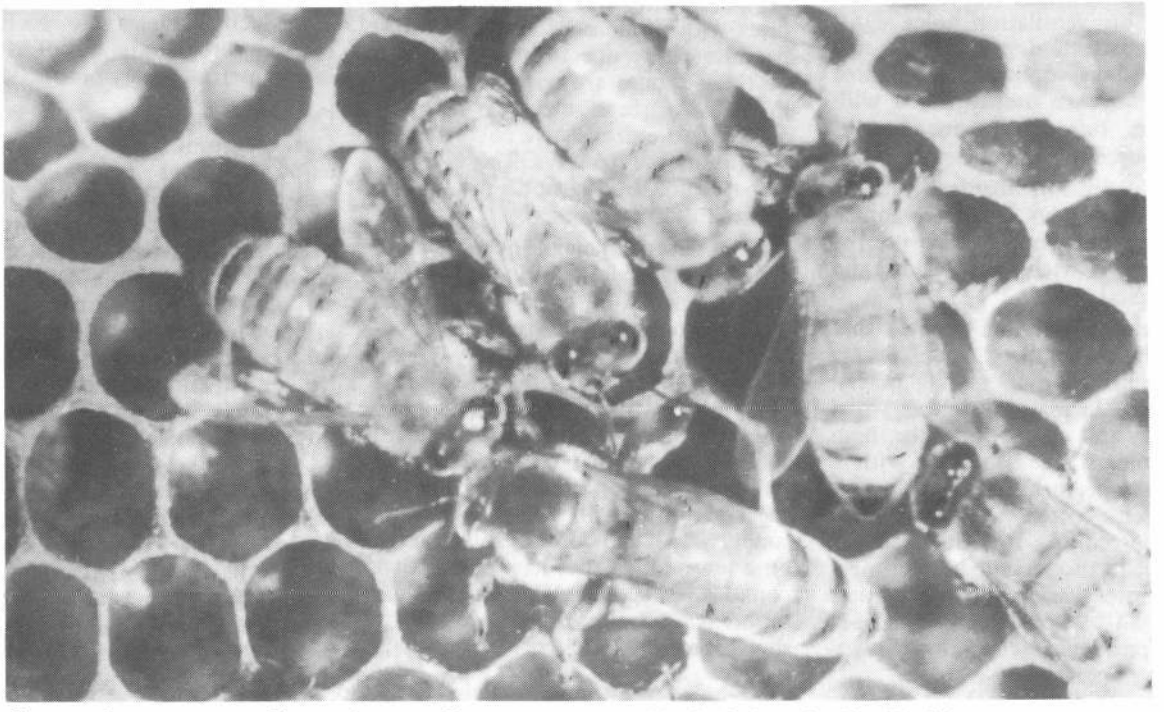


Manley frames, all set for the honey crop.



The faithful old Hoffman at various stages from foundation to rejection.

Factors in queen rearing that influence the potential of a queen bee



If queen bees are not well reared, up to 30 per cent may suddenly fail on the third build.

by G.J. Kleinschmidt, lecturer in apiculture, Queensland Agricultural College at the New Zealand Ministry of Agriculture, National Seminar, July 22, 1980.

IN MANY countries, requeening each second year is satisfactory because the bees have only one major build period each year. In several parts of Australia, two or three major build periods followed by a honey flow may be experienced. When colonies are intensively managed on these conditions the queen bees exceed 1 900 eggs per day for short periods on at least three occasions, and maintain a laying rate above 1 000 eggs per day for at least nine months. If the queen bees are not well reared, up to 30 per cent may suddenly fail on the third build. The laying rate drops slightly in strong hives, supercedure cells that are often mistaken for swarm cells appear and the old queen dies within three weeks. In these circumstances, every technique that can extend the queen's potential must be utilised during rearing.

