THE NEW ZEALAND beekeeper

DECEMBER 1980

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Editorial: Trevor Walton
Advertising: Alison Woolley
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EDITORIAL

Government 'footsee' builds no bridges

by Trevor Walton, editor.

THE HONEY flow will be well underway in some districts by the time you read this. But chances are that many beekeepers will have their minds on things other than honey production as they super up their hives.

The government decision to free all industries of cotton wool and molly coddling is no doubt bracing for MP's as they sip their subsidised tipple and tucker in Bellamys and make full use of their free air travel rights courtesy of our very much licensed national airline.

However, if some beekeepers feel somewhat hurt at being the victims of a government change of heart (the HMA was set up and perpetuated by successive National administrations), they can at least draw some cold comfort that other industries have been relieved of their "protection" with much less warning and with far more dire consequences.

There are those that argue that the economy had become weak and ineffectual behind its cocoon of government controls and import barriers. However, regardless of the merits of this argument, the lack of consultation with industries when abandoning policies formerly actively pursued by government, seems to be resulting in a growing distrust of the entire government process.

This distrust is aggravated by the apparent selectivity of the cocoon removal process and the lack of quid pro quo's from our trading partners. In the beekeeping industry it has been even further emphasised by the decision of the government member on the HMA to interfere in a decision involving the use of producer funds.

No matter what side of the political chasm beekeepers find themselves on, all must agree that the decision of the government member to play footsee across the gap has done nothing to help the building of a bridge.

The only consolation is that within the next year the co-operators and the private enterprisers will each be given their chance to foot it alone without the "help" of the state. There might be something in deregulation after all.

NATIONAL BEEKEEPERS' ASSOCIATION

OF N.Z. INCORPORATED

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

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

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

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

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

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

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

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

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Beekeeper Rates

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

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

Subscriptions

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

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

KING BEE

(WHERE THE NBA HAS ITS STING)

No set contracts

The NBA executive is reluctant to become involved in the establishment of a firm contract for all beekeepers locating hives on Crown land, because this might put some beekeepers in a worse situation than they find themselves at present. This was the general attitude of the NBA executive at their September meeting at which the site lease agreements on the department's Molesworth Station were discussed with an officer of the department.

The executive noted that the beekeepers with leases on the property were happy with the agreements they had reached with the department, recognising that there are problems specific to Molesworth and that these agreements did not set a precedent for departmental leases elsewhere.

Keep honey pure

The Ministry of Agriculture is concerned that artificial honey being prepared for the South Korean market could be packed in natural honey tins or be allowed to contaminate pure honey in pipelines and honey tanks. While the South Korean market is happy to import artificial honey, it is important that New Zealand natural honey is not confused or contaminated with the artificial product.

As a result, the NBA executive has requested the Ministry of Agriculture and Fisheries to ensure that exports of artificial honey are packed in containers with appropriate labels.

New killer gas needed

Dr Pat Clinch of the Wallaceville Research Centre has been asked by the NBA executive to investigate the use of other materials which would be as effective as cynogas for killing hives without having residue. Because of the danger of cynogas to human life, it is no longer available, a situation which now pertains in most major beekeeping countries.

The selection of a gas which is safe to mammals, leaves no residues in the hives and effectively kills, is going to be a difficult task – our research indicates that the world wide search for such a gas has so far proved fruitless.

Bee care labels

The Agricultural Chemicals Board has been requested by the NBA executive to ensure that there is special care taken in the labelling of chemicals which are toxic to bees. A suggestion has been made that such chemicals should have a bee symbol on the label superimposed with a cross.

Bee educated

David Dobson.

NBA secretary David Dobson is to make an approach to the Technical Correspondence Institute to see if a correspondence course could be developed for beekeepers. In discussions with Mr Hardy of the institute, Mr Dobson has been told that if the Education Department agrees to the course, it could take two years to develop. However the industry, being export-oriented, would probably receive more favour from the department in its programming.

For such a course to proceed there would have to be a potential of a minimum of 25 students a year.

