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NATIONAL EXECUTIVE BEEKEEPERS' ASSOCIATION OF N.Z. (Inc.)

President:
Nick Wallingford,
55 Watling Street,
Tauranga.
Tel/Fax (07) 578-1422

Vice-President:
Richard Bensemann,
State Highway 77,
RD 6, Ashburton.
Tel/Fax (03) 308-8423

Executive:
Russell Berry,
Arataki Honey Ltd.,
Rotorua Division,
Waiotapu RD 3., Rotorua.
Tel. (07) 366-6111
Fax (07) 366- 6999

Terry Gavin, P.D.C., Titoki,
Private Bag,
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Tel/Fax (09) 433-1893

Warren Hantz,
Box 56, Doyleston,
Canterbury 8150.
Tel. (03) 324-3962
Fax (03) 324-3885

Keith Herron,
Greenvale Apiaries,
No 5 RD,
Gore.
Tel/Fax (03) 207-2738

Executive Secretary:
Harry Brown
National Beekeepers Assn of NZ,
P.O. Box 307, Hastings.
Tel. (06) 878-5385, Fax (06) 878-6007

Editor New Zealand Beekeeper:
Harry Brown
National Beekeepers Assn of NZ,
P.O. Box 307, Hastings.
Tel. (06) 878-5385, Fax (06) 878-6007

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Bob Banks
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Bruce Stevenson
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Tel/Fax (09) 407-7190

NORTHLAND

John Gavin
PDC, Titoki, Private Bag, Whangarei
Tel/Fax (09) 433-1893
Mrs Edna Hoole
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SOUTHLAND

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C/- 100 Kakapo Street, Gore.
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Ross Ward,
P.O. Box 47, Gore.
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The New Zealand BeeKeeper is published eleven times per annum; February to December. All copy should be with the Editor by the 1st day of the month of publication except for December when copy should be received by 20th November.

Notes from the President

Nick Wallingford

This month's notes summarise the history and describe the NBA's plans for funding our organisation and its activities using the Commodity Levies Act.

The NBA has been funded by a compulsory levy under the Hive Levy Act since 1978. The levy has been payable by all beekeepers with 50 hives or more. The Act was not particularly well worded, and a variety of levy avoidance schemes have been identified through the years. As well, remits to our conferences indicated that the level of hive holdings was too high, that beekeepers with more than, say, five or ten hives should be contributing to the marketing and disease control activities carried out by the NBA.

The problem of getting the Hive Levy Act amended was taken from us when the Government announced a new act that would eliminate all the 'industry specific' levy acts such as ours. The Commodity Levies Act was created to provide a 'generic' opportunity for industries to set compulsory levy schemes for a variety of purposes. Before the levy would be imposed, the potential levy payers needed to generally agree with the purposes the money was to be spent upon. This gauging of support would come through a ballot of the potential levy payers.

Even before the original Commodity Levies Act was passed in 1990, the NBA Executive established the principles and methods that would underpin our own levy scheme. Because we have had such troubles with a declaration of hive numbers, we wanted something that was more verifiable. Whatever we levied need to be applied fairly (recognising the beekeepers produce a wide variety of goods and services). I wrote about this in some detail in the October 1994 *New Zealand BeeKeeper*, and I would ask that you re-read those notes if you are interested in why we have chosen the levy system we have.

The proposal for the last six years has been that an apiary-number based levy could be practical, simple and fair. When first envisaged, we expected that there would always be a (Government funded and MAF maintained) apiary register, to which we could turn to verify the number of apiaries for each beekeeper.

Problems arose in the last year when late arriving MAF advice told us that we would *not* be able to levy based on apiary numbers, since an apiary was a *place* rather than a *thing*, and the Act did not allow for that sort of levy. The Executive was understandably taken-aback, having been consulting with our industry for nearly five years on the basis of an apiary levy.

After a lot of behind the scenes work, an amendment to the Commodity Levies Act

was passed in December. The amendment does two things for the NBA: it allows us to move forward with our intention to levy based on apiary numbers, and it extends the Hive Levy Act for another year in order that we *can* attempt to put our levy into place before our organisation loses its funding base.

At the December Executive meeting, it was decided to implement the feelings expressed in one of the remits to last year's Conference, regarding exemptions for hobbyist beekeepers who had small hive numbers, but for whatever reasons had more than the threshold of apiary numbers that caused them to pay a levy. Initially, the Executive expected that any beekeeper with ten hives or less would combine hives onto one apiary to avoid having to pay a levy. Indeed, our only estimates of levy income did not count on *any* of these beekeepers being levy payers. When it became clear that there were a number of true hobbyists who could not or did not want to do this, culminating in the remit to conference, the Executive agreed to incorporate this change. Accordingly, the NBA's levy proposal will allow for any beekeeper who keeps ten hives or fewer on three apiary sites or fewer to be exempt from the levy.

I hope this change will be recognised as a real response to the most often expressed objection to our proposed levy. It should be seen as an attempt to ensure that the people to be levied are of the group who do *stand to benefit* most from the activities that the levy will fund.

After more back and forth with MAF officials over the exact wording of the material to go with the ballot, we are hoping to proceed with a ballot to gauge support, to be held *probably* in late April.

There has been nothing sinister in the postponements of the ballot. Several times it has been announced (even in the President's Notes!), that it would be happening soon. There has been no attempt to connive or mislead beekeepers, nor has the timing been manipulated to avoid having the ballot before the Pest Management Strategy reached any particular point.

We hope to precede the ballot with a special issue of the *New Zealand BeeKeeper* magazine, describing the benefits the NBA has brought and continues to bring to our membership. Remember, many of the people who are potential levy payers have not been levy payers under the Hive Levy Act, though some have been subscription paying members. We need to ensure that these people, especially, understand and appreciate the value that the NBA can provide to them.

Tangible benefits such as the branch structure (meetings and field day

organisation, for instance) and the *New Zealand BeeKeeper* magazine are fairly easy to point out. The benefits from marketing may be harder to pinpoint for smaller beekeepers. Stable prices, even in years of high production, and a general appreciation of the value of honey and bees (providing better relationships for obtaining apiary sites) are arguments that we should all be thinking through and discussing with each other.

The value of the proposed Pest Management Strategy that will attempt to eliminate American foulbrood is easily demonstrated. I recently spent a lot of time with a spreadsheet playing 'what if' scenarios with the costs associated with AFB. The benefit to our industry, to every beekeeper, can be readily shown. The technical words are that the cost/benefit analysis is very 'insensitive' — controlling AFB by the means we propose will be worth far, far more than it will cost.

The ballot results will be tallied in two ways. Of the ballots returned, more than 50% must agree with the proposed levy. As well, more than 50% of the commodity to be levied (that is, the number of apiary sites represented by the beekeepers who cast the ballots) must support the levy in order for the ballot to succeed.

The intention is that the results of the ballot should be available as soon after the ballot closes as possible, and certainly known prior to this year's Conference in July. The timetable is realistic, and unless there are more unexpected delays or strange interpretations from MAF lawyers, the NBA expects to keep to it.

I feel confident that the beekeepers of New Zealand will recognise the value provided by the National Beekeepers' Association, and will vote to support the organisation and its activities. Yes, controlling costs *is* important, but more important than cost is the value. I believe that NBA provides good value for the money spent.

The New Zealand **BeeKeeper** THIS ISSUE

3	Notes from the President
5	Letter to the Editor
6	Notes for Beginners and Others
7	Library News
9	From the colonies
18	E.D.P.R. (photos)
20	Question Korner
21	Otago Branch News
29	Recipes
31	Important Dates

Beekeepers and log books

Recently an NBA member contacted the executive asking if they could help sort out a problem he was having with the police over the interpretation of the law as to when beekeepers are legally required to fill in log books.

Shouldn't be too difficult to sort this out — or so I thought. However things are never quite what they seem.

The problem is over the interpretation of the 50km exemption. Our beekeeper is of the opinion that the exemption applies to 50km from any of his apiaries, while the police are saying it is 50km from his home base.

I rang our local Federated Farmer's office to see if they could offer an opinion. They believed also that the 50km exemption would be from home base, however they did check it out with their contact in the police and you guessed it, definitely 50km from home base and not apiary. Federated Farmers also rang the Road Transport Association and their interpretation was 50km from where the truck was parked over night.

I then contacted the beekeeper to pass on the information I had.

His reply was...

"But it doesn't say that in the regulations".

He went on to say that he had a legal opinion from his solicitor that the regulations could be interpreted as the

exemption being 50km from any of the beekeeper's apiaries.

The beekeeper then faxed me a copy of the regulations and the relevant parts reads as follows:

Definition of a farmer;

Quote: (*"Farmer means any farmer of animals or livestock, or any market gardener, orchardist, viticulturist, apiarist, nurseryman, poultry or egg producer, or grower of hops, peas, potatoes, tobacco, or other crops; and "farm" has a corresponding meaning"*) end quote.

Exemptions;

Quote: (*"Every vehicle owned by the owner or manager of a farm and used in an agricultural operation related directly to the management of that farm within a 50km distance of that farm; including a vehicle used on a road to transport farm products, farm implements, stock, or farm requisites of any kind within such a distance."*) end quote.

I now went to my own solicitor who agreed with the beekeeper's solicitors opinion.

The key to it all is where in defining a farmer the regulations say "and" "farm" has a corresponding meaning".

This means for the purpose of these regulations an apiary is a farm.

Obviously a test case would have to go to court to settle the issue one way

or the other.

My solicitor, being the cautious man that he is, did add however that we are playing with words and if such a case did go to court the Judge would take into account the intent of the regulations which are of course to stop people driving for long periods of time without a break, therefore reducing the likelihood of accidents caused by driver fatigue.

If you are carting bulk honey and it is obvious that you haven't stopped at any of your apiaries on the way, then a Judge may not be very sympathetic. However I do not believe it is the intent of the regulations (or at least it shouldn't be) that beekeepers have to fill in log books when driving from apiary to apiary doing their normal work even if they are more than 50km from home.

Any volunteers for the test case or can anyone else shed any more light on the subject please?

Any offers to NBA Secretary, Box 307, Hastings. Phone: (06) 878-5385.

Finally there is provision for a permit to be issued to allow for an extension to the driving hours when shifting hives. You must apply for the permit three days in advance, give your start and finish times, name of driver and details of why you can't stop for the required breaks.

Warren Hantz

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Letters to the Editor

Any letter I receive for publication that I consider could be contentious and requires an answer, I will contact the person mentioned in the letter for a reply before the article goes to press.

Harry Brown

Dear Sir,

Your article in *The New Zealand BeeKeeper* December 1995 Vol 2. No.11 titled "Importing commercial beekeeping equipment from the United Kingdom" gives a figure of 40,000 beekeepers in the U.K. with approximately 400 belonging to the British Beekeepers Association and being semi-commercial or commercial beekeepers. This is a very false picture.

As there is no registration of beekeepers in the U.K. the figure of 40,000 is at best a guesstimate based on various sources of information including MAFF figures. The British Beekeepers Association (BBKA) largely represents amateur beekeepers and is the parent body for most county beekeeping associations.

There are 61 individual associations that comprise the BBKA and they have a total of 11,714 members (source BBKA Year Book 1995 — based on the membership returns for 1994). There are a number of counties and groups who are not part of the BBKA, I know of Bedfordshire, Barnet and Enfield, but I am sure there are others. The BBKA figures do not include those of the Scottish, Welsh or Ulster Beekeeping Associations, all of which have their own organising bodies.

The Bee Farmers' Association (BFA) of the United Kingdom has 322 members (source BFA 1995 membership list). This is the organisation which represents semi-commercial and commercial Beekeepers in the U.K. Many BFA members also belong to the BBKA or to the Scottish or Welsh organisations. I belong to two counties which are part of BBKA and am also a member of the BFA.

I am a beekeeping equipment dealer and it would seem that less than half of my customers are members of any beekeeping organisation therefore I would conclude that the figure of 40,000 beekeepers is probably not far off the mark, but that the reference to

400 BBKA members is totally incorrect supported by my figures quoted above.

*Yours sincerely, Peter Dalby
Chairman of Hertfordshire
Beekeepers Association and
Member of Bee Farmers'
Association.*

These figures and the article was given to us by your British Consulate General here in New Zealand

ED.

**Stephen Lee
Te Awamutu**

Dear Sir,

I take issue with Terry Gavin's "Disease Control Committee Report" in the February issue of the *New Zealand BeeKeeper* where he says: "This document drew nineteen submissions, some expressing full support and others suggesting change."

The document certainly drew a submission from me — FULL OPPOSITION!

Environmental seminar

The Tradenz environmental integrity programme is running a breakfast seminar for food and beverage exporters in Tauranga on 6 March.

The seminars will introduce participants to the benefits of implementing an Environmental Management System, (EMS), and will explain steps involved in applying for certification to the new international EMS standard ISO 14001.

The seminars are aimed at senior managers. They will be followed by practical workshops for staff charged with setting up environmental management systems for their companies. The workshops will take

place in Tauranga on 11-12 April and will be led by environmental consultants Melissa Clark-Reynolds and Lin Roberts.

Waikato business will also be able to hear about the programme at the "Linking Business and the Environment" seminar taking place in Hamilton on 23 February. This seminar is sponsored by Environment Waikato and the Waikato Business Development Board.

For more information, phone Andrea Sundgren, (04) 499-2244 or the environmental help line 0800-600-604.

Wellington	Workshop	28 and 29 March
Palmerston North	Breakfast	13 March
	Workshop	18 and 19 April
Auckland	Breakfast	20 March
	Workshop	23-24 April
New Plymouth	Breakfast	3 April
	Workshop	8 and 9 May
Dunedin	Breakfast	16 April
	Workshop	13 and 14 May
Hastings	Breakfast	22 May
	Workshop	17 and 18 June

Notes for Beginners and Others

Re-queening in autumn or spring? A controversial topic among beekeepers which comes up repeatedly. There are some people adamant that spring is the better time than autumn and vice versa. Are there really reasons to be dogmatic about this? The period preferred depends on several factors, to name a few: the condition of the queens to be replaced at the particular time, the availability of young queens, the convenience of the beekeeper (s.a. time, available man power, management plan). This last factor is not of great importance to those who manage just a small number of colonies.