The following techniques help to ensure that a high percentage of queen bees will be very productive on three flows:–

Grafting (early American)

Work indicated larval age between one and three days had little effect, but subsequent work by Woyke (1971) has clearly demonstrated the age effect. Queens reared from eggs were the heaviest, followed by one day old larvae, two day, three day and four day larvae. In Woyke's work, queens had up to 340 ovarioles for egg production. The actual mean for each group was highest when queens were reared from eggs, followed by one, two, three and then four day old larvae. The diameter and volume of the spermathea and the number of sperms in the spermathea varied in the same manner as above.

This evidence suggests we should use eggs. Egg transfer queen rearing has had difficulties. It could well have been the method used. Winn (1978) reported that hatchability of eggs exposed to direct sunlight for two minutes was 71 per cent and four minutes 15 per cent, and that humidity did influence hatchability, varying it from 4 per cent at 70 per cent relative humidity to 98 per cent at 95 per cent relative humidity.

The present major consideration must be the effect of sunlight and humidity on larvae. They may not have died, but it is possible that a set back reduced the final potential of the queen. To counteract this possibility Queensland Agricultural College (QAC) build a queen rearing complex in a good pollen area, feed liquid sugar and graft in an air-conditioned room. Such rooms are often used in America, and even in the field sheds are used.

The female touch, the office girl or others on light work enable rapid gentle larval transfer. In many operations there is a trend for aging father to rear the queens. His eyesight often needs some assistance and a maggi lamp will enable him to transfer very small larvae. If eyesight is good, a flourescent desk light is a good light source.

To ensure larvae are less than one day of age, multi mini nucleii hives are used to hold breeders. The queen is held between twin queen excluders on three combs. This section contains sealed brood and one empty comb that is inserted four days before larvae are required. This comb provides ample larvae of 12 hours of age for fast transfer.

Mating hives:

The necessity to control hive temperature and humidity determines the size of the mating nuclei. Very small mating hives can only be used during short periods of suitable climate and such hives are used for 9 to 12 weeks in spring in California. They are laid out on a dozed track that follows the waste ground in an erratic pattern to assist orientation. Weedicide sprayed behind the dozer blade keeps the track clear for the 1 600 nucs placed in pairs on opposite sides of the track at each mating yard.

The double nucleii often used in Hawaii are painted white to reduce conditions of heat. Dark paint colour

caused major heat problems. Shade board lids and big ventilation holes were used to counter the problem, but at QAC, white paint, shade board lids, or broken shade was more effective than big ventilation holes. QAC uses a landstroth depth 12 mini nuc frame nucleus divided into three nucleii. They are over-wintered with a super of full depth honey combs and one queen in the bottom.

The use of division boards is increasing rapidly. They facilitate annual requeening and make the use of queen cells a viable operation and reduce capital costs.

The increase in nosema in hives that are regularly handled often results in heavy infection in mating nucleii and queens. In many instances visual symptoms are absent but the high spore numbers are associated with a reduction in performance of the queen and are also often associated with early supercedure. It would appear that preventative treatment for nosema in intensive queen production hives should be considered, even if it is not considered wise in a honey production operation.

Drones:
While the importance of drones is common knowledge, we tend to assume that any drone is good enough. This is not the case. When ample pollen is available, drones have maximum sperm around 14 days of age. Drones over six weeks for artificial insemination often result in the death of the queen. There must be some doubt about the value of drones as they age from three to six weeks.

There are not as many drones in a hive as we assume. Our counts in strong hives with drone cells averaged 1 500 per hive. Only one third to one fifth of these drones are optimum age for mating. A queen averages 7 to 12 matings, so a drone hive could service 50 queens per 14 days. This is a hive managed for drones, not a production hive with some drones.

I have observed major queen failure at six to eight weeks both in Australia and America. In each case drones were responsible. The American problem was insufficient and very young drones who initiated normal egg laying, but provided insufficient sperms to carry on. The Australian problem was old, poorly fed drones. Bees will retain drones on a honey flow or sugar syrup even if pollen is in short supply. The old drones maintained on a low protein diet have semen that contains few sperms. Virus and nosema outbreaks are often associated with a similar problem.