Beekeeper contract renewed

The NBA executive has renewed its contract with the Agricultural Press Company Limited for the production of the NZ Beekeeper magazine in 1981.

The editor, Trevor Walton, told the executive that while a change to a newspaper format would cost the industry considerably less, levy payers were receiving their magazine for a cost of $9 a year – the same price paid by outside subscribers. The executive felt that this was a reasonable price to pay for the current format.

Mr Walton also told the executive that the economics of the magazine were highly sensitive to the amount of advertising sold. To improve the advertising support of the magazine, beekeepers could help by notifying the editor of products and services they purchase (other than from Alliance Bee Supplies) which have wide application in the industry.

Antibiotic false alarm

Widespread rumours that a shipment of New Zealand honey to Japan had been contaminated with terramycin were unfounded. This comes from Grahame Walton who said that an initial test on some drums of HMA honey had revealed the presence of the antibiotic.

Because of the serious implications this had for New Zealand honey exports, a second test was conducted in Japan, together with another test in New Zealand. Both tests had proved to be negative.

The presence of terramycin in honey would indicate that someone was illegally feeding the antibiotic to bees in an effort to suppress symptoms of one of the notifiable diseases. This is highly illegal.

Increased capitation

Because of increasing costs, the NBA Executive has agreed to a Canterbury branch request that the 50 cent capitation/member should be increased to $1 a member over and above the basic grant given to branches.

The executive also agreed that because of the loss incurred at the 1979 conference, the Canterbury branch should be given a grant of $150.

NEW ZEALAND BEEKEEPING STATISTICS AS AT MAY 31, 1980

	1–5 HIVES			6–50 HIVES			51–250 HIVES		
	Beekeepers	Apiaries	Hives	Beekeepers	Apiaries	Hives	Beekeepers	Apiaries	Hives
NORTH AUCKLAND	618	665	1 295	129	320	2 045	23	251	2 786
AUCKLAND	763	816	1 564	157	387	2 184	21	206	2 542
HAMILTON	361	493	906	142	248	2 173	24	206	2 778
TAURANGA	250	261	628	102	224	1 293	21	185	3 057
HASTINGS	258	282	540	111	236	1 558	15	125	1 643
PALMERSTON NORTH	490	525	1 117	197	476	3 289	23	214	2 486
NELSON	299	349	654	96	260	1 314	28	319	3 250
CHRISTCHURCH	308	351	588	103	319	1 877	24	241	3 078
OAMARU	138	144	255	61	136	1 096	27	354	4 241
GORE	143	151	296	66	137	1 137	20	160	2 171
NEW ZEALAND	**3 628**	**4 037**	**7 843**	**1 164**	**2 743**	**17 966**	**226**	**2 261**	**28 032**

	251–500 HIVES			501–1000 HIVES			MORE THAN 1000 HIVES		
	Beekeepers	Apiaries	Hives	Beekeepers	Apiaries	Hives	Beekeepers	Apiaries	Hives
NORTH AUCKLAND	8	185	2 411	4	148	1 800	4	393	9 988
AUCKLAND	1	16	294	0	0	0	1	45	868
HAMILTON	12	277	5 322	16	599	12 042	6	632	15 039
TAURANGA	9	236	3 973	3	123	2 042	3	639	7 819
HASTINGS	1	86	870	4	152	2 916	6	644	13 266
PALMERSTON NORTH	8	180	2 591	6	296	4 354	3	210	4 344
NELSON	4	99	1 563	5	203	3 427	3	192	4 045
CHRISTCHURCH	13	322	5 125	14	706	11 985	5	603	10 134
OAMARU	11	326	3 983	10	526	7 979	8	1 029	15 502
GORE	8	242	3 641	12	678	10 327	11	622	12 319
NEW ZEALAND	**75**	**1 969**	**29 773**	**74**	**3 431**	**56 872**	**50**	**5 009**	**93 324**