Some beekeepers are of the opinion that it would be good to see queens shut down as soon as possible after the honey flow stops. Reason: the sooner brood rearing stops and so called surplus bees die, the faster a hive's population will decrease and a lot less of those precious stores will be consumed. Sounds reasonable.

However don't forget that a colony needs to go into the winter with a large proportion of young bees who have to last well into the spring, that a cluster of reasonable size will have a better chance to maintain the correct conditions, especially as to temperature, than a small cluster. The larger cluster may not really use a larger amount of food than the smaller one for greater efforts to maintain conditions will require more energy. From this follows that those young bees hatched fairly late in the season are really of high value. It is a young queen which usually will produce a good number of offspring to go into the winter. If there are a lot of young bees going into the winter less spring dwindling will occur, there will be a good build-up and so a better potential, with the proper management, for optimum results. That young queen if she is any good will perform well next spring and there will be less trouble with swarming than with ageing ones.

So if a queen is old (24 months +) this autumn or has not performed well during the past season she

should be replaced this side of winter. There is a lot to say for age marking queens and marking hives.

Then it is often a little easier to procure queens in the autumn than it is in the spring. Climatic conditions during spring are so frequently adverse and of course do affect the queen breeder with the result that you do receive your order later than has been planned. Frustration assured.

There is one drawback in late summer and autumn, that's the robbing tendency. Hives which are opened up for any length of time can easily become the victims of that evil. So it is not the best to have to spend much time in finding the old queen. That is an advantage of spring re-queening, there is much less robbing as there are a lot less old field bees and the colonies are not as populous as a rule. So it seems, everything being equal, that there is room for doing this part of management in both spring and autumn. If it seems urgent to do it before winter, do it now and leave the ones which can safely wait till next spring. This sounds remarkably like a political compromise under MMP!

Occasionally one may come across a colony with heaps of brood late in the season. At the same time it has probably not a great deal of winter stores. There again it is a good idea to replace the queen so that the colony can change from being a "super consumer" to a decent producer.

It is normal to see colonies chucking out the drones at this time of the year. Watching the entrance you can see workers pushing the poor fellows outside. They have fulfilled their purpose, no more use for them. So out they go into the never never. Nature is ruthless indeed. There will be the odd colony which does not purge itself of those unless passengers but let them stay and perhaps keep them right through the winter. Pay some extra attention for it could well be a sign that everything is not as it should be. Maybe the workers are reacting to the fact that their queen is nearing the end of the

road (chemical senses, pheromones supply low). So in case the old girl peters out and an emergency queen is raised there will be some males available to mate the new queen. There is of course a very substantial risk that it is not going to work satisfactorily at this time of the year and the colony will come out of the winter without a queen or with a dud or not at all. So you have to make up your mind to play safe and interfere or leave it and run the risk of trouble later on or perhaps a winter loss.

Autumn, the time after the surplus honey has been harvested is the period of the year is to observe, draw conclusions and act accordingly. It is during this time that the foundation is laid for next season's success or otherwise in as far as that is within the beekeeper's control.

Time to check for winter stores is approaching fast. Don't leave it late. If you have to feed syrup, April is the time to do it so that surplus moisture can be expelled before the cold weather sets in. And make the syrup as strong as you can. Hot water will dissolve more sugar than cold and so makes for a solution of higher concentration. That is easy to do if small quantities are needed.

If you are short of combs with feed honey but still want to carry a few tops through the winter, syrup can fill the gap. From experience a nuc can be made up with just one comb of feed honey, and pollen of course, supplemented with eight to ten litres of strong syrup. This will best be fed after the queen has been introduced and is settled into her job. Use a division board feeder holding four to five litres. The feeder takes the place of two combs, place it as far away from the division board entrance as possible. Just leave it in the top over the winter so it is there for the spring. The eight combs are sufficient to hold the stores and cluster of bees. No extra holes or cracks please, beware of robbers. The nuc should be strong enough to cope with the storing of the syrup. If too small or if the feeding is left too late the bees may not be able to take it up and one will be left with a feeder full of sour syrup and probably a dead top.

The immigrant bees 1788-1898

An encyclopaedia on the Introduction of European honey-bees into Australia and New Zealand, by Peter Barrett, 1995, 186pp, + historical supplement 15pp, Australia.

It is just what the sub title says and will surely be a book of reference for all who are interested in and want to know more about the roots of beekeeping in our part of the world. Mr Barrett must have done a tremendous amount of very thorough research to get the historical facts right. No mean achievement. The author acknowledges the valuable assistance he received from a number of people, among them Mr Chris Dawson, Rangiora, long time New Zealand beekeeper, founder-librarian of this library and life member of our association. Our President, Nick Wallingford, kindly presented the library with copy No. 69 of the first edition of 100.

Improved Wasp Control Methods For Beekeepers, by R.J. Harris and J.H. Perry (Landcare Research), 1994, 15pp, New Zealand.

This booklet cover trial methods, baits, results and recommendations.



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Queen-bee Appraisal

By R.B. Gulliford

There are two aspects to queen-bee appraisal:

- Beekeepers normally appraise a queen for her practical value to the colony whenever they inspect the hive. Such appraisal usually considers her; age, racial type purity (sometimes), physical condition (absence of injuries or deformities), productivity (number of eggs and quantity of brood) and hatchability of brood (measure of fertility judged by the number vacant cells in areas of recently laid brood). Queens which meet acceptable standards are allowed to remain. In every case the beekeeper makes his own judgement on each of these basic criteria.

- Recognised show judging appraisal in which queens are assessed against a fixed scale of points. Like all such systems there are a number of different scales and the points vary slightly. Judges should take some recognition of the criteria listed above since they are practical considerations and quite reasonable points of assessment. Competitors who enter queens to obtain a commercial advantage for their stock should have this type of assessment so there will be some compatibility between the awarded stock and what the purchaser will expect to encounter.

One inconsistency frequently encountered is that the entry is for "Queen-bee and Progeny" although the scale of points listed frequently omit the brood and brood pattern. The alleged reason for this omission is that the queen could have been introduced onto a frame of brood that was not hers. However, the integrity of the beekeeper must be relied on in this case as in all other cases of show

entry where there is much greater scope for the less scrupulous exhibitor than this irregularity. In Table IV two scales of points are listed; one which considers the queen alone and another which considers the brood.

Colour of Queen; usually the race of the queen is stated in the schedule, eg., Italian, Caucasian, Hybrid or "any other variety" (AOV). The colour must conform with the accepted standards of the race/type although it must be stated that there are considerable naturally occurring variations.

Form of Queen; This is a rather obscure characteristic and is generally interpreted as meaning that the queen moves smoothly across the face of the comb and is free from injuries, deformities and other irregularities. Some judges will not admit clipped queens. Other judges will require that at least half of the wing remains. Sometimes queens can be "shy" and hard to find some points may be downgraded from this characteristic if the judges experiences difficulties locating and assessing the queen.

Size of Queen; This is generally interpreted as meaning that the queen must have a fully developed abdomen and her head, thorax and abdomen must be in reasonable proportions. Large queens should be down-graded as severely as small queens. But, care needs to be exercised. Some queens confined for several days will go off the lay and their abdomens shrink. Hence judging within a day of caging is most important.

Size and Form of Queen; A combination of the above two characteristics.

Evenness of Size & Colour of Bees; The adult progeny is assessed on the basis of uniformity of colour and size indicating that the queen has mated with drones of similar race/strain. The best way of assessing is to get the group of workers together and look for differences. In the open colony this is very simple since there will often be a "line" of worker sucking honey from a row of cells near the brood. In the exhibition hive this may not be so easy.

Evenness of Brood; The brood area should be an entity of uniformly laid cells. This may be a single coverage of similarly aged brood, possibly to the stage of being capped or it can be one or more concentric circles of brood in various stages of development. Some judges prefer to see a reasonable proportion of eggs and larvae since age disparities and some failed cells can be concealed beneath brood cappings which exist for twelve days.

General Appearance; This is a generalised characteristic in which the totality of the brood comb is assessed. The comb should be straight and evenly drawn, still have wax colour (not aged and black), and there should be some honey and pollen in their proper place. Signs of disease in the adults or brood should immediately disqualify the entry.

*Acknowledgement
The Australasian Beekeeper*

**TABLE IV
TWO SCALES OF POINTS FOR THE APPRAISAL OF
A QUEEN-BEE AND PROGENY**

CHARACTERISTIC	QUEEN BEE AND PROGENY	QUEEN BEE AND PROGENY
Colour of queen	20	20
Form of queen	20	
Form and size of queen		20
Size of queen	20	
Evenness of size and colour of bees	40	
Evenness of size and colour of bees		20
Evenness of brood		20
General appearance		20
TOTAL	100	100

ONE-LINERS ...

If youth but knew what age would crave, many a penny it would save.

Age is when what used to ripple now wobbles.

Schizophrenia is a job for two people.

From the colonies

Urban Beekeeping

Are the urban beekeepers doomed? Take a look at the Canterbury branch submission to the Selwyn District Council in October last year. Beehives shall be set back a minimum of 20m from a dwelling . . ." Certainly this is aimed at a situation proposing more than two hives in Rural or Rural/Residential zones.

Again we read in the February Beekeeper that in the Porirua District Council "beekeeping was generally not permitted within the residential areas of the city".

The message to all urban beekeepers is "Keep your bees under control!" If there are no problems there are no complaints. If there are no complaints there are no heavy handed bylaws laid down to limit beekeeping.

Site your hives so that the flight path

is clear of any cars, clothes lines or other objects that could be marred by those little yellow relief stains. Make sure your bees have access to fresh water so they don't need to go into your neighbours washhouse. Ensure that your hives have a quiet strain of bees by requeening with a gentle queen at the first sign of agro. Most importantly talk with your neighbours when you offer them a gift of honey. A perceived problem can often be easily resolved. Do not hesitate to remove offending hives at least temporarily. Remember if you create a problem it may adversely affect other beekeepers.

City beekeeping is not impossible. Bees have been hived successfully on the top of a building in Central New York. Just remember that if you are an urban beekeeper you have to be vigilant.



Advertisers and Contributors

*1996 deadlines are the
first of the month.*

Except for December, it is
20th November.

Have a great 1996.

The Editor

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From a honey bee's prospective, propolis is a substitute for, and a supplement to, and a reinforcer of wax. It's also a building material in its own right. It is a varnish and an embalming material, a bactericide, and probably more that we don't yet realize.

But what is it really'?

It has been studied and analysed in some detail, and we do know its origin and its physical and chemical composition. It is a resinous substance collected by honey bees from the bark and buds of various trees and shrubs. Its specific composition is variable with season and locale. It does seem to have some of the beneficial properties claimed for it, but many of these claims are questionable. We will come back to that. A question has arisen in the past: Do the bees alter propolis? Probably not. Over the years, suggestions and declarations have been made that the bees add enzymes and perhaps other materials to the collected propolis as they return and deposit it in the hive, and some early reports stated that propolis was actually manufactured by the bees. Later reports stated that there were two kinds of propolis, collected and manufactured. Supposedly, the manufactured material was produced in the bees' bodies using pollen as the raw material and perhaps incorporating other materials such as bee hair, for instance. No scientific evidence supports this notion.

An analysis of a sample of propolis scraped from a hive will probably show some of these purported raw materials, but it is reasonable to assume that they are present randomly as detritus from the hive. Pollen, bees' hair and many other materials can be found readily in hive sweepings, and no doubt these materials are incorporated inadvertently into the propolis as it is applied. Scientific analyses in recent years have largely refuted any claims of the bees manufacturing or altering propolis.

Bees collect propolis from the buds and bark of many different tree species, these species varying with geography. Various reported have been alder, ash, balm of Gilead, balsam, beech, birch, elm, eucalyptus, fir, horse chestnut, oak, pine, poplar, spruce, willow and others. The bees do not restrict themselves to natural sources,

however. If they cannot find natural propolis, they will collect and use other substances of similar consistency. They have been known to collect road tar, different types of paint, caulking compound and crude oil. In at least one instance, they upset a manufacturing operation by continually stripping fresh, wet paint from heavy equipment.

An examination of the composition of natural propolis shows a general breakdown into terpenes, resins, volatile oils and other miscellaneous materials. Within that breakdown, approximately 130 different chemicals have been identified. Not every sample of propolis has every one of these chemicals, nor are the proportions the same in all samples, but there is a sameness to all propolis. Physical characteristics include brittleness at cool room temperature, a soft stickiness when warm (we know, we know), a melting temperature around 150°F and partial solubility in alcohol. It is slightly soluble in turpentine and will dissolve readily in ether and chloroform. It is aromatic, and in appearance resembles pitch, with colours ranging from yellow to dark reddish-brown.

Who collects the propolis?

As with nectar and pollen, there are two aspects to propolis use — collection and application. With both nectar and pollen, foragers collect the material in the field, off-load it in the hive and go off to collect more. They have nothing further to do with processing or handling these raw materials. They are, after all, field bees. The situation is not quite the same with propolis foragers.

Within the total foraging force of a hive, propolis foragers are a small group, and they are a steady group. Not surprisingly, they are bees of foraging age. However, propolis collectors also work in the hive. They are propolis users (or cementers) as well as collectors. They start collecting around mid-morning, as the day warms up and propolis becomes pliable, and finish about mid-afternoon, when the day is beginning to cool and a supply of propolis is on hand in the hive. They then begin to work in the hive, applying the propolis as needed. This group of bees works exclusively at this particular set of tasks for days, collecting and

By Richard Bonney

cementing. However, they are supplemented by another group of workers who also cement, but on a more casual basis. That is, they are house bees who do other jobs in the hive as well. Some of this latter group still have active wax glands.

Why do bees collect propolis?

What do they do with it? A primary use, in fact the use which gave propolis its name, is that of reducing the entrances or openings into the hive. The ancient Greeks observed this use and coined the name from *pro*, meaning before, and *polis*, the city. We have all seen this use, perhaps not so much at the main entrance, but at any of the lesser entrances and ventilation ports that beekeepers are wont to put in hives. Contrary to the belief of many beekeepers, the bees prefer to limit access to their nest.