Close breeding:
When related bees mate, a percentage of the eggs laid in worker cells do not result in worker bees. They are fertilised eggs that would produce drones except that the worker bees cannibalise the larvae. The queen bees lay the worker and abnormal drone eggs in worker cells and normal drone eggs in drone cells. The abnormal or diploid drone larvae in worker cells are removed and the queen bee relays the cells. The mixture of eggs, healthy larvae and different ages and sealed brood indicates probable close breeding. Such colonies are useful in a breeding programme but of little value in commercial honey production.

Queen banks:
Queens from banks do not always enjoy a good reputation. Queens banked in America may be held one to two weeks in these banks with queenless package bees. The queenless colonies are populous and fed sugar syrup. A total of 336 queens were held in each unit. When queens were held for one month, queen right colonies were used. Brood was lifted to the super each side of the queens each three days. These queens were certainly a good size for banked queens. Queens were not held for longer periods as is common when queen banks are criticised. During long periods it would often be difficult to properly maintain the correct conditions in bank colonies and this is possibly the cause of the problem.

I believe that the potential of a queen bee is subject to the influence of three managers:

- the bee breeder;
- the queen rearer – points just discussed refer directly to this activity; and
- colony production manager. Any one of these three operations can cause poor production performance.

Breeding systems for stock improvement

by G.J. Kleinschmidt, lecturer in apiculture, Queensland Agricultural College at the New Zealand Ministry of Agriculture, National Seminar, July 22, 1980.

IN APIARISTS' minds, the term 'bee breeding' is associated with instant new strains that are so good they virtually manage themselves. Bee breeding can certainly improve strains, but it is a slow procedure that requires a dedicated, patient, exacting worker.

A long term programme is an essential factor in the well-being of our industry, but in perspective, good apiary management, efficient utilisation of labour and machines and many other areas are equally important. All factors should progress together and more effort in one factor does not compensate for lack of attention in others.

Most people immediately relate to the intensive breeding programmes, involving inbreeding and hybridisation. I do not believe such a scheme is the starting point, it is the finishing point when mass selection programmes provide only a very slow rate of progress.

We can experience two types of gains in bee breeding, heterosis and quantative.

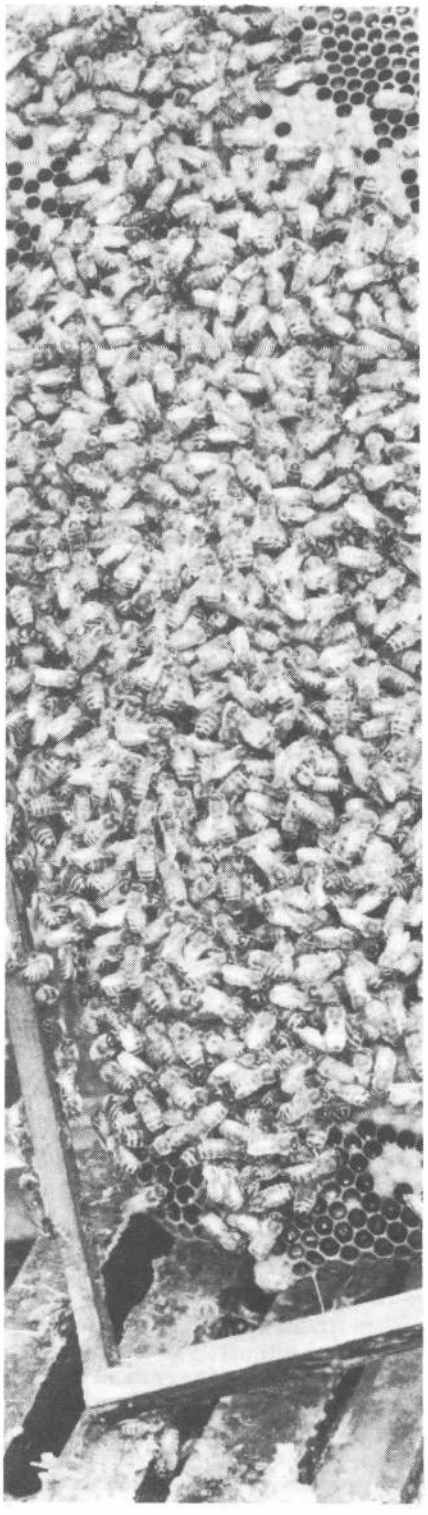
Heterosis

Is more commonly referred to as hybrid vigour and is a non-additive effect that does not give permanent gains. When two strains are mated and the immediate progeny produce more than the higher parent, the effect is considered the result of heterosis. For example, if the parent's average 50 kg the progeny should average 50 kg, but if the progeny average 80 kg, the yield advantage of 30 kg is considered the result of heterosis.