	1–50 HIVES			MORE THAN 50 HIVES			TOTALS OF ALL BEEKEEPERS		
	Beekeepers	Apiaries	Hives	Beekeepers	Apiaries	Hives	Beekeepers	Apiaries	Hives
NORTH AUCKLAND	747	985	3 340	39	977	16 985	786	1 962	20 325
AUCKLAND	920	1 203	3 748	23	267	3 704	943	1 470	7 452
HAMILTON	503	741	3 079	58	1 714	35 181	561	2 455	38 260
TAURANGA	352	485	1 921	36	1 183	16 891	388	1 668	18 812
HASTINGS	369	518	2 098	26	1 007	18 695	395	1 525	20 793
PALMERSTON NORTH	687	1 001	4 406	40	900	13 775	727	1 901	18 181
NELSON	395	609	1 968	40	813	12 285	435	1 422	14 253
CHRISTCHURCH	411	670	2 465	56	1 872	30 322	467	2 542	32 787
OAMARU	199	280	1 351	56	2 235	31 705	255	2 515	33 056
GORE	209	288	1 433	51	1 702	28 458	260	1 990	29 891
NEW ZEALAND	**4 792**	**6 780**	**25 809**	**425**	**12 670**	**208 001**	**5 217**	**19 450**	**233 810**

Mr David Kay, a Wellington chartered accountant, will arbitrate over the dispersal of the HMA's assets.

He has been appointed by the minister of agriculture and fisheries to conduct an investigation under section 12 of the Ministry of Agriculture and Fisheries Act into the ownership of the net assets of the New Zealand Honey Marketing Authority in the event of its disillusion or reorganisation.

Two particular areas were nominated by the parties involved as requiring clarification;

- **If the whole or some part of those assets may be attributed to past and present suppliers of the New Zealand Honey Marketing Authority, how should those funds be used or made available for the use or benefit of such suppliers.**
- **If the whole or some part of those assets may be attributed to the whole of the honey industry (including packers and producers as defined in the legislation) how should those funds be used or made available for the use or benefit of the industry as a whole.**

The arbitrator has requested that all parties should have their written submissions delivered to him by December 19, with provision for supplementary submissions as late as December 31. The following parties are entitled to make submissions to the arbitrator:

Each executive member of the HMA, the NBA, the Packers Association, the proposed honey marketing co-operative and the New Zealand HMA suppliers association. Individual beekeepers may make representations to any of the above groups to which they may belong and these representations can be included in the principal submissions of that group.

The decisions to appoint an arbitrator under the Ministry of Agriculture and Fisheries Act and prompt agreement on terms of reference for his investigation, were given added impetus by the issuance of an injunction in the High Court which effectively stopped the HMA from advancing any of its assets to a honey marketing co-operative until a decision had been made by an arbitrator as to whom those assets belonged.

The following article is the editor's interpretation of some of the background leading up to the injunction.

INJUNCTION, ARBITRATION, DISPERSAL

DEMOCRACY always works best in a community were a broad consensus can be reached on most issues. Where a community is divided into camps of entrenched opinion of similar strength, majority verdicts often mean little.

Such was the case at the 1980 NBA conference when the contentious topics relating to the HMA's assets were put to the vote. As we noted in our September issue, votes swung from 27 to 21; 27 to 24 and from 25 to 26, revealing two camps of contrary opinions well-known and well-expressed so often before.

Only by compromise and careful negotiation is resolution of this sort of situation likely to be achieved. Certainly, as in industrial relations, the involvement of government is rarely successful in achieving an acceptable solution.

So, in retrospect, it should have come as no surprise when the leader of one of the two beekeeper opinion groups decided to issue an injunction preventing a dispersal of the HMA's assets until an independent arbitrator had had his say.

Equally, it comes as no surprise that those members of the proposed co-operative should feel bitterly disappointed that court action should have been used to stop them from preceding with the establishment of their venture, especially when they understood that the HMA board had promised to provide the 1 per cent loan capital on which their proposals were in part based.