Cementing or varnishing the walls of the hive and filling cracks and crevices is a second readily observed use. Sometimes we don't appreciate the extent to which the bees do this, but propolis is everywhere in the hive. Take an empty but well used brood chamber and scrape the wall of the box. It is surprising how much propolis (and wax) you can remove, material that was not particularly noticeable before the scraping. Why do bees deposit the propolis this way? At the entrances or potential entrances, the reason is fairly evident. A smaller entrance is easier to defend and helps to contain humidity in the hive. We often think of the problem of moisture in the hive, but usually in the context of excess moisture in the winter. Too little moisture can also be a problem since there must be a certain level of humidity for successful brood rearing. The brood must not be allowed to dry out. The reason for the varnished walls is not as clear, but again, one possibility is to slow the escape of moisture. Such varnishing is also part of the general filling and smoothing of cracks and crevices, eliminating repositories for wax moth eggs and disease organisms.

Of course, some of the places in the hive that the bees see as cracks and crevices create an inconvenience for us. This goes back to the idea of bee space. Any space in the hive less than about one-quarter-inch wide will be

Continued on page 11

Continued from page 10

filled, usually with propolis, although sometimes with wax or a combination of wax and propolis. We then must struggle to remove covers, to separate boxes and to remove and replace frames.

This varnishing is further extended to cover foreign objects in the hive that are too large for the bees to remove — a dead mouse for instance. More than one beekeeper has found an embalmed corpse in the hive after a long winter.

Another use for propolis, one we perhaps don't think about a lot is as a wax supplement and strengthener. The bees regularly incorporate propolis into wax, especially in the brood area. We have all noticed how brood comb darkens over time. Usually we attribute this to use and travel stain, and to cocoons and other residual matter in the cells. Certainly these are contributing factors, but propolis adds a substantial part to this darkening. Propolis is actually worked into the wax, supplementing and strengthening it, and more is varnished onto the wax surfaces in the cells, sealing those surfaces. This varnishing is done repeatedly over time, as the cells are used for successive generations of brood, and contributes to the slow reduction in size of the cells.

Next time you place new foundation in a hive, watch the progress from sheet to comb. Periodically pull a frame for close inspection. Use a hand lens. The changes in the wax, (from pristine white to tan and then brown over the ensuing months, should give you a better appreciation of that particular use of propolis. Further, if you use a solar wax melter for reducing old brood combs, look at the residue that remains after the wax has been melted from the frame. That black, sticky residue is made up primarily of cocoons and propolis and holds the original cell structure of the comb.

Since bees do not have intelligence in the sense that they do not think and reason, propolis use in a hive is not a matter of their consciously deciding to use it. Presumably, it is an evolutionary behaviour, originally stemming from a need to supplement the supply of wax. Bees do not secrete wax at will. They must be a certain age to begin with. Wax glands are activated only when a bee is engorged on nectar (or syrup). No nectar flow, no wax. This means, of course, that during summertime dearths and during fall, winter and early spring, bees secrete little or no wax. Bees are

assumed to have originated in subtropical regions where nectar flows were longer, perhaps yearlong, and consequently, wax was more regularly available. As the bees evolved and spread to cooler regions, wax production was less regular. The bees sought a supplement. Propolis was it. Once in the hive it was used as wax, and in fact, is still used as wax.

Not all bees use propolis. In warmer climates with sustained nectar flows, wax is more readily available, and the bees use it in all the ways they use propolis — varnishing (waxing), filling cracks and crevices and strengthening comb, and presumably, this is the behaviour that came first in the evolutionary process. Propolis use came later.

Although all species of *Apis* probably collect some propolis, usage varies greatly. At least three of the Southeast Asian species, *Apis cerana*, *A. Florea*, and *A. dorsata*, are considered by some authorities not to use any. Within the single species commonly kept in North America, *Apis mellifera*, the amount and usage varies. Caucasian bees are known as heavy users. Italians and Carniolans use noticeably less. In fact, Carniolans tend to use wax instead of propolis. For all three, usage level reflects, at least in part, the climatic conditions in which they evolved.

In North America, which has no native honey bees, the amount of propolis our bees collect has been a reflection of their ancestry. Since the large majority of our stock for the last one hundred and more years has been of Italian origin, we have seen relatively low levels of propolis use. That is changing. In very recent years, our fingers have been much stickier as Caucasians and perhaps other races have become more popular here.

Propolis does have advantages for those bees that use it. For instance, it does have demonstrated antibacterial properties and it has been suggested that this aids in colony health. However, if so it would be serendipity because not all bees collect propolis. The constant cementing and varnishing seals in disease organisms, rendering them harmless. What about bees in those areas that do not use propolis, or do not use it heavily? Generally, in those geographic areas where propolis is little used, the environment is less severe, and consequently, both environmental stress and disease are less of a factor. That is, there are few, if any, long periods with large numbers of bees in close confinement, there are ample opportunities for cleansing

flights, housecleaning is carried out daily, and the bees as a result are generally healthier.

How do bees collect it'?

It is difficult to observe bees as they forage for propolis. The sources are mostly trees, and the collection sites are usually high, off the ground, and out of casual view. Further, the number of collectors is relatively small compared to other foragers. However, propolis collection from poplar buds has been observed and described.

Propolis (or the resin excreted by the buds) exudes from the buds to form a protective coating, and in places, it forms convenient little clumps and ridges. The actual collection process is hard work. Using their mouth parts and forelegs, the bees break off pieces of the exudate, which are then moistened with their tongues and formed into small pellets, using the mandibles. Then the pellets are passed along to the middle legs and on to the pollen baskets of the hind legs. All of this takes place as the bees stand in place at the collection site, as compared to the pollen packing process, which usually takes place in hovering flight.

Making up a full load of propolis is time consuming, and the bees may interrupt their collecting activity to go back to the hive for 15-20 minutes, presumably to feed. They return to the propolis source with their original loads intact and continue to collect, sometimes repeating the round trip to the hive one or more times until their loads are complete.

As stated, propolis foraging can be difficult to observe. However, freshly collected propolis can be taken from a hive and placed in a convenient place where the bees can find it while an observer watches comfortably. The activity observed in such a situation can never be exactly as would be seen when watching bees collecting from a bud for instance, but the general process is the same. To observe this take freshly collected propolis from a hive and expose it nearby. The bees should find it before long and start collecting. It's a fascinating activity to watch.

When do bees collect propolis'?

Some small amount of propolis collecting has been observed in the spring, but collecting generally begins in early summer, at a low level, building to a peak in late summer and fall. This is in keeping with our first noticing fresh propolis in the hive. Of

Continued on page 12

Continued from page 11

course, there is always some propolis in the hive from past seasons, the amount depending in part on how much scraping and cleaning we do over the course of the season. Presumably, a colony will collect more propolis, and perhaps will start collecting earlier in the season, if large amounts of it are removed during spring cleaning.

Why is this pattern of seasonal collecting prevalent? An obvious assumption is that it relates to preparing the hive for the winter to come. However, this is, in a sense, coincidental. The heavy collecting and cementing activity of the late season is not caused by temperature or climatic change per se, but seems to be a part of the behaviour pattern of the bees in the late summer, and is coincidental with decreased wax secretion. They must prepare the hive for winter and the wax isn't available. Propolis is it. Availability in nature obviously plays some role, but that role is dictated, at least in part, by the availability of those bees who produce wax — young workers. When brood rearing ceases, so too does wax production.

How do we collect it?

There is a body of literature which claims value for propolis in the treatment of human ailments. Consequently, there is a modest demand for propolis. Beekeepers can collect the material and sell it, either directly to potential users or to a wholesaler of the product.

This raises the question of how to collect that sticky, goeey mess. There are two approaches — one of them casual, the other deliberate. What's the difference? I use a casual approach myself, primarily in the fall and winter when the material is hard. I have two opportunities, first, during honey extraction time and later, as I clean and recondition equipment. I scrape whatever propolis I find on any of the hive parts and throw it in a container. Appreciable amounts can build up between hive parts, especially between the end bars of adjacent frames. Some colonies, the heavier users, place large chunks of the material on top of the frames, and often I find masses of it on the top surface of the inner cover, almost as if they had collected more than they needed and just put it in the attic. I collect whatever is easily scraped, perhaps averaging 2-3 ounces per colony, and no two years give the same results.

The second, or deliberate method

involves placing a propolis collector on the hive during the active collecting season. The collector is a slotted device, the slots being narrower than bee space. They are usually made of wood or plastic, and they are placed on the hive in such a way as to annoy the bees. That is, the collector violates bees' space in the same manner as a queen excluder, or it violates hive integrity by creating small openings to the outside. Either way, the bees go to work and fill up the slots. When the device is full, the beekeeper removes it from the hive and places it in the freezer long enough to make the propolis brittle. Then, with the wooden model, a hive tool can be used to push the propolis out of the slots. If collector is plastic, it can be flexed in such a way that the propolis will pop out. (Look for propolis collectors in your equipment catalogs).

Of course, collecting is not the end of it. It needs to be cleaned, especially the casually collected material. Deliberately collected propolis tends to be much more pure. Cleaning is a two-step process. First, go through the pile of propolis, picking out the obvious, gross impurities — parts of bees, slivers of wood and pieces of wax. Then, throw the propolis into a large pail filled with cold water and agitate it briskly. Propolis is heavy; it will sink. Impurities tend to be light; they will float or be suspended. You will probably be surprised at the amount of debris that rises up from this propolis even after you did that initial picking over. Slop off the floating debris, agitate again, slop again. It's an action like panning gold. Don't slop too deep. Keep this up, adding more water as necessary, until nothing more is rising. The propolis now is reasonably clean and usable.

All right, now that you have collected and cleaned it, what do you do with your propolis? Sell it, of course. Look at the classified ads in the magazines. Usually someone is advertising to buy propolis in bulk, five pounds and up. The price is variable depending on quality. In the past, I have seen figures of \$3.00 to \$6.00 per pound. Another option is to sell it locally. Make up one-ounce packets, suitably labelled, and put them on display with your honey. It may take a while, but a market will usually develop, perhaps for more propolis than you can produce. Collecting and preparing propolis is labour-intensive, and the casual supply is low. Get a fair price. Ask at least \$1.00 to 2.00 per ounce.

One caution is in order here. In 1994, some samples of propolis were found to be contaminated with lead, and as

a result, health products manufactured from those samples were withdrawn from the market. The precise source of the lead has not been determined, but one possibility is that it came from lead paint used to finish hives. If there is any question about your hive finish, take care.

Claims for human health

Claims for the value of propolis are many, and they must be read critically. Much of the information available, from a scientific point of view, is not reliable. It is based on anecdotal reports, on folklore, and sometimes on wishful thinking. Some research has been done and the results published in scientific journals, but much of the work on propolis has been done in Europe, and many of these reports are not readily available to us.

I have found a number of papers reporting on various aspects of propolis which do reflect valid scientific studies. However, I own three books about propolis and I have come across a number of additional papers, all purportedly giving scientific fact and evidence about the value of propolis to humans, and referring to various scientists, professors and doctors as authorities. Unfortunately, these books or papers seldom cite specific scientific research, and the authorities mentioned only rarely have their qualifications or affiliations listed. Further, some of the information in these books is in contradiction with research findings from more reliable sources. An unfortunate outcome of this is that although some of the information in these books is probably valid and worthwhile, we have difficulty separating it from the chaff.

Claims for propolis are wide-ranging. It is said to be beneficial as an anaesthetic, an antibiotic, a regenerator of tissue, an anti-inflammatory and a wound dressing. The list of human ailments said to have been helped is impressive. It includes alopecia, anaemia, angina, arteriosclerosis, bronchitis, cancer, colitis, dermatitis, gastritis, halitosis, hay fever, multiple sclerosis, muscular dystrophy, mycosis, Parkinson's disease, psoriasis, sinusitis, tuberculosis, ulcers, varicose veins and more. Without further information, we certainly cannot deny that propolis might be such a panacea, but we can and should question it. Because of this, when selling propolis, making claims on the label should be considered with the greatest of care.