This hybrid vigour does not always occur when unrelated strains or races are crossed. The yield advantage is not permanent, it will reduce during subsequent generations at various rates depending on genes and their action, but a 50 per cent reduction per generation of yield advantage is common. For example, generation 1 produced 80 kg, a base of 50 kg plus yield advantage of 30 kg. Generation 2 will be the base of 50 kg plus half of the 30 kg yield advantage or, 50 kg plus 15 kg to total 65 kg. Generation 3 will be the base 50 kg plus half of the now 15 kg yield advantage, or 50 plus 7½, a total of 57½ kg. By generation 6 the yield advantage would be 1 kg with a total of 51 kg, just above the original parents.

If the improved performance is totally hybrid vigour, it will be lost if the progeny are used for breeding. To maintain the yield advantage, the original lines must be used for each generation.

If the original yield advantage was a result of character selection and heterosis, part of the yield advantage is lost by breeding from progeny. This refers directly to inbred/hybrid breeding programmes. The inbred lines A, B, C and D are produced by many generations of artificial insemination breeding and character selection in a closed population.



Bee breeding can improve strains, but it is a slow procedure that requires a dedicated worker.

The matings A, B and C, D are also by A.I. The A, B queen bee is sent to the queen rearer to produce virgins. The C, D queen is used to stock the queen rearer's mating yard with C, D daughter queens which, because the mating does not affect immediate sons, provide C, D drones for natural mating with A, B virgin queens.

The commercial use of A.I. produced hybrids could be:

Year 0: Your own queens and drones.

Year 1: You use queen A, B to produce virgins to mate with your drones and to stock your hives.

Year 2: Use C, D for virgins to mate with A, B drones already in your mating yard, and at the end of the season to requeen your mating yard drone hives to provide C, D drones for year 3.

Year 3: E, F queen by C, D drones.

Year 4: Start again with A, B if the C, D x E, F stock is not related to A, B stock.

Inbreeding is a system for forming small uniform populations by intense breeding in a closed population. A range of mating systems might be used. Inbreeding sets both good and bad characters and reduces vigour to the point where colonies must be assisted with brood and bees from other hives. Such assistance makes it difficult to identify and cull the bad characters during the inbreeding. The vigour returns when they are crossed, and hopefully, also heterosis.

The other inbreeding problem is that a very specific strain suited to a narrow range of environments results because the variation in characters is deliberately reduced. If sufficient inbred lines are available the breeder can select crosses for the different environments, but what if different environments are worked during the same year?

The big advantage of inbreds in the inbred/hybrid scheme is the repeated production of similar stock. If a major flow is worked in similar environments each year, the repeated availability of a uniform specific strain is assured.

Quantative

This breeding method deals with the use of quantative gains which are additive and permanent if the characters are held. Honey production genes are additive, so selection can gradually improve a strain. This technique is used in mass selection programmes. The wide range of variation compared to inbreeding provides a strain more likely to be suited to a range of en-

vironments. The production selection system allows early recognition of poor traits and their elimination. The system becomes one of retention of genes associated with high production.

I believe there are horses for courses and bees for conditions. The so-called vices and virtues of races of bees clearly demonstrate the horses for courses belief. For example, the early spring breeding of Italians is essential for Queensland and we leave stores for this purpose. In the Tablelands of New South Wales the slower Caucasiansis are more suitable for their later conditions than late season flows. The early breeding of Italians in such conditions is a vice, whereas in Queensland it is a virtue. The conditions have determined the race and the race influences the apiary management programme.