However, because of the cost of challenging an injunction in the High court, all negotiations between the various industry bodies on the transfer of HMA assets to a honey marketing co-operative have ceased. In the words of Harry Cloake, one of the prime movers in the co-operative, "The authority and Mr Dickinson (one of the defendants named in the injunction) could have contested the injunction and legal opinion was they could well have been successful. However this would have taken some time, probably several months before a hearing could have been arranged and would have been costly.

"This cost would have been on the hive levy account, a direct cost to the hive levy payers. It may have been necessary to have an increase in the levy to cover this cost – something the industry may not have agreed to and certainly the co-operative steering committee would not agree to.

"Second, the authority and the steering committee could have requested the minister to have legislation brought down to over-rule the injunction. The minister had indicated this possibility, as he is favourably disposed to the principle of a co-operative in the form proposed. But to have done this, would have caused considerable ill-feeling and may have caused a rift in the industry. The committee was not prepared to be a party to this happening.

"Third, the committee could withdraw from its agreement with the HMA. The committee believed it had a responsibility to the industry not to incur unnecessary costs. It also felt that it should not create ill-feeling or be unreasonable in negotiations."

The steering committee therefore withdrew from the agreement. But only after requesting that the injunction be lifted and that export controls be reimposed on bulk honey until the co-operative became established.

While the export controls were subsequently replaced by the authority, Arataki Honey and Mr and Mrs Ray Robinson, would not agree to lifting the injunction they had obtained.

It is the opinion of the co-operative steering committee that those responsible for the injunction acted in haste and unwisely. They also feel hurt that the injunction has not been lifted, even though they are now willing to wait the decision of the arbitrator. On the other hand, the supporters of the injunction feel that an important principle is at stake.

Because Mr Percy Berry, the former HMA chairman and managing director of Arataki Honey Limited was overseas when this article was written, we spoke to Mike Stuckey, the deputy chairman of the HMA and a supporter of Mr Berry's actions.

Mr Stuckey said that when it was first proposed that 80 per cent of the equity of the HMA should be lent to the new co-op at 1 per cent, he supported the proposal.

"As soon as I looked into it though,

I saw the pitfalls and became concerned that cheap money was a basis of a lot of the thinking in the co-operative and if this money did not eventuate, it could kill the whole project.

"From that point on I decided to do everything in my powers to stop the HMA's funds from being dispersed until the arbitrator had had his say. If I had had sufficient financial resources myself I would have taken out the injunction.

"I don't think that just because a man has the financial power to do something he believes in, that he should be seen as being a greater ogre for it. Percy Berry does have the financial power to take something out like an injunction and he has done so because he feels very strongly that this is in the interest of the whole industry. Certainly, anything that Percy or Arataki was likely to gain from stalling the establishment of the co-operative would long ago have been spent in legal fees."

Mike believes that while it was unfortunate that the co-operative was led to believe that it could proceed with the help of HMA finance, he feels it is more important that things should be done in the right order. "You have to cut your cloak according to your cloth. If the co-operative had been given 80 per cent of the HMA's equity at 1 per cent, their thinking may have been coloured by what they hoped to get in the final wind up, rather than what they might actually get."

The most important issue in Mike's eyes was that the HMA should have an adequate throughput this season.

"Producers considering supplying the co-operative would be very wise to supply the authority this season, rather than selling to producer packers," he said. "Suppliers would then be taking over a strong organisation when the co-op starts up. If throughput for the HMA is so low as to make it as uneconomic, however, they will have to start right from the ground floor.

"There is no better argument for supplying the authority, than the assurance that a strong authority will give suppliers a good platform from which to start their co-operative."

After Arataki/Robinson injunction was issued, there was a flurry of activity as the people involved consulted their solicitors.

At its meeting on September 16 and 17, the HMA had passed five resolutions. These covered the interim payment on all honey supplied to the authority, the appointment of the arbitrator and the lifting of all controls on the export of extracted honey.

The contentious part of the meeting came when the proposal to lend to the proposed co-operative was discussed.