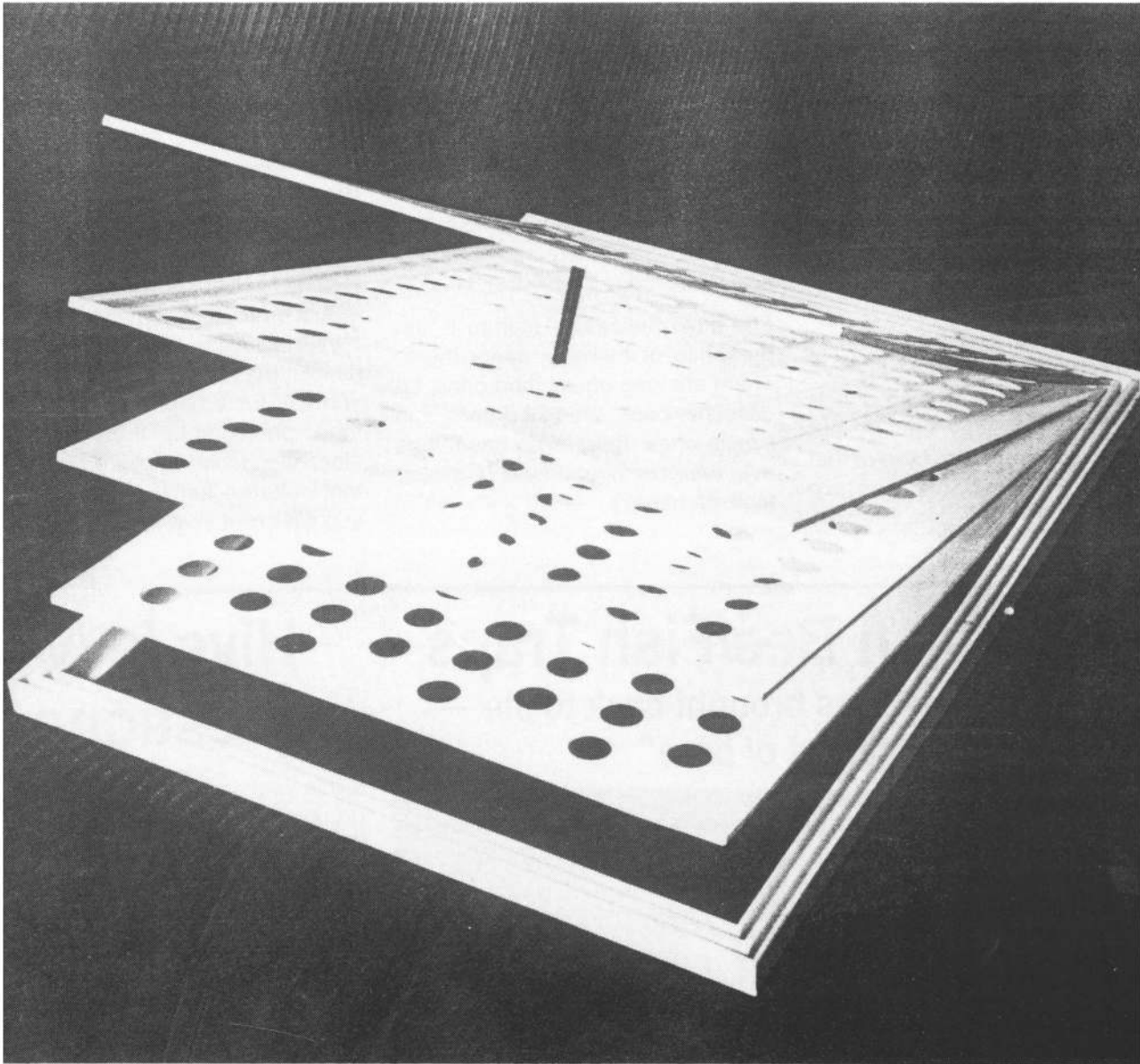
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A scanning electron microscope atlas of the honey-bee

by Eric H. Erickson Jr., Stanley D. Carlson and Martin B. Garment

Publ. The Iowa State University Press Accession No. ML2929. Class Mark SF515.3E68

The dimensions of this book are 9¼ x 12¼ x ¾ inches and it has 292 pages. It begins with six pages of text on the natural history of honey-bees which includes some interesting statistics such as the number of miles foragers do to the gallon of honey (seven million) and the fact that over ninety crops (fruit, vegetable, nut and seed) depend mainly on bees for pollination. The bulk of the book is of black and white photographs. These are followed by anatomical diagrams of bees, a glossary and an index.

The photographs are impressive. The images produced by the SEM have increased our understanding of bee morphology in a way that no cut section could. It is hard to believe that so many beautiful structures are packaged into one little bee. Even the

egg is a work of art with a network of raised lines, the areas in between studded with tiny bumps.

The arrangement of plates is easy to follow. They deal with the Queen, then the Worker, then the Drone, and for each caste they are in the order Head, Thorax and Abdomen. Every plate is headed with a full title so you are in no doubt what photographs are before you. They are so orientated so that the head is to the left and the dorsal side to the top.

The most noticeable feature is the presence of hairs — everywhere. There are long ones, short ones, fat ones, thin ones, branched ones and simple ones. Bees even have hairs over their compound eyes (a design fault, perhaps?).

The hairs act as sense organs, the short stubby ones on the antennae being olfactory and some on the legs for achieving the correct dimensions in the hexagonal wax cells. On each foreleg a semi-circle of seventy spine-like hairs form the tarsal comb for cleaning the antenna.

Other sensory receptors, taking the form of pegs or plates, help to govern bee behaviour. The legs, wings, mouthparts, sting and larger parts of the bee are all portrayed. The pictures in this book would have amazed the earlier biologists who had to work with simpler microscopes. You could lose yourself for a happy hour amongst these photographs. If you have lost sleep wondering what a drone's hind foot looks like, turn to page 242 where you will see it in all its complexity.

Mavis Tullet
Edinburgh

Polynesian Bee/Fish Traps Ancient Innovations brought back to life — “A basket of bees”

Woven reed baskets with gooseneck openings, have been a traditional method employed to trap fish throughout Polynesia. Noting the similarity between these fish traps, and the bee baskets of Africa, our Managing Director, Mr Bill Lee, thought he'd place a few baskets around the bee yard here in Kailua Beach, Hawaii, and low-and-behold, shortly thereafter (second week of February) a swarm began to take hold, first on the neck, and then up into the basket. The flower pot water catch-base is hot glued on to protect the top of the basket from rain. The baskets just wave gently in the wind, which doesn't seem to upset the swarm! Although Bee Supply Co., has no ambitions to place more fish traps in trees, it sure makes it easy to ship a basket of bees! Aloha from Hawaii.

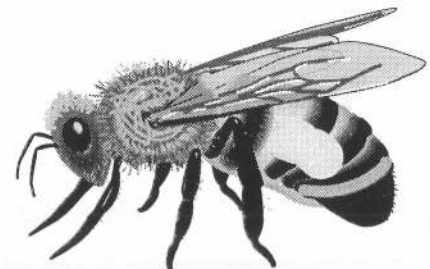
John Murley
Bee Supply Co., Hawaii



Hive levy questions

If this year your hive numbers have dropped below 50 hives, we at the N.B.A. office would still like to receive your form back filled out as we can then offer you the membership in the Magazine. If you have less than 50 hives, you don't automatically receive the industry magazine *The New Zealand BeeKeeper*. Plus if I have your form back telling me you have a change in your numbers and I am advised, I don't have to keep hassling you (makes my job easier to!).

Harry Brown



The spider and the wasp

Recent research in the Nelson Lakes National Park suggests that a wasp infested beech forest is no place to live if you are an orbweb spider.

Hundreds of juvenile garden orbweb spiders took part (perhaps unwillingly) in a series of wasp predation experiments at our Lake Rotorua study sites. Young spiders were reared at Nelson and encouraged to build their webs on special Y-shaped frames, which had been painted brown to simulate twigs.

On the day of a field trial, thirty spiders and their web-frames were taken into the centre of each of our four study sites and placed ten metres apart on a grid system. We counted the number of spiders remaining on their frames every two hours up to a maximum of six hours.

Three trials took place: the first in late November, when wasp numbers were very low, the second in mid-January,

with moderate wasp numbers, and the third in early March, at the peak of the wasp season. Before the March trial, wasp numbers at two of the sites had been reduced considerably by poisoning with Finitron bait.

Results indicate that the predation rate increases rapidly as wasp numbers build up over the season. In our March trial, the probability of a spider surviving 6 hours was almost four times higher in the areas where wasps had been poisoned than in the non-poisoned areas.

The high rates of predation we measured are bad news for native orbweb spiders which naturally inhabit these forests. Using the results from all three trials and the wasp abundance data collected weekly from November to June, we can begin to calculate the probability of a small orbweb spider surviving the whole wasp season. Our initial estimates

suggest that, in a normal wasp season, the maximum chance of survival for a small spider is almost nil.

It is no wonder that we could not find enough native forest orbwebs to use in these experiments.

The level of wasp predation on native spiders in general is sure to vary between species depending on differences in habit, where they hide during the day, their level of camouflage, and size; but it is clear from the results of these experiments that the effect of wasps on some types of spiders is likely to be devastating. We are developing mathematical models of orbweb spider survival so we can estimate the level of wasp control needed to protect natural populations of spiders in beech forests.

*Richard Toft
Landcare Research*

Beeswax candles

Roll up a set of beeswax candles in pastel shades, package them attractively and give a gift of candlelit romance!

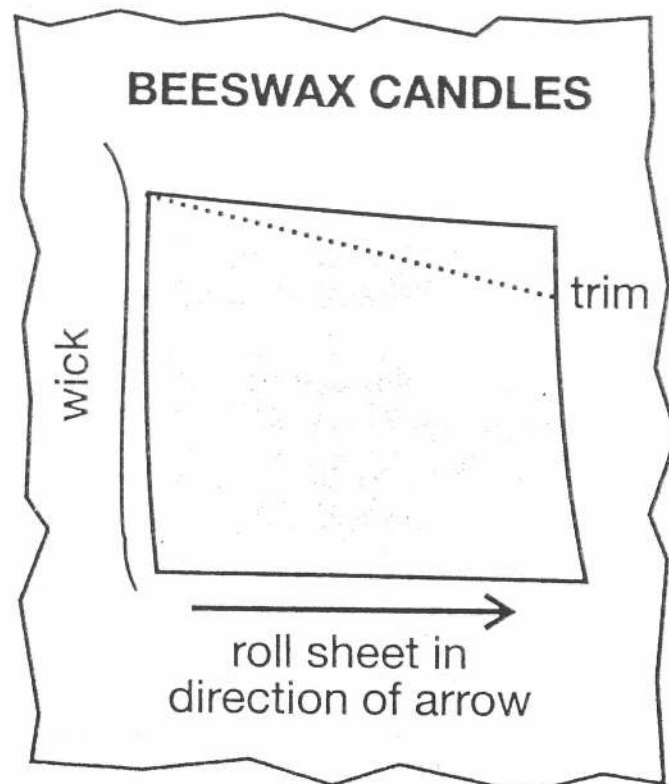
Materials: 21cm square sheet of beeswax; 23cm length of candlewick.

Method: To create a candle with a **tapered top**, mark a point 2cm or more from one corner of the wax sheet. Using a knife or pizza cutter, trim from this point to the adjacent corner to create an angled-edge on one side of the sheet (this will be the candle top). Place wick along one long edge (see diagram). Firmly press edge of wax on to wick, then roll wax sheet around wick, pressing gently but firmly until entire sheet is rolled. Vary the taper of the candle by trimming a larger piece from the top edge of wax sheet.

For a **straight top candle**, Make as above, but without trimming the wax sheet.

To **decorate candles**, you can mould or cut out a shape, such as a bow, and simply press it in place; or wrap strips of coloured wax around candle base.

*Acknowledgement
The Australian Women's Weekly*



Bees

Bees go buzz
Everything is buzzing
Every bee is going buzz
Smiling bees in the hive

Hive

Hives are noisy
In the hive the bees live
Very noisy places are hives
Every hive is happy

Honey

Honey is nice
On toast
Nice in cakes instead of sugar
Every taste of honey is nice
Yummy yummy honey in the house

Rebekah Dalby, Age 9, England

- * **Honey prices — up, up and away?**
- * **Kaikoura Apiaries leads the way with Manuka Integrity Labelling It's That Time Again!**
- * **Massey University students get caught up in some honeys of ideas**
- * **Can I come and visit your branch?**
- * **Foodwriters continue to be fascinated by New Zealand Honeys**
- * **Wanganui Conference**
- * **New Zealand chefs look for honey**
- * **Honey prices up, up and away?**

The price gained by our honey exporters eventually sets the price honey is sold for in New Zealand, and so . . . great news!

As at 28 February, German buyers moved their offer for New Zealand clover honey up 10% on prices they paid at the end of December.

Sources heavily involved in exporting tell this isn't the end of the increases; prices are still rising, with the North American market still paying more internally for honey than the Germans are offering New Zealand.

Those North American prices should eventually come through to the prices German buyers will offer for New Zealand honey. Of course it all depends on who can wait for the international honey shortage to work to their advantage.

- * **Kaikoura Apiaries leads the way with Manuka Integrity Labelling**

I received a parcel in the mail last week. I opened it up and there was a beautiful, large plastic squeeze tube of Blue Borage Mountain Honey. On the back there was a very good story which explained the floral source (viper's bugloss) with its Latin name, and went on to explain the honey had unique functionalities, that it was slow granulating which made it ideally suited for use in teas and coffees etc; that it was lovely with muesli, porridges etc; explained where the honey was sourced from. All in all, a very attractive, user-friendly, highly versatile piece of packaging for what is an extremely pleasant honey variety.

Then I looked further into the bag and there was a manuka label . . . and what a label. Kaikoura Apiaries are now producing their own unique South Island manuka honey and the side labels explains:

"Guarantee of floral source

"Be sure to buy manuka honey true to label. Pollen grains naturally present in honey can be used to identify floral origin. Industry benchmark determines true source monofloral manuka honey is 70% by pollen analysis.

Then there is a panel where there is space to write a batch number and pollen count. In this particular example the batch was 5B and the pollen count was: 90% manuka.

I thought that was marvellous! They indicated that 70% is a benchmark for a monofloral honey source; that, coincidentally, is the figure that a number of people have discussed in the industry; and it seems to be internationally accepted.

When the draft honey quality mark standards are produced, we will be using 70%. Kaikoura Apiaries have led the industry on this; and they are to be congratulated.

Any person reading their label is going to appreciate the integrity. They will then look to other manuka pots and be left wondering just what the manuka percentage is in those.

- * **It's That Time Again!**

The New Zealand Honey Food & Ingredient Innovation Awards!

It's that time of year again when we need you to tell us who you are selling honey to, and where that person has developed a new product with honey. We can reward them with industry recognition, and more importantly perhaps, with some good publicity for their company and their products. That in turn feeds back to you and creates a positive relationship between you and your customer.

All you need to do is fax (03) 577-8429 or post (P.O. Box 32, Blenheim), brief details about your customer, what honey you are sending to them and what the product is that they are turning it into. Give us a contact phone number and we will take it up from there.

We already have one entry from the middle South Island for a very exciting new product. I was absolutely amazed when a sample pack was sent to me: I couldn't believe that honey was being used for this purpose. I hope that I can get the manufacturer to come along to conference and to give us a demonstration. If he will, then we are all in for a very entertaining time.

- * **Massey University students get caught up in some 'honeys of ideas'.**

You will remember that I gave an address to a Massey student group on honey and marketing and food ingredient applications. As a result of that, two students have indicated that they would like to use honey as thesis topics in their fourth years. That's great news for the industry. The information that those students create becomes a resource that the marketing committee can then match to a food or beverage company and the end result could be new sales opportunities for beekeepers.