Out breeding is when good unrelated strains of the same race are used. They have different sex alleles, high survival rate of larvae and because they are so different, segregation causes a very wide variation and slow progress.

Because the next three methods of mass selection breeding reduce the variation, it is wise to cross several good strains at the start to give as wide a variation of characters and sex alleles as possible. Some relationships develop later in the programme.

Line breeding: The best queen is used to rear daughters that are mated to unrelated drones. The best daughter of the daughter is used to rear next year's queens and they are mated with unrelated drones, and so on. The best queen may be the highest producer and because the highest producer may employ foul means like robbing, or be as a result of genetic drift, it is safer to select several high producers.

Rothenbuhler (1970) suggested evaluation of 50 hives to select the five best. A seperate queen rearer produced and open mated the queens to ensure a large drone population that minimises the risk of inbreeding. As queen stock only is selected, the system is only half as fast as when both parents are selected, but much faster than out breeding.

Laidlaw (1978) suggested selection of the best 30 producers from more than 500 hives. Ten are used for queen mothers and 20 as drone mothers to get mixed collections of drones for mixed semen inseminations. This is a closer breeding system than Rothenbuhler, as Laidlaw selects male and female stock. He must use a greater number of hives in an effort to maintain as many sex alleles as possible.

At the Queensland Agricultural College, present facilities do not allow the full Laidlaw approach, but we can be a little more selective than the Rothenbuhler approach. We currently maintain at least 300 hives on production from which we select the 10 best producers by merely placing an ink pen stroke on the brood chamber of any hive that is better than average each time we rob. During the annual requeening in Autumn the 10 best production hives have a nucleus with the queen removed and returned to base. A batch of daughters is reared from each and on daughter performance the 5 best are selected for queen mothers. The others are spares unless their daughters are unsatisfactory.

By using division boards and mating in our production apiaries we exercise some control over drones. Our drone population is much wider than Laidlaw's, but narrower than Rothenbuhler's. After 10 years of this system 1 to 2 partial inbreds appeared in each load of bees. A new tested breeder was introduced as one of last year's five breeders. The new introduction was tested in one production apiary the previous year to ensure forward progress. If progress was slow the same procedure could be used.

The suggested apiarist field evaluation of marking the above average hives works well in Australia because we migrate 4 to 5 times a year and this tends to equalise opportunities for all loads of bees. Because New Zealand has less migratory operation this could necessitate some allowance for sites of different production potential.

When mass selection on the basis of production is suggested apiarists often wonder about other qualities, like stinging and swarming. These fall into two categories, those that are felt or easily observed such as stingers and runners, – which are culled, and those that directly influence production. Bees that swarm excessively are susceptible to paralysis, have poor longevity, are not good layers – all fail to reach high production levels.

In actual fact you have selected against these problems. An outstanding hive for a particular character might be included in your breeder. For example a populous hive full of honey and burr that has not swarmed when your management was inefficient, is not inclined to excessive swarming and warrants special consideration. In our system, colour is considered only aesthetic and is a minor consideration. The queen rearer is often forced to select on aesthetic lines because of the customer's preference.

When strains are selected and evaluated it must be ultimately in the commercial conditions. The Queensland Agricultural College is currently working on a standard evaluation for Australia. This must be deeper than production only because individual suitable characters must be identified for possible future breeding programmes. Even when 10 hives per strain are used, there is a variation of brood of 10.9 per cent, population of 17.2 per cent and honey production of 38 per cent.

The high honey variation was partly because population and honey were correlated in two strains and not correlated in the other two strains. Accurate field evaluation will necessitate at least 10 and preferably 15 replicates. Four strains x 15 replicates gives apiaries of 60 which require two man days per fortnight for recording and management. This becomes a significant demand on time, facilities and finance.

No doubt the key question in your minds is the rate of progress that can be made by mass selection. If selection is for colour, because environment and other factors have no direct influence, complete additive effect of colour genes could be expected. When selection is for characters influenced by many genes, some of which include reaction of the bee to the environment, only a percentage of the expected progress is achieved. This is called the co-efficient of heredity.