The authority chairman, Mr Berry, queried the right of Mr Ivan Dickinson to vote, given that he was likely to become a member of the proposed co-operative if the HMA was disbanded. The meeting queried the chairman's ruling and voted that it was in order for Mr Dickinson to vote.

As a result, after long discussions, a resolution was passed, agreeing to lend the co-operative up to 80 per cent of the HMA's net distributable equity at 1 per cent interest and the remainder at Rural Bank export rate until August 31, 1981 when the arbitrator's decisions would be known.

Two days later, on September 19, the general manager of the authority was advised that the High Court had issued interim orders restraining the HMA from acting on the resolution to transfer assets and lend money to the proposed co-operative.

While the chairman and vice chairman of the authority, (Messrs Berry and Stuckey respectively) were convinced that the injunction should be sought to enable the completion of arbitration before funds or assets were allocated, NBA president Paul Marshall (who had attended the HMA meeting) was not so sure. "I had hoped the process of transfer from HMA to co-operative would go smoothly," he recalls. "But as soon as the injunction was issued, all the hard work done by so many people, along with all the good will that had been created, was thrown out the window."

Along with other people in a similarly independent position, Mr Marshall was concerned that Mr Berry should have taken out the injunction when he was still chairman of the authority. It placed Mr Berry on both sides of the argument, being the chairman of the authority against which his firm, Arataki Honey, had taken out the injunction.

Mr Marshall, as president of the NBA, then sent a telegram to Mr Berry suggesting that in view of the apparent conflict of interests, Mr Berry should review his chairmanship of the HMA. Mr Berry apparently did not agree, for he retained his chairmanship until the November 4 meeting of the HMA board in Auckland at which he was replaced as chairman by Ivan Dickinson.

Mr Marshall has stated his concern that the hive levy payer may have to pay for something started by someone else and while he recognises Mr Berry's right to act in what he sees as being the best interests of the industry, he is concerned that cost alone should have left the whip hand with Mr Berry.

"However that's the way it is," he said. "The important thing now is that the NBA puts together some balanced submissions to the arbitrator so that the correct decision is made.

"It is also important that the government legislates on the terms of the arbitration so that his decision is not invalidated by another raft of injunctions. The failure of the government to act would only result in further delays and I am already extremely worried about the time that has gone past in which little progress has been made."

While government involvement in legislating for the terms of arbitration has Mr Marshall's support, the role of the government in the whole debate is wide open to question.

Thanks to legislation which constituted the HMA with four producer members and one government representative, the authority has often been in a position where producer voices are split and where the government member effectively has the power to decide. While such a situation would be intolerable in any major industry, the small size and lack of political clout of the honey industry has left the government member with unacceptable powers.

Since the debate on the delicensing of the honey industry started to gain momentum before the 1979 conference, the government member on the authority, Mr Don Hayman, has held centre stage.

It is probable, that if the government member had not taken such an active part both in debate and voting on proposals to transfer the HMA's capital to the co-operative, the current impass would not have resulted.

While the minister of agriculture and his under secretary may support the establishment of a co-operative, it has been quite evident for a long time that the industry was evenly divided on how the authority's assets should be distributed. In supporting one side in what was an otherwise fairly evenly divided debate, a false picture was painted of the true producer support for proposals dealing with their money.

The involvement of the government member meant that there was alot of jockeying for position inside the authority, resulting in an "unclear" position for both HMA staff and suppliers. This was only resolved when the September 16 and 17 meeting of the authority was forced to come to a much belated decision, only to have it over-turned by an injunction a few days later.

This active government involvement in producer politics means that an issue which probably could have been resolved by compromise between the contending parties, has ended up in a situation where enough recrimination could be generated to pollute the industry for years. But the resigned acceptance of the situation by the co-operators (who have had their dreams bitterly shattered) and

by those who support the injunction (who feel that they where painted into a corner with only one means of escape) would seem to indicate that nearly everyone is looking forward to the day when government involvement in the industry is minimised.

Certainly it has been made quite clear that there has been no suggestion or implication of impropriety on the part of anyone involved in the proceedings.