- * **Can I come and visit your Branch?**

As I get work to do in different parts of New Zealand I will, where possible link that in with a branch meeting. I know that only a fraction of the NBA's members get to conference and if I can meet the beekeepers around the country at branch meetings I get invaluable feedback. It gives branch members an opportunity to say how they feel about our strategies and what is happening to them in the marketplace.

I've got a number of appointments that I now need to co-ordinate in Auckland and so through Neil Stuckey I am tying that in with a visit to the Auckland Branch meeting on Thursday, 14 March. I look forward to meeting with members up there and talking about honey marketing from the Auckland Branch beekeepers' perspective. Neil promises me it will be an interesting and stimulating meeting.

- * **Foodwriters continue to be fascinated by New Zealand Honeys**

As part of the Marlborough Wine and Food Festival activities I was able to spend a half day with one of New

Continued on page 17

Continued from page 16

Zealand's top foodwriters; who is now preparing a major article on honey. Her favourite honey variety after an hour of intensive tasting and talking, was (are you ready for it): "Kamahi". Quote "Delicious!" close quote was her comment, closely followed by . . . "Honeydew" . . . even though she had to overcome the thought of just exactly how honeydew is created. The mental image of bees and wasps gathering the honeydew from the nether ends of an insect was an intriguing thought for her.

*** Wanganui Conference**

I must congratulate the organisers on the package that they are putting together for us for conference this year. There is a major emphasis on the use of honey in foods and in particular, cooking with honey. If the planned activities all work out, then it promises to be a great week.

*** New Zealand chefs look to honeys**

I have been invited to do a presentation on New Zealand honeys at the 1996 New Zealand Chefs' Association Conference. That's a great opportunity for the NZ honey

industry. New Zealand's top chefs will be tasting a range of New Zealand honeys and I will be talking with them about the different flavours, the different functionalities of honeys and presenting market research on how positive and receptive New Zealanders are to recipes that include honey.

And:

that's all for this month, except once again a gentle, or maybe everyone needs a not so gentle reminder . . . where are those samples of your honeys that Peter Molan can carry out some experiments on. I still can't believe that companies are not taking up that opportunity. I am now randomly selecting some honeys from some companies and getting samples to Peter.

If anyone is aggrieved or offended because I didn't pick on their honey, this is your chance. Send me a fax now and say that you want your honey included in the trials. I will help you get it to Peter. BUT you have to make some sort of effort to help me to help you.

*Regards
Bill Floyd*

Who is a member of the NBA?

If you subscribe to the magazine you are a member, you don't have to keep bees.

Any questions please call the Executive Secretary, phone number on the inside front cover.

CORRECTION

It was incorrectly reported on page 28 of the February Issue of the *BeeKeeper* that Kaikoura Sawmill V.L. Smith had bought out Ecroyd Beekeeping Supplies.

The N.Z.P.A. was incorrect with this item as it should have said,

That the sawmill had bought the woodware manufacturing business of A. Ecroyd and Son Ltd. (This happened nine years ago).

Ecroyd Beekeeping Supplies is a separate business owned by Stuart Ecroyd and is the sole distributor of woodware manufactured by V.L. Smith and Sons.

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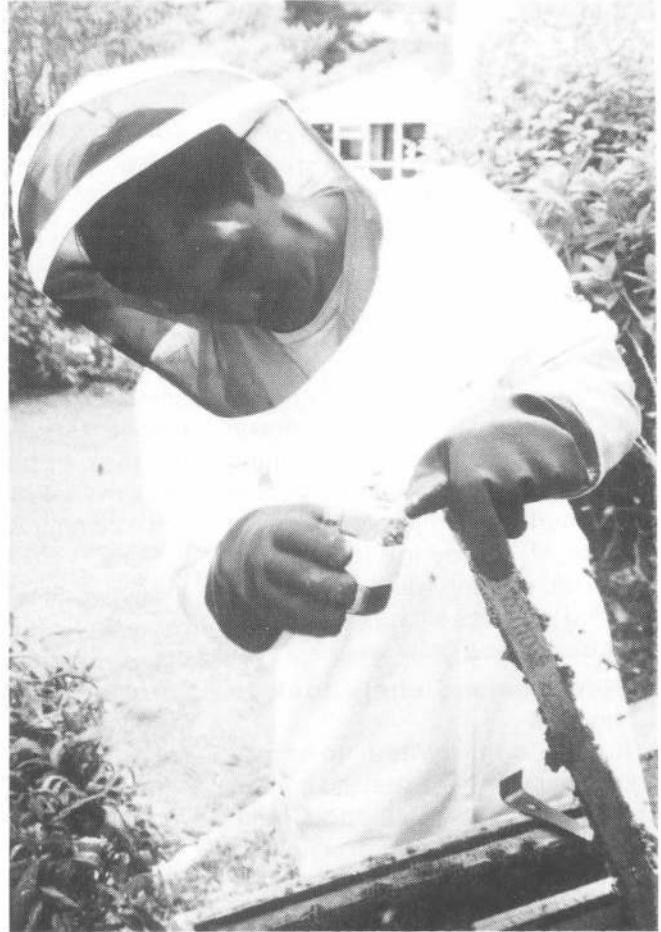
NEW SERVICE

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Some photos from the recent E.D.P.R. Exercise in Palmerston North —
Thanks to Ted Roberts MAF



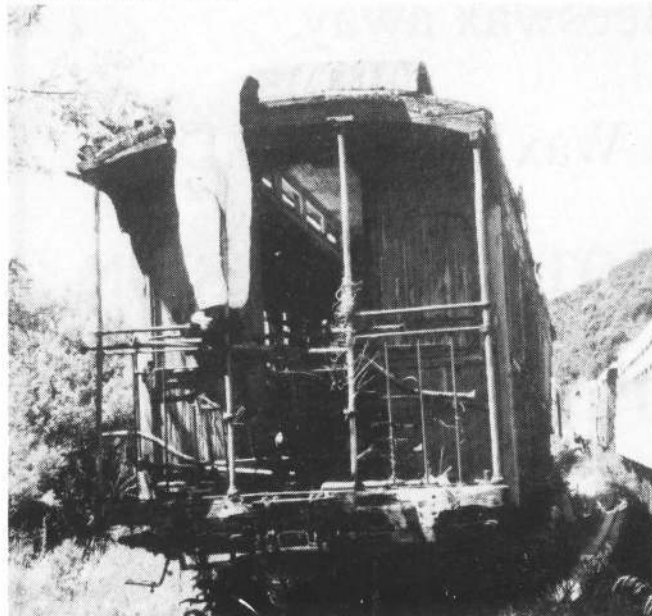
Hives in all sorts of places



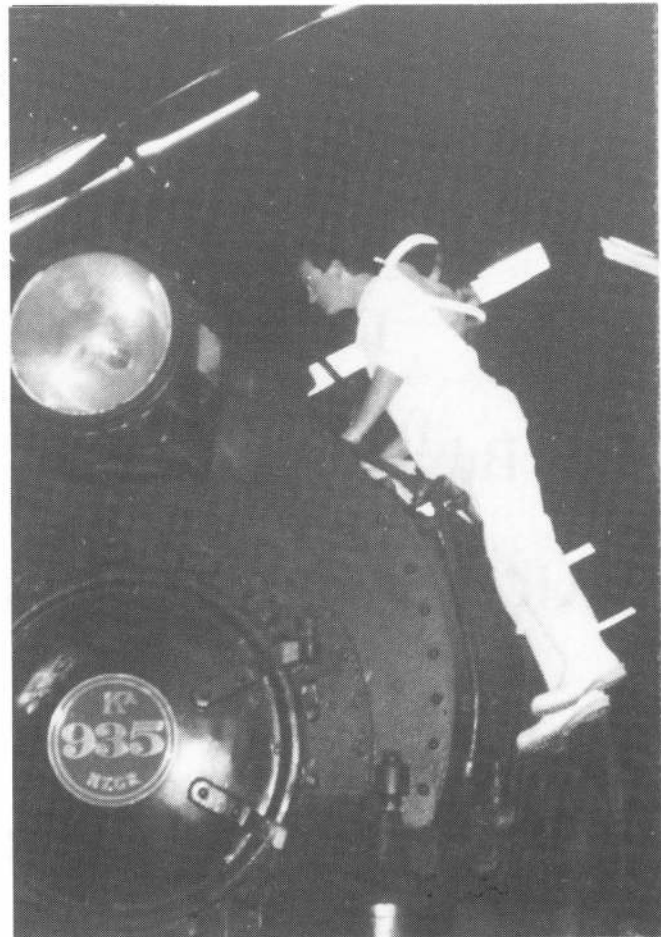
James taking samples for analysis



Palmerston E.D.P.R.



James Driscoll at the E.D.P.R. Exercise in Pamerston North



Looking for a hive?

Honey puts no tax upon digestive system

The word "sugar" to most people means the sugar of commerce, derived from sugar cane or sugar beets. To the chemist it is the name for a large variety of materials with varying degrees of chemical complexity and great variation in both uses and characteristics. As stated in the preceding paragraph, when ordinary cane sugar is digested, it is split into two simpler sugars, dextrose and levulose. A sugar of this category which splits into two simpler sugars is called a disaccharide. The simple sugars into which it is split are the monosaccharides.

The sugars of honey are primarily monosaccharides, that is, they require no digestive change before they can be absorbed. In honey also may be found small proportions of sucrose (cane sugar), traces of maltose (malt sugar) and sometimes also less well-known sugars. For example, melezitose (a trisaccharide sugar) has been found in some honey-dews derived usually from coniferous plants, and sugar alcohols have been found in other honey-dews. Naturally, our concern is chiefly with the sugars of honey which occur in amounts large enough to be significant.

Levulose has been called the queen of sugars. It is almost twice as sweet as

cane sugar, and besides its sweetness, it carries to the human senses something that might almost be called a flavour. In a pure state this sugar is difficult to obtain, but it occurs naturally in mixtures with other sugars not only in honey but in many fruits. It dissolves in water readily and when dissolved, it crystallizes out only under circumstances that are difficult to produce, so that if one finds crystals in honey they are not crystals of levulose but of dextrose.

Dextrose (sometimes also called "d-glucose" but not to be confused with commercial glucose syrup) is a sugar of quite different nature. It is almost half as sweet as cane sugar, dissolves in about its own weight of water at ordinary temperatures, and crystallizes from a water solution quickly when it occurs in more than an amount equal to the water of solution. It is this sugar in honey that forms crystals. It should be noted that in an average honey the per cent of dextrose is roughly twice the per cent of water, hence we may expect that on standing, dextrose crystals will be thrown down. It is because of this that honeys granulate.

If crystals form in honey quickly, they are usually small, whereas if they form

slowly, they are coarse. These differences involve no chemical differences, only a difference in the size of the crystals. On the market we find specially processed finely crystalline honey of smooth texture.

In addition to its sugars honey contains as its minor components a considerable number of mineral constituents, seven members of the B vitamin complex, ascorbic acid (vitamin C), dextrins, plant pigments, amino acids and other organic acids, traces of protein, esters and other aromatic compounds, and several enzymes.

The Average Chemical Composition of Honey

	Per Cent
Water	17.7
Levulose (fruit sugar)	40.5
Dextrose (grape sugar)	34.0
Sucrose (cane sugar)	1.9
Dextrins and gums	1.5
Ash (Silica, Iron, Copper, Manganese, Chlorine, Calcium, Potassium, Sodium, Phosphorus, Sulfur, Aluminum, Magnesium)	0.18
Total	95.78

I found this in a 1989 BeeKeeper Magazine (Ed.)



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Question Korner

How many people work in the NBA office in Hastings?

Just me really, though my wife Janice is doing more and more of the data input and the minutes of our Executive Meetings. This frees me up to get on and do other things as well.

What do I do?

Well I run the day to day activities of the association, chase up people who have not paid their levies, communicate with the branches, copy all the relevant information that comes in each day to the Executive. (The Executive normally get a large envelope each week of things they need to action or be aware of what is going on). I also pay the accounts, produce the Industry Magazine, really it is just like a small business.

So if you ring up, the chances are you will get me, when I am away or on the weekend the office phone is transferred to where I am.

What would you like to know about the industry or association but were never game to ask?

I won't print your name if you don't want it printed.

Kind regards, Harry Brown

CORRECTION — Science Round Up article in the December 1995 issue.

The article should have said, Reprinted from Bee World 76(3) 154-157 (1995).

Many thanks, Harry Brown

HIVES SOLD?

Some people get a little upset when I write and ask "can you tell me who you sold your hives to," when your Hive Levy form is returned with *Hives Sold* on it, and we have told MAF.

My problem is, MAF does not tell me. As under the Privacy Act they are forbidden to disclose this information so I have to write and ask you. So please understand I am not trying to upset you but trying to ensure all beekeepers pay their rightful dues.

This may change under the Commodities Levies when we have a greater control of our industry.

Any questions or concerns please call...

Harry Brown, Executive Secretary

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Otago Branch News

After a slow beginning to the year the Otago Branch has had a successful year. A well attended reconvened annual meeting changed the format for meetings to be held during the year. Each second month was to be a committee meeting, the venue to be rotated around member's homes. Each other month was to be a full meeting or an event organised such as a field day or social event. This has proved beneficial as more time can be spent at general meetings to have guest speakers or other activities. Best attended meeting of the year was Conference report night, the venue being the Tenpin bowling alley. A good turnout of members, wives and families, enjoyed steak, eggs and chips before the conference report was delivered by Blair Dale. This was followed by a jovial evening of bowls subsidised by branch funds.

Disease recognition and destruction was the topic of a mini field day held at Invermay. This was well supported by Dunedin hobbyist beekeepers. Guest speaker for one meeting was a speaker from the fire department. For our Christmas meeting business was cast aside in favour of a trip on the Otago Excursion Train up the Taieri Gorge to Middlemarch. Joined by members from the Southland branch, 54 of us set out from Dunedin on one of the best sunny days of the month for a great afternoon's travel. Great scenery, weather and companionship made for a wonderful afternoon. Another subsidy from branch funds. A discount from the Train Trust, and the fact children with an adult travelled free kept costs to a minimum.