This percentage will vary; for example egg laying is less dependent on other factors than honey production so the co-efficient for egg production inheritance is 0.35, or about one third of the mathematical calculation. The co-efficient for honey production is 0.25 or ¼ as it is more dependent on other factors. For example parents produce 20 kg and 40 kg – daughters 30 kg. There would be variation, possible 1 x 20 kg, 4 x 25 kg, 6 x 30, 4 x 35, and 1 x 40. If the 4 x 35 and 1 x 40 could be identified and used to produce daughters, the average production should be about 36 kg or yield advantage of 6 kg over the originals. The actual yield increase would probably be ¼ of this or 1.5 kg.

Progress is slower than you anticipate but real additive progress that is permanent can be made. Every apiarist can progress by using at least one of the mass selection methods discussed.

The prospects for a honey producer and a queen rearer co-operating are exciting, but unfortunately few honey producers send old outstanding production queens back to a queen rearer when the hive is requeened.

Some geneticists argue that the basic approach to breeding is a mass selection programme utilising the wide variation of characters. Such a programme is financially feasible today. As progress in the system became slow, these lines would provide the basis of the second approach, the more expensive inbred/hybrid system.

Artificial insemination is essential in the inbreeding system, and whilst it is not essential for mass selection programmes, it is a most useful tool that warrants careful consideration even if your aspirations do not rise to intensive breeding programmes.

NBA ANNUAL ACCOUNTS (UNAUDITED)

NATIONAL BEEKEEPERS' ASSOCIATION OF NEW ZEALAND (INC.)
Income and Expenditure Account for the year ended 31 December 1980

$ 1979		INCOME	$	$	$
4768		Subscriptions		4669	
20000		Hive Levy Grants		20000	
2249		Interest		2434	
3228		Journal Income — Advertising	4052		
1048		— Subscriptions	1396	5448	
148		Miscellaneous		499	
31441					33050
		LESS EXPENSES			
7057		Administration Fee		8040	
333		Audit & Computer Fees		490	
1510		Capitation to Branches		1823	
		Conference Expenses:			
	815	— Accomodation	1193		
	834	— Travel	1340		
1749	100	— Sundry	431	2964	
		Executive Meetings:			
	759	— Accommodation	1021		
	3208	— Travel	4329		
4086	119	— Sundry	144	5494	
		Grant: Overseas Travel		915	
		Journal:			
	9388	— Printing	9954		
11708	2320	— Editorial Fee & Sundry	4282	14236	
933		Postages & Tolls		1311	
500		President's Honorarium		800	
1065		Printing & Stationery		1793	
428		Sundry		664	
7		Depreciation		7	
29376					38537
2065		Net Surplus (Deficiency)			(5487)

NATIONAL BEEKEEPERS' ASSOCIATION OF NEW ZEALAND (INC).
Balance Sheet as at 31 December 1980

$ 1979	ACCUMULATED FUNDS	$	$
140	Conference Fund		140
226	Dormant Branches		226
127	Library Fund		133
504	Seminar Fund		590
250	Travel Bursary Fund		250
15348	General Fund at 1.1.79	17414	
—	Transfer from Library Fund	31	
		17445	
2065	Less Excess of Expenses over Income 1980	(5487)	11958
18660			13297
	These are represented by:		
(336)	Cash in hand and Bank	541	
8000	Short Term Investment — BNZ	4000	
56	POSB Milton	130	
1394	Sundry Debtors	2013	
9114			6684
1793	Less Sundry Creditors	2767	
1342	Hive Levy Suspense Account	3062	
50	Provision for Bad Debts	50	
81	Subscriptions in Advance	179	
3212			6058
5902	Net Current Assets		626
	Other Assets are:		
11000	NZ Government Stock (at cost)	11000	
493	Library and Blocks (at cost)	502	
65	Cabinets (at cost less deprn)	58	
1200	Publications (saleable)	1111	
12758			12671
18660			13297

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R.J. Saunders,
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