And in a newsletter to hive levy payers about the September 30 meeting of solicitors, it was explained that the naming of Mr Dickinson and Mr Berry in the injunction was for technical legal reasons, rather than as a result of any personal motives.

The next step will be the preparation of written submissions, followed by formal hearings convened by the arbitrator. Like anyone in his position, he will be ensuring that his findings are not only fair and reasonable, but that they also have an appearance of fairness.

This, combined with the stated willingness of all beekeeping groups to abide by the arbitrator's decision and on the part of the government, to divest itself of more controls on industry, should see a new beekeeping industry in New Zealand from next season.

Advisors don't knock on doors anymore

THE MINISTRY of Agriculture's chief apicultural advisory officer, Grahame Walton, strongly defended his staff at the September meeting of the NBA executive.

In reply to criticism from executive member Steve Lyttle, Mr Walton said that the old approach of advisers going around knocking on doors had long gone. "The apiary section was the last advisory group to follow this policy and now," he said, "the service is essentially on request, with emphasis on making better use of the mass media."

Mr Lyttle had said that he was sure there was potential to get better use of the existing advisory officers. He said he had been at Orari for some years and had only seen one apiary instructor in that time. He added that he had never made any requests for advisory assistance, but thought he would have had the odd approach.

Mr Walton said he didn't accept the premise that these people were doing nothing. "Our staff are fully occupied, but if you're not getting the service you think you need, you should in the first instance contact the adviser and ask for a discussion group to be set up, a field day or whatever else you think is necessary."

Mr Walton explained that the apicultural advisory officer's role was quite different to that of the agricultural or horticultural adviser. The apicultural adviser had to promote beekeeping at various levels. The most important was giving export-oriented advice, but nevertheless most advisers were involved in giving advice to beekeepers right down to the hobbyist level. There was also the quality assurance role, the apiary inspection role and, in some districts, the need to assist with field trials.

Mervyn Cloake said advisers must get around and find out about new ideas which are being developed every day. "It's the small things which are very often important. By getting around accumulating knowledge and passing it on, the advisers will do their jobs better and also bring the industry closer together," he said.

The discussion on the advisory service arose out of conference remits from Canterbury and the Hawkes Bay concerning the reduction in apicultural section staff. Mr Walton said that the section was already well-staffed considering the number of commercial beekeepers, compared with other sections of primary industry.

When apicultural scientist Pat Clinch of the Wallaceville Research Centre spoke to the executive later in the day he pointed out that staffing problems were severely affecting the amount of work he could do for the industry. Pat explained that during Trevor Palmer-Jones's day there were two scientists and two technicians working full-time on beekeeping matters at Wallaceville. Also Ivor Forster was working with the Ministry of Agriculture.

Today there was only one scientist and only one technician based at the centre.

Pat Clinch explained that he had hoped that when Ivor Forster had left, that the new apicultural advisers with their degree qualifications would have been able to assist with some of the research work. However, Grahame Walton explained that there was less opportunity for this because of reduced staff. Mr Walton said that this was an area where the industry could help, by defining areas where research would be valuable to the whole industry.

Mr Walton said it was important that the industry defined clearly what it wanted. There was, he said, a number of areas were research could be conducted including production, marketing, management, education, research, advisory work, diseases and finance. While there was no need for a navel-gazing exercise, he said it was important that the industry and the ministry together determined what was needed so that staff needs could then be calculated.

BEEKEEPERS TECHNICAL LIBRARY

To start on the negative side: The special postal rate for library exchange has been done away with. So you will be paying second class parcel rates and this is considerably dearer.

On the positive side: Executive has approved the spending of up to $100 for the purchase of library material. So some new books should be available in the near future.

From the editor we received "A murmur of bees", a collection of poems compiled by Amoret Scott. Thank you editor. He also tells me that he did the reviewing for the December "Beekeeper". Lets me off the hook.

Some more recent overseas journals have arrived. Amongst them some APIACTA numbers with very interesting articles on: Propolis, selection for productivity, brood equalisation management, heat sterilisation of equipment, etc.