A Coastal Otago discussion group has been formed. Although members have been lowish some very good discussion has taken place and we hope numbers will increase.

Our congratulations to Gavin McKenzie on "Requeening" his hive. I always understood this was a method of swarm control but not in this case. The branch wish Gavin and Dot all the best in their Fiji adventure and thank Gavin for his contribution to branch activities and discussions over a number of years.

Crop reports over the Otago region are very variable. Some good patches and some very poor patches.

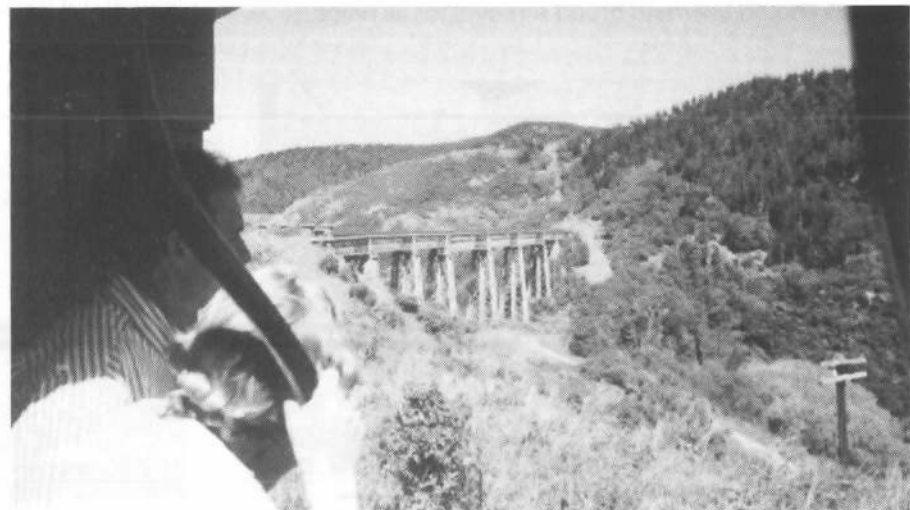
Annual meeting time is upon us again and the date is 27th March at Tecpak Industries, Kaikorai Valley Road,

Dunedin at 7.30pm. Hopefully another good turnout will be experienced.

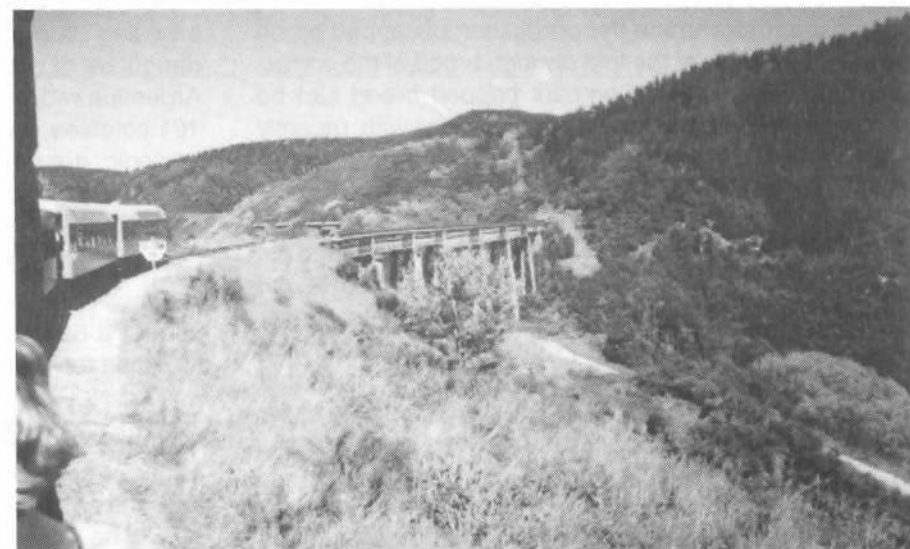
**Regards
Neil Walker**



In the centre of photo are sisters-in-law Marie McCaw and Trish Walker. Both are partners in Milburn Apiaries.



View of one of the viaducts.



Viaduct with Southland member Findlay Abernethy.

Photos courtesy of Gavin McKenzie

A Practical Method to Test for Disease Resistance in Honey-Bees

By John Kefuss, Steve Taber III, Jacques Vanpoucke and Francisco Rey

Since 1936 when it was found that bees could be selected for resistance to the disease American foulbrood¹, very few beekeepers have tried to select for it. Rothenbuhler determined that hygienic bees are resistant to AFB². Recently it has been demonstrated that some hygienic bees show a better tolerance to varroa and chalkbrood^{3,4}. Most beekeepers do not realize how important hygienic behaviour (HYG) is for disease resistance or have considered the original test method too difficult and complicated to use. We have tested colonies in Europe, Africa, North America and South America for hygienic behaviour. The technique we developed can be used by beekeepers to screen small or large (500+) groups of colonies.

What is hygienic behaviour?

Hygienic behaviour is a measure of how fast a colony of bees cleans out a sample of dead brood. We consider colonies of bees to be hygienic when they clean out a 5cm X 5cm (2in x 2in) sample of dead brood in less than 48 hours (Fig. 1) Colonies that take more than 48 hours are not considered hygienic, but may contain some of the genes for this characteristic (Fig. 2).

Testing large groups

If hundreds of colonies are to be tested every day, three people cut brood samples and insert them into the frames while a fourth person takes notes and writes the colony identification on the hive. To reduce variation the same person should estimate brood removal for all hives.

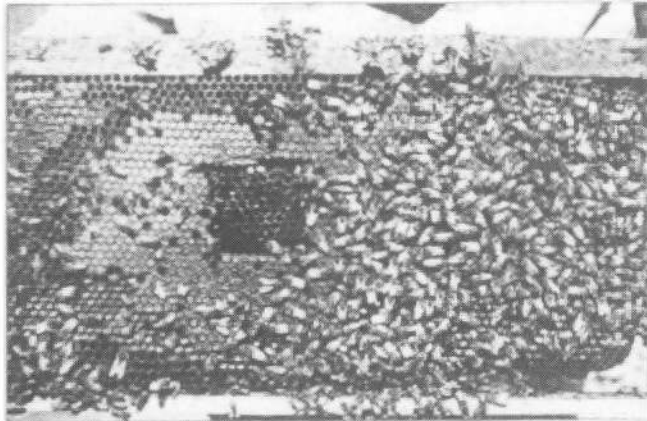


Fig. 1 Hygienic

It is best to programme the production of capped brood so that on the day of the test enough brood of the correct age will be available. Compact capped brood can be obtained from 5-frame Langstroth nuclei with recently mated queens.

Test preparation

Choose frames of capped brood (with few holes) and cut into 5cm X 5cm squares using a serrated knife. Freeze this brood for 24 hours or less to kill it. Brood frozen longer than 24 hours is removed faster by the bees thus increasing the number of hives that test hygienic (Taber unpublished). Colonies should be tested if possible under poor nectar flow conditions when they are less hygienic.

Choosing breeder queens

Queens from colonies that clean out the dead brood in the least time should be chosen for use in the breeding

program. These queens should also be tested for actual resistance to AFB by GIVING THEM COMBS OF DISEASED BROOD. Beekeepers should insist that queen breeders who supply them with queens, rear them from queen mothers that have tested positive for hygienic behaviour.

In Chile, for instance, we screened over 500 colonies from which we were able to get HYG data on 483 (Fig 3.) Beginning in October we selected the 115 most HYG queens from all locations and carried them to our breeding station at Limache. Then we re-tested the 115 colonies again in January under poor nectar flow conditions when colonies show reduced hygienic behaviour (Fig. 4). From this group of 115 queens we chose 14 whose colonies cleaned out the dead brood in less than 24 hours for our

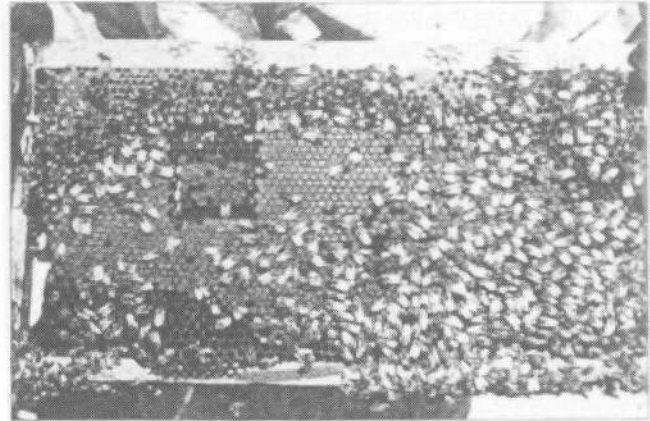


Fig. 2 Nonhygienic

breeding programme. Since AFB is not found in Chile, daughters of these queens must be tested in France or Argentina with combs of diseased brood. The remaining 101 colonies, excepting those that were less than 95% hygienic, are maintained at the mating yard in Limache for drone production and reserve hygienic queens.

First day of test

Remove a comb of capped brood from the test hive and cut out a 5cm x 5cm hole and insert the frozen brood. Mark the top of the frame and place it back into the hive.

Second day of test

Either 24 or 48 hours later remove the test comb from the hive and estimate the amount of brood removed. Colonies should be tested several times before choosing a queen for breeding.

Continued on page 23

Conclusion

Bees have many different mechanisms for resistance to mites and diseases, but at the present time most of these tests are beyond the capabilities of beekeepers and are laboratory oriented tests. Using a team of 4 persons, 250 colonies of bees can be tested in an 8 hour day (about 6 hives per person) for HYG. Recently Winston indicated that HYG bees were aggressive and poor honey producers⁶. The first bees that demonstrated resistance to AFB (Park) and the bees W.C. Rothenbuhler worked with showed extreme defensive behaviour and most beekeepers would not tolerate such mean bees in their apiaries. However, Rothenbuhler demonstrated over 30 years ago that HYG and stinging behaviour are not linked and depend upon different genetic base⁷. In our testing we have not observed any genetic linkage between HYG and aggressiveness or honey production.

Unfortunately, the genetics of HYG has not been completely determined, but is thought by one of us to be at least 20 to 30 genetic characters. W.C. Rothenbuhler investigated and identified two which were shown to be recessive, but much more work needs to be done on this important field of bee behaviour. Concurrently with selection for HYG bees, bees can also be selected for honey production by using the Cornuet method which consists of comparing the honey production of groups of naturally mated daughters from each of the best queens. This is the system we use in Chile. These daughter groups

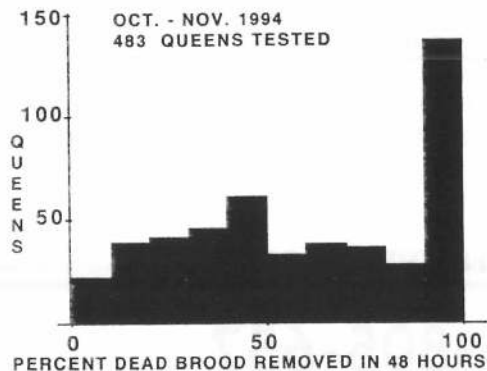


Fig. 3. HYG queen selection October-November 1994 Pacific Queens, Chile. Of 483 queens tested, 115 HYG queens were selected from this group for retesting in January 1995. Nectar flow conditions were good.

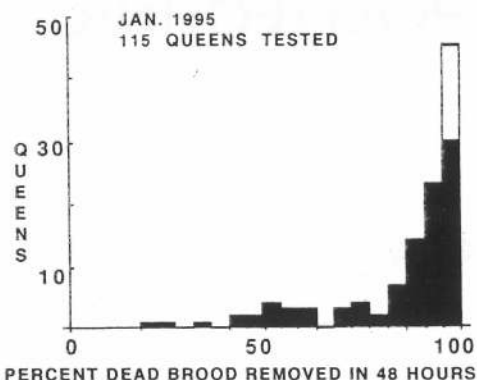


Fig. 4. HYG queen selection January 1995 Pacific Queens, Chile. The 115 queens selected in October-November were tested again for HYG under poor nectar flow conditions. Since many of these queens still tested 100% HYG at 48 hours we chose 14 queens from this group (represented by clear bar section) that were already highly HYG at 24 hours. These colonies represent 2.9% of the original 483 hives tested.

are tested against each other in different bee yards for honey production. The advantage of this method is that instrumental insemination is not required and inbreeding isn't a problem.

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Fax: (03) 418-3584**

Be aware of the rights of casual workers

by Jim Ferguson

Over the last two years this firm has been advising clients in the horticultural and industrial sectors that the rights of casual workers in relation to holiday pay, dismissal procedures, redundancy and termination procedures are no different to the rights of permanent workers, notwithstanding that there was no firm judicial pronouncement saying exactly that.

The advice we were providing was not received well by employers because the assumption was readily made that casual employment was an entirely different mode of activity.

Casual vs Permanent Employment

The Employment Court, in a case involving a "Temp" agency has now confirmed a decision that the Employment Tribunal made in late 1994.

In effect, so far as holiday pay is concerned, the Employment Court has confirmed that casual and temporary workers are no different to permanent workers, they are entitled to their holiday pay and they are entitled to be paid that in accordance with the provisions of the Holidays Act, either at the end of their term of employment, (however that might arise), or at the end of 12 months if their casual employment turns out to be that extensive.

In our view, the Court's decision was inevitable because the Holidays Act does not distinguish between casual and permanent workers and has never done so.

Enforcement

We are still of the view that the Employment Court will also continue on its existing course of enforcing the rights of casual workers in relation to termination and holidays.

Again the Employment Contracts Act and the Holidays Act draw no distinction between casual and permanent workers and do not recognise the claimed difficulties in dealing with them.

Many of the Employment Tribunal and Employment Court cases in the rural sector now involve questions arising as to termination, payment for holidays and payment of holiday pay.

Statutory Holidays

Casual workers are entitled to statutory holidays where those days would normally be work days and where they work on that statutory holiday they are entitled to another paid day off. In the horticultural and agricultural industries it is almost invariable that the "normal" days of work are any day of the week. The work is done when the weather conditions permit, or the requirements of the season and the urgency of the situation require. It is therefore often almost impossible to argue that a casual worker would not normally work on a day which is otherwise a statutory holiday.