Some borrowers are keeping books far too long. Other readers are waiting. Please stick to the rules. A reminder telling you that books are overdue, costs time to write and 20c postage.

Hon. Librarian: John Heineman, P.O. Box 112, Milton, Otago.

NBA supports Massey research into new honey plant

THE NBA EXECUTIVE has decided to make a grant of $200 to Massey University to assist with their study of a plant rated as one of the top 20 in the honey producing stakes.

Of great significance, is the plant's flowering time which falls into the October/November period when most beekeepers experience a nectar shortage.

The plant in question is *Phacelia tenacetifolia* which is known in its native country, North America, as a useful spring feed source for bees and has potential as a valuable feed crop for New Zealand farmers.

Phacelia tenatifolia is widely grown in Eastern and Central Europe as a green manure crop. This means that it is sown in late summer after the cereals have been harvested and is then ploughed in for winter. Using the plant in this way there is no seed produced. There is therefore a market for New Zealand grown seed in these countries.

In a paper attached to their request for financial support, the researchers, Dr C.M. Williams and Mr E. Roberts of Massey University said that there is a spring gap in feed availability for bees in most parts of New Zealand. "Its exact timing varies with season and location, but in general terms November is a lean month for the honeybee.

"The concept of growing plants especially for the production of bee food has been discussed from time to time by various groups around the world. With increasing sugar prices and transport costs, such a proposition is now very attractive.

"It would be fair to say that in New Zealand today success has been limited to encouraging the use of pollen- and/or nectar-producing trees in shelter planting and the spreading of useful plants into waste land areas such as river beds. We do not yet have a crop plant which can be grown on a commercial scale and which will serve our purpose."

The researchers said that the requirements for such a crop were that it should produce nectar and/or pollen in large quantity during the required period and preferably over several weeks. It should also fit easily into existing farming practices and provide an attractive financial return to the farmer.

"In fact," said the researchers, "what we are looking for is a white clover type of seed crop which flowers during October/November instead of December/January. Of all the species we have considered, *Phacelia tenacetifolia* shows the most promise in terms of these criteria."

The researchers said that from the preliminary students' study at Massey in 1979 when the plant had the potential to give an attractive return to the grower in terms of seed when spring-sown in the Manawatu. Their research this year is to find the best time of sowing to achieve a prolonged flowering in October/November and whether by doing this the seed yield would be adversely affected.

While $420 was requested by researchers, the executive only advanced $200 even though the researchers had indicated that they would have to terminate the current trials if there was insufficient funding to enable them to be completed. The financial support was required because of "fat trimming" exercises being conducted by university financial controllers.

The honey from *Phacelia tenacetifolia* is amber, flows freely and granulates quickly. It is an annual plant native to California with rapid growth and a high nectar yield which makes it a worthwhile cash crop in the USSR and neighbouring countries.

Pyne Gould and Guiness in Christchurch are understood to have this species under trial at their Ladbrooks (Canterbury) research farm and it is understood that nectar secretion is one aspect of the firm's interest.

The book, "Honey: A comprehensive survey" said that *Phacelia tenacetifolia* is also known to American farmers as valley vervenia or fiddle neck. It is found in the Sacramento valley and southward to Southern California, blooming in April and furnishing bee pasture in about six weeks from seed with a bloom lasting about six weeks. The book quotes one Harry E. Horne as saying, "the nectar flows all day. The honey is amber in colour, sometimes light green and of a mild aromatic flavour. Cows fed on it showed a marked increase in flow of milk, but will not eat it alone at first."

The flowers of fiddle neck are bluish-pink on elongated spike-formed racemes. It grows to 600 mm in height and in nutritive value it is supported as ranking between red clover and crimson clover, though it apparently does not make satisfactory hay.

Virus fixation may be a dead end

WALLACEVILLE scientist Pat Clinch has poured cold water on beekeeper enthusiasm for a big research effort into bee viruses.