Termination

Many Employment Contracts that we have been asked to prepare or have seen, provide termination arrangements in relation to casual workers of "one hour" or "one day" by way of notice, because the employer maintains that work fluctuates and is often all the notice they are likely to get from the employee. That argument is equally valueless.

The law plainly requires that to terminate a contract the employer must in all circumstances act reasonably. Further, the employer must be procedurally fair. If it can be shown that for days, weeks or even a month an employer has known that work will run out for a particular employee, and that the contract will lawfully be terminable, then giving one hour's or one day's notice is neither procedurally fair, nor reasonable and on those grounds no matter what the contract says, the Court will not enforce it.

Redundancy

Redundancy has historically not been paid in a number of industries, including horticulture and agriculture.

The ruling of the Employment Court last year, that in the absence of any agreement as to redundancy then the parties shall negotiate one, leaves it open to workers to require negotiated redundancy upon termination.

Employers should be alert to that issue as it is inevitable that one day the question will be raised by casual employees in pursuit of rights akin to

those of permanent employees.

While it can confidently be predicted that redundancy arrangements for casual employees will be limited because their term of employment, on any of the usual bases, would not allow any substantial cost calculation, there is no doubt that a lack of proper redundancy pay may make a termination an unjustified dismissal if the employers failure to offer redundancy is unreasonable.

Employment Contracts

An Employment Contract can provide that there shall be no redundancy and the decision of the Employment Tribunal only applies where the contract makes no provision at all for redundancy either way.

It seems to us that where a contract specifically provided that there be no redundancy, it would be unlikely that the Court would rule that redundancy should be paid anyway as a matter of fairness on the basis that such a term was unenforceable and unreasonable.



The information contained in this newsletter is of a general nature only and is not intended to be a substitute for specific professional advice.

Gifford Devine, Hastings

Royalty runs in the blood — the role of hormones in honey-bee caste development

Ed's Note; *This paper is probably one of the most informative papers on the development of queens OR workers from young larvae ever presented to the beekeeping world. Of necessity it is a complex paper with some scientific terms that a lot of beekeepers may not have encountered before. Therefore, think of it as a learning exercise. The paper has actually been reduced down to about 2/3rds of its original size, many passages simplified for beekeepers new to this aspect of beekeeping and it will be presented in three Parts. For queen breeders, Hartfelder and Rachinsky is' REQUIRED READING so they may better understand how to improve and maintain the quality of their stock. RBG.*

PART I.

Castes in social bees

Social insects are models of success in the long history of the arthropod evolution. Social hymenoptera (wasps, ants and bees) account for up to two thirds of the total animal biomass in tropical rain forests and tropical grasslands. This position attained by social insects in a variety of ecosystems has its foundations in the division of labour. The formation of castes, i.e. of morphologically and behaviourally specialised individuals within a colony represents the undoubtedly highest level of division of labour. The differences between a queen and a worker are, of course, well known to any beekeeper.

In a bee hive only the female sex is polymorphic appearing as either queen or worker. These two morphs differ widely in the range of tasks they perform: the queen lays practically all the eggs, and directs a colony's activities by means of odour signals (pheromones). All the other tasks within and outside a hive are performed by the workers acting according to the colony's needs. In comparison to non-social insects, this represents a considerable degree of specialisation. Specialisation in this context means that each bee will sequentially perform different tasks as they grow older and is particularly conspicuous in honey-bees. Age-related tasks, (age polytheism) allows

for considerable flexibility, and only in the last recently has the role of juvenile hormones, in particular been disclosed.

Age polytheism is a result of changes in behaviour, and modifications in some physiological aspects, e.g. changes in the activity pattern of some glands. Nurse bees for instance produce large amounts of larval food proteins in their hypopharyngeal glands, while the wax glands become active in the wax-making bees. Yet there are no changes in body structure involved; each worker can function as a nurse bee a wax-making bee, or a forager, but never as a queen. For this latter function the worker is lacking what is called, queen-specific characters.

When are castes being made?

Every beekeeper knows that queens can be reared from young worker larvae grafted into artificial queen cups and then "royally" nourished. The actual formation of queen, worker and drone characters, however, only occurs once the brood cell is capped for the pupal phase. It is phase of restructuring (metamorphosis) into the sexually mature adult form.

What happens after a larvae has been grafted? How do developmental processes leading to a queen differ from those leading to a worker? In both questions it is essential that we come to know the conditions that will result in a queen with optimal characteristics.

Much of our knowledge on queen production is due to Prof. K. Weib, Erlangen, Germany, who carried out large series of grafting experiments to test up to which point in development larvae taken from worker cells will still develop into fully functional queens. A critical point was noted at 3.5 — 4 days after hatching of the larvae from the egg. This corresponds to the moult from the fourth to the fifth larval instar. In a female larva that is exclusively being fed royal jelly from the fourth instar on, the developmental programme has then been directed into the queen pathway. Beekeepers, of course, chose larvae that are not older than 2 days. The decisive steps that will finally establish the queen

formation programme, however, are all situated in the fifth larval instar, the truly critical stage for caste development in the honey-bee. This last larval instar starts when a 35-40mg coiled larva moults from the fourth to the fifth instar and ends when it moults into a pupa.

After moulting into a fifth instar larvae, queens and workers continue to feed approximately for another 30 hours. The larva will start lining its cell with silk produced by the salivary glands, and will defecate once the midgut and hindgut have connected. During the spinning phase a larvae turns around several times in its cell, but in the end, a worker larva will always end up lying on its backs with its head directed towards the capping in the slightly upwards tilted cell. In contrast, queen larvae always have their heads pointed downwards in the queen cells and will remain in this position during the entire pupal phase. This caste-specific orientation in the brood cell has its basis in caste-specific differences in the juvenile hormone.

Queen larvae take less time to pass through the spinning phase and will enter the prepupal phase, 12 hours earlier than workers. In the prepupal phase restructuring of a bee's body commences. Structures such as legs, wings, mouth parts, and the sting start to form. Soon afterwards the prepupae sheds the larval cuticle and becomes a pupae. These developmental phases, the prepupa and the pupa, are often named resting stages. This label, however, is only correct with respect to a lack in external motility. Internally, a dramatic reorganisation is taking place.

In the pupal phase all the inner organs in an adult bee are being formed. These developmental steps are now taking different routes in the queen and the worker, and it is this divergence in development, in particular how it is being brought about that is the main topic of our research activities. Before entering this topic, however, we will have to take a closer look at what initially turns a grafted worker larvae into a queen: the royal jelly diet.

Continued on page 27

Royal jelly, a very special mixture?

In the late larval feeding phase, the nurse bees switch the feeding programme of worker larvae from a diet of glandular secretion products to a blend of honey, pollen and glandular secretions. The notion that simply switching diets may suffice to lead to such drastic decisions in development was of interest to bee breeders and scientists. It was only 20 years ago that the search for "diet determinators" came to a halt. It became clear that it was not been possible to fully isolate such determining factors. This led to the conclusion that it may not be a single or only few factors that determine the developmental fate of a bee but, rather, that it is the "nutritional balance" in royal jelly that induces queen development.

We propose that it may not be one or just few factors that determine queen development but that it is the balanced composition of nutrients in royal jelly which is responsible. Testing the "balanced nutrition hypothesis" is indeed tricky. We decided to look at it from an evolutionary perspective. We asked what is the chemical composition of larval food in other highly social bee species, i.e. bees that have similarly differentiated castes. The stingless bees seemed an interesting group to look at.

A digression to stingless bees

Stingless bees, meliponids, are distributed in the tropics all over the world. Over 500 can be found in South America where they form the original, i.e. pre-Columbian, social bee fauna. They are distantly related to the genus *Apis*, and show equally pronounced caste differences between queens and workers. They do not constantly feed the young larvae but rather mass provision the brood cells before the queen lays her eggs on top of the larval food. Immediately after the oviposition process, the brood cells are sealed and not opened until the young, adult bees hatch. This type of brood care does, of course, have consequences in caste differentiation because the nurse bees have to decide well in advance, i.e. when constructing and provisioning a brood cell, whether they will rear a worker or a queen. They cannot switch the feeding programme during larval development, as with the honey bee. For this reason the queen cells in most

stingless bee species are much larger than the worker cells, and are provisioned with a large amount of larval food right from the start. Experimentally it is quite simple to rear queens in the laboratory by placing young larvae on portions of larval food collected from 2-5 worker cells.

In a chemical analysis of larval food from six different genera of stingless bees we noted that there are very few differences between larval food of stingless bees and that of the honey bee, with the exception of protein content. Stingless bee larval food contains almost ten times less protein than royal jelly or worker jelly.

Royal jelly, a piece of hard bread?

Royal jelly becomes highly viscous and solidifies within a few hours after being deposited in a brood cell. Of course it is then no longer freely useable by the bee larvae. This rapid consolidation of royal jelly is attributed to its high contents of protein and lipids. To stingless bees such a high protein content in larval food would be detrimental. So may be it is this characteristics of royal jelly, i.e. its tendency to quickly solidify, that may explain the observation that 3-5 day-old queen larvae are fed ten times more often than worker larvae who receive a mixture of glandular secretions, honey and pollen.

Summing up this discussion on larval feeding in the honey bee we can conclude that royal jelly apparently does not contain special, queen determining substances. In the late larval feeding phase, workers are fed a mixed diet which is less rich in protein, and is, therefore, longer lasting so that worker larvae can be fed less often by the nurses. In this sense, viewing workers as undernourished queens clearly misses the point of the caste problem.

This is because in addition to differential feeding, a series of other signals have to enter and regulate development before the two types of female larvae can finally turn into perfect queens or workers. The different feeding programme experienced in the last larval stages are only initial sparks in a chain of steps that regulate caste development. And while it is also not simply the quantity of larval food that a larva can feed on that controls caste development, differences in the amounts of larval food are, of course,

quite relevant in determining adult size, a phenomenon we can occasionally observe when we have poor queen-rearing series. Factors that come into play and endogenously regulate caste development after the dietary switch are hormones that regulate development in all types of insects.

Department of Developmental Physiology, Zoological institute of the University of Tuebingen Auf der Morgenstelle 28, 0-72076 Tuebingen, Germany.

Acknowledgement The Australasian Beekeeper

"An examination of the composition of natural propolis shows a general breakdown into terpenes, resins, volatile oils and other miscellaneous materials. Within that breakdown, approximately 130 different chemicals have been identified. Not every sample of propolis has every one of these chemicals, nor are the proportions the same in all samples, but there is a sameness to all propolis."

"Not all bees use propolis. In warmer climates with sustained nectar flows, wax is more readily available, and the bees use it in all the ways they use propolis — varnishing (waxing), filling cracks and crevices and strengthening comb, and presumably, this is the behaviour that came first in the evolutionary process. Propolis use came later."

Heading for trouble

Restructuring and unemployment in Japan

Japan's seasonally adjusted unemployment rate for August remained at an all-time high of 3.2% for the third consecutive month. According to the Management and Coordination Agency, an estimated 64.94 million people had jobs in August, while 2.16 million were unemployed. The Japanese media describe the current job market for students set to graduate in March as the "mega ice age," and young people are bracing themselves for the "most competitive job market ever." But are things really so bad? And if this is the ice age, when can we expect the thaw? LOOK JAPAN spoke with Keio University professor of economics Haruo Shimada and president of the Labour Welfare Corporation Yukinori Wakabayashi. The irony of Japan's unemployment statistics is that they reveal there has been no fundamental change in the way Japanese companies go about their hiring," says Keio University professor of economics Haruo Shimada. "Companies have traditionally adjusted their payrolls by cutting down on the number of new employees they hire rather than by laying off those already in their employ. As long as the Japanese economy was registering 3% growth, Japanese companies hired commensurate numbers of new employees; however, in the past three or four years the Japanese economy has been registering zero and even negative (1993) rates of growth, meaning companies cut back drastically on their hiring.

"The strain of economic hardship is always borne by newcomers to the job market. Those students entering the job market in April are at the back end of the second wave of baby boomers born in the 1970s. When Japan recovers from this latest slump, expect managers to start shouting about a shortage of workers. From next year the number of graduates entering the job market will decrease, and the decrease will continue for at least 20 years."

Hiring practices may not have changed fundamentally, but other transformations are taking place in the employment structure. Corporate restructuring in this latest ["Heisei Depression"] slump has been so thorough that most companies now have little or any room left for rationalisation in their blue collar departments. The next targets of rationalisation are middle-aged, white-collar employees.

According to the Institute of Labour Administration's annual survey of 251 companies whose stock is listed on the Tokyo Stock Exchange, almost 60% (140 companies) have introduced the Preferential system for Earlier Retirement

— up from around 20% in 1980. Forty-six companies (33%) offer preferential treatment to employees aged below 50, eight companies (6%) to employees below 40. Is the so-called lifetime employment system — that pillar of the Japanese management system — caving in?

Professor Shimada attacks the very question: "There never has been 'lifetime employment' in Japan," he says. "There is nothing in any employee's contract that guarantees a job for life, neither is there any historical reason to believe that Japanese management has ever practiced a system of lifetime employment for its employees. Long-term employment was unusual before World War II, and for years afterward many companies continued to fire at will. Large-scale adjustments of the workforce were carried out in the early 1970s, too."

Lifetime employment, Shimada argues, is wrongly interpreted as the earned product of many years economic growth rather than as a transitory reflection of the need for labour to sustain growth. "Japan enjoyed high economic growth rates of around 10% [net] for a good 20 years before the 1980s, and in that period companies could not even consider adjusting their levels of employment. The companies committed themselves to recruiting new employees and securing a workforce. However, the Japanese employment system cannot remain unchanged for ever. Important changes have taken place: the Japanese economy has undergone a long-term shift towards maturity after a period of high growth; the global economy has changed structurally, with global price destruction having eroded the basis of Japan's export-oriented companies; the Japanese population and workforce is aging rapidly; and improvements in information and communications technologies are having far-reaching consequences.

"Japanese companies have gone about business presuming ever-continuing high economic growth, but now that the economy has matured they have to reconsider everything, from product development and capital procurement, to employment, salaries, and the very organization of the enterprise itself." Shimada says. "In carrying out such restructuring, various mismatches will arise — the loss of business opportunities and increased unemployment, for two — and though these may be inevitable, naturally it will be desirable to keep them to a minimum. Deregulation is 'central to the creation of the new industries and job opportunities that can do that."

Another crossroads

The Japanese media is apt to use the

phrase "We are at a historical turning point" in times of recession and climbing unemployment. Does the phrase apply to the Heisei Depression? Is Japan really at a crossroads?

"Not if management is careful," says Yukinori Wakabayashi, president of the Labour Welfare Corporation and former vice-minister of the Ministry of Labour. He points to four concurrently occurring processes that if mismanaged could leave Japan facing a high-unemployment crisis. The first, he says, is the conversion of the industrial structure because of the high yen; the second is that Japan is an aged (and aging) society, in which middle-aged and senior white-collar workers have become the target of employment adjustment; the third is the decrease in the number of younger workers, which is making it more difficult to re-pattern the country's industrial make-up; and the fourth is the increasing diversification of employment due to an increase in part-time and temporary workers.

Many commentators argue that while the unemployment rate is quoted at an all-time high, it would be higher still if the dead-weight or "extra" workforce were factored in.

"I don't think it's fair to say that companies really have an 'extra' workforce," says Wakabayashi. "Company presidents know from the scars of previous employment adjustments that they must — and surely are — using their workforce to its full extent. They have done this by adjusting working hours, for example, and the government backs them up by legislating new labour policy measures." Approximately 866,000 students will graduate from universities and junior colleges in the coming spring. According to an October survey by Mainichi Communications, the number of students who will graduate in the spring of 1996 and who had been provisionally approved admittance by companies by the end of August 31 was 65%, about 4% down on last year for male liberal arts students and about 5.5% lower (56%) for female liberal arts students. For male science students the figure was 63% (5% down on last year) and for female science students 59% (8% down). Wakabayashi argues that the problems new graduates are facing in finding work are coming to a head and that the number of unemployed youngsters will decline in tune with economic recovery.

"There will not be the structural unemployment in Japan among younger workers that there is in European countries," he says.

*Acknowledgement
Look Japan, December*

Honey — Care to take a dip

Surprise your family and make this recipe for a dessert that tastes good and is good for you.

- 1 pint (16oz) lowfat plain yoghurt
- ¼ cup honey *suggest Tawari*
- 2 tablespoons orange juice
- ½ teaspoon grated orange peel, assorted fruits for dipping such as sliced apples, pears and strawberries.

Combine yoghurt in a small bowl with honey, orange juice and orange peel; mix well. Serve with sliced fruit. Makes 2¼ cups.

Honey Crispies

This is a great sleep-over snack.

- ½ cup powdered sugar
- ½ cup honey *suggest Vipers Bugloss Honey*
- ½ cup peanut butter
- 1½ cups crispy rice cereal
- ½ cup raisins
- ½ cup chocolate or multicoloured candy sprinkles

Place a sheet of waxed paper on a cookie sheet so cookies won't stick. Combine powdered sugar, honey and peanut butter in a medium bowl. Stir until mixed well. Stir in cereal and raisins. Using hands, shape mixture into 1-inch balls. Roll balls in sprinkles and place on cookie sheet. Refrigerate for one hour. Cookies should feel firm when touched. Serve right away or place in tightly covered container and store in refrigerator. Makes about 30 cookies.

Acknowledgement
American Bee Journal

Honeyed Baby Carrots

- 2 bunches baby carrots (*or 8 regular carrots, sliced*)
- 2 tablespoons runny honey *suggest Clover or Manuka Honey*
- 1 tablespoons butter

Trim tops and tails from carrots. Cook in a little boiling water or microwave until just tender. Drain.

Add honey and butter to pan. Cover and shake pan vigorously until mixture has melted and covered the carrots.

Honey Squares

- ¼ cup honey *suggest Clover or Manuka Honey for totally different varieties*
- 2 cups sugar
- 3 tablespoons water
- ¼ teaspoon salt
- 1 cup nut meats, broken
- 1 teaspoon flavouring

Cook honey, sugar, water and salt until soft-ball test is given. Take from fire. Add nuts and flavouring. Beat until creamy. Pour on buttered pan. Cut into squares.

Thanks to Bill Floyd for the "Suggested" types of honey.

Rich Fruit Cake

You may wish to substitute 1kg mixed dried fruit for the fruit listed in this recipe. Sherry, rum, whisky, orange juice or milk can be used in place of brandy, if preferred. It is important to have eggs and butter at room temperature. To achieve a darker cake, use dark brown or black sugar. A tablespoon of Parisian essence added to the mixture will also darken the cake.

This recipe is not suitable to microwave.

- 1½ cups (250gm) sultanas
- 1½ cups (250gm) chopped raisins
- 2/3 cup (140gm) chopped seedless prunes
- ¾ cup (110gm) currants
- ½ cup (125gm) chopped glace apricots
- 2/3 cup (110gm) chopped dates
- ¼ cup (60gm) chopped glace cherries
- ½ cup (125ml) brandy
- 250gm butter
- 2 teaspoons grated lemon rind
- 1 cup (200gm) firmly packed brown sugar
- 2 tablespoons honey *suggest Honey Dew*
- 4 eggs
- 1½ cups (225gm) plain flour
- ½ cup (75gm) self-raising flour
- 1 teaspoon mixed spice
- ¼ cup (60ml) brandy, *extra*

Combine fruit and brandy in bowl, mix well; cover, stand at room temperature overnight or up to one week. Line base and sides of deep, 22cm-round or deep, 19cm-square cake pan with one layer brown paper and three layers of baking paper. Bring paper 5cm above edge of pan. Beat butter, rind and sugar in small bowl with electric mixer until just combined (do not over-beat); add honey, beat only until combined. Add eggs, one at a time; beat between additions until just combined. Stir creamed mixture into fruit mixture with sifted dry ingredients. Spread mixture into prepared pan. Decorate top of cake with extra fruit and nuts, if desired. Bake in slow oven about 3 to 3½ hours. Brush hot cake with extra brandy. Cover hot cake with foil.

Acknowledgement *The Australian Women's Weekly*

Honey Basil Mustard

Recipe can be made one month ahead; keep refrigerated.

- ½ cup (95gm) brown mustard seeds
- ½ cup (95gm) yellow mustard seeds
- 1 clove garlic, *crushed*
- ½ cup firmly packed basil leaves
- ¼ cup (60ml) balsamic or red wine vinegar
- ¼ cup (60ml) honey *suggest Rewarewa Honey*
- 1 tablespoon salt

Combine seeds in bowl with enough warm water to cover; cover, stand overnight. Rinse seeds, drain. Blend or process seeds with garlic and basil until mixture is well-combined. Add vinegar, honey and salt; blend or process until thick. Spoon into sterilised jars; seal. Keep refrigerated. Makes about 3 cups (750ml).

Acknowledgement *The Australian Women's Weekly*

New Zealand Privacy Act Seen As Model

New Zealand's pioneering privacy law is attracting interest from overseas. The Australian Federal Government has signalled the extension of the Privacy Act 1988 (which covers principally Commonwealth agencies and credit reporting) into the private sector nationally.

The New Zealand Privacy Act, or much of it, is likely to be model for consultation by the Federal Government over the next 12 months. This will inevitably lead to a procession of lobby groups visiting our country to find something to support their established positions.

I was therefore pleasantly surprised by the findings of one open-minded emissary from the private sector who reported to me and his organisation that there were three lessons to be learned from the kiwi experience. After visiting key sector groups as well as the industry players he said the Privacy Act was successful because of —

- A well drafted law
- A significant phase-in period before the full impact was felt
- Pragmatic administration

He also told me that it was undoubtedly a good move to keep the principles general and to avoid a prescriptive approach. (This was echoed by the Credit Reference Association of Australia).

The biggest danger Australia faces is the risk of a codes dominated

approach. Everyone thinks they need a code. Our experience is that group after group said they will need a code but when they sat down to draft it many discovered that they could probably survive with some internally-generated guidelines.

How different is this from the superficial invective of newspaper editorials. "Rein in the Privacy Police" was one based on a misunderstanding of one out of the 1100 cases dealt with so far by my office.

this office of other information we hold or have produced.

Our legislative commentaries are of real interest but not everyone has the time or inclination to wade through necessarily long reports. So here the reader will find leads to matters of interest. New issue sheets and pamphlets will be made known as they are ready. And there will be privacy news from overseas and frequently asked questions answered.

I hope to have space for reader's comments and experiences and some helpful material from those who know what they are doing.

It is not cheap to maintain a widely distributed newsletter so readers will be asked to respond if they want to continue to get it.

Private Word is not where you will find the ten commandments ... it is no Bible. So unless it is indicated, I am not

bound by any statements made in **Private Word**.

No legitimate expectation is created as to how I will view or may deal with any specific set of circumstances. To write for those purposes would defeat the intention of this modest organ. So lawyers please don't treat it like a law report or as potential exhibit to an affidavit!

Here goes.

Let's know what you think of it.

Bruce Slane



The desire of newspaper editors to paint the Privacy Act as silly or producing ridiculous outcomes is one good reason for starting this newsletter. But there are better ones.

For a long time I have wanted to reflect the prodigious output of this office in an easily readable medium. Increasingly we will be publishing casenotes of interest to privacy officers and these can readily be accessed on our web page but I need to alert people who do business with



IMPORTANT DATES FOR 1996

BRANCHES SEND YOUR MEETING DATES IN FOR 1996. NO CHARGE.

NBA EXECUTIVE ELECTIONS

	Start			Finish
Send out nomination forms	16 April	Tuesday		
Closing for nominations	15 May	Wednesday	5pm	
Voting forms posted out	24 May	Friday		
Closing date, return of votes	24 June	Monday	5pm	

EXECUTIVE MEETINGS

March Meeting	11 March	Monday	to	12 March	Tuesday
May Meeting	14 May	Tuesday	to	15 May	Wednesday
July (conference) Meeting	15 July	Monday			
September Meeting	3 September	Tuesday	to	4 September	Wednesday
December Meeting	3 December	Tuesday	to	4 December	Wednesday

CONFERENCE

Speciality Group Meetings	15 July	Monday			
Seminar	16 July	Tuesday			
Conference/AGM	17 July	Wednesday	to	19 July	Friday
Special Meeting (if required)	18 July	Thursday	8am		
Last Date, remits in	2 June	Sunday	9am		
Last Date, rule changes in	2 June	Sunday	9am		

MAGAZINE

Copy/advertising deadline 1st of month

COMING EVENTS...

FIELD DAYS

WAIKATO FIELD DAY

Saturday 23rd March, 10am start
Old Te Aroha Road
Sue and Bryce Hooten's property
Sign posted from Matamata
Inquiries to
Tony Lorimer, Branch Secretary
Ph (07) 856-9625

SOUTHERN NORTH ISLAND AUTUMN FIELD DAY

23rd March
10am start
Rod Johnson's property
Whelans Road, Levin
Inquiries to
Frank Lindsay
Ph (04) 478-3367

CHRISTCHURCH HOBBYIST CLUB

These are held on the 1st Saturday each month, August to May, except for January on which the 2nd Saturday is applicable.
The site is at 681 Cashmere Road, commencing at 1.30pm.

GENERAL MEETINGS

WAIKATO BRANCH AGM

April 12th
All inquiries
Tony Lorimer
Branch Secretary
Ph (07) 856-9625

OTAGO BRANCH AGM

28th March
7.00pm Committee
7.30pm AGM
Tecpak Industries
Kaikorai Valley Road
Dunedin

HAWKE'S BAY BRANCH AGM

15th April
7.30pm
Cruse Club
Taradale
(Members are requested to bring something for supper)

9th International Palynologic Congress. Houston, Texas, USA. 22nd-29th June 1996

Contact: D J Nichols, US Geological Survey. Fax: (+1) 303 236 5690. E.mail: dnichols@greenwood.cr.usgs.gov

7th International Symposium on Pollination. Lethbridge, Canada. 24th-28th June 1996

Contact: Dr Ken Richards, Apiculture and Agri-Food Canada, Lethbridge Research Centre, Lethbridge, Alberta, Canada T1J 4B1. Fax: (+1) 403 382 3156. E.mail: richards@abrsle.agr.ca

The Sixth IBRA Conference on Tropical Bees: Management and Diversity. San Jose, Costa Rica. 12th-17th August 1996

The second announcement of this important IBRA conference is available from: Sixth IBRA Conference on Tropical Bees, IBRA, 18 North Road, Cardiff CF1 3DY, UK. Fax: (+44) 1222 665522. E.mail: ibra@cardiff.ac.uk

Pollination in the Tropics and with Tropical Bees. Habana, Cuba. 21st-24th August 1996

Make the most of your visit to Central America for IBRA's conference on tropical bees — travel on to Cuba afterwards for a specialist pollination meeting. For more information contact: Lic. Adolfo M. Perez Pineiro, Director Estacion Experimental Apicola, Min. Agricultura (EEA), El Cano, Arroyo Arenas Mun. Lisa, Ciudad de la Habana, Cuba. Fax (MINA-GRI): (+53) 7 335086. Fax (Empresa Cubana de Apicultura): (+53) 7 815428.

3rd Asian Apicultural Association Conference. Hanoi, Vietnam. 6th-10th October 1996

'Bees and beekeeping with sustainable agro-forestry development' is the theme of this meeting. For details of the conference, contact: Committee of the 3rd AAA Conference, Ms Nguyen Thu Hang, Bee Research and Development Centre, Lang Ha, Dong Ha, Hanoi, Vietnam. Fax: (+84) 4 352725.

The Bee Research Conference. January 11th-12th 1997, in Mexico.

Apimondia Conference.

September 1st-6th 1997 in Belgium. September 13th-21st 1999 in Vancouver. September ? 2001 in South Africa

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