While not commenting on the likelihood of viruses being the cause of mystery bee deaths, he questioned whether the only possible control method – through breeding – could be carried out effectively.

"A lot of viruses seem to be present in all bees," said Mr Clinch, "but they only become apparent under certain stress situations.

"Would you be capable of carrying out breeding programmes," he asked the NBA executive, "even if you could detect the virus?"

Mr Clinch said that when he was in Europe he saw Dr Bailey at Rothamstead about viruses. Mr Bailey had indicated that he was prepared to do some limited research on bees suffering from virus attack, but Mr Clinch questioned whether this would be of great benefit to the beekeepers concerned.

Compo for EBD?

THE NBA SECRETARY, David Dobson, and president, Paul Marshall, recently made submissions to the Lands and Agriculture Committee of parliament regarding the Apiaries Amendment Bill.

The main submission was to have European brood disease placed in the first schedule of the Apiaries Act. Current indications are that the disease will remain on the second schedule.

The importance of first schedule registration is that compensation is only payable for hives and equipment destroyed in the control of diseases in this category. No compensation is payable for control of second and third schedule diseases.

According to Mr Graham Walton, MAF's senior apicultural advisory officer, the government is unwilling to pay compensation for diseases except where they have the potential to devastate an industry. While varroa falls into this category, European brood disease does not, he said.

Mr Marshall agreed with this assessment of the disease, he also argued that because EBD is not present in New Zealand, every effort should be made to eliminate it, if it should appear.

He said there is always the risk that a stricken beekeeper might not report an infestation to the authorities for fear of being financially ruined. This, said Mr Marshall, would not be in anyone's interest.

Three words worth $9000

Taieri flooding.

Beekeeper, John Heineman recently learned the lack of an important clause in his insurance policy.

An "act of God" comes along and together with other victims you put in your claim.

A fellow beekeeper gets paid out fairly promptly and to satisfaction. Our claim is turned down. Why? Our policy stated the items are insured in the honey house and store sheds. His policy covers the gear "anywhere in New Zealand".

After the recent Taieri floods we consulted our insurance co about the cost of this extra clause. They put it in for NIL. So it is on the cards that the lack of these three words will cost us about $9000.

Better check up on your policy and if "anywhere in New Zealand" is missing, do something about it. It will cost you little or nothing extra and could save you a good deal some day.

Don Barrow honoured

My apologies to Don Barrow, a new member of the NBA life members club, who I omitted from my report on the annual conference held in Tauranga in July. At the same time, I gave a life membership to former secretary Graham Beard who in fact was presented with a cheque.

BURRCOMB

from the editor

Don Barrow was honoured by the association on the recommendation of the Bay of Plenty branch. Justly so, after being a founder member of the Bay of Plenty association and on its committee for 26 years, serving as both branch secretary and then president.

For 30 years he has been a beekeeper, for 21 of them in partnership with his late brother. Although he "retired" four years ago, he has retained a few hives. As well as this interest, he organises the greatest proportion of the hive distribution needed for pollination of kiwifruit in the area – the greatest concentration of kiwifruit in the country. A mammoth job of considerable importance.

Don was on the national executive for seven years, and was dominion president for two years.

At the time of his honour, someone remarked that he was a quiet and efficient operator and a lot of his work in the zone went unseen. I apologise that his very worthwhile efforts went unheralded by a major oversight in the "NZ Beekeeper" and extend the magazine's hearty congratulations to him on his honour.

– Simon Mill,
Associate Editor

Brand those hives

With all the publicity recently, on the problem of hive stealing, one of the most obvious deterrents to would-be thieves is to fire-brand your hives.

L.W. Jesson, 149 Springs Road, Hornby, Christchurch, P.O. Box 6051, Upper Riccarton, manufactures and sells a portable fire-brand attached to a rock gas bottle. The full bottle weighs around 7 kg and is good enough for 20 000 brands on one fill. The brands are about 2 cm deep and you can have one letter and up to three numbers.

Brand heads are made from heat-resistant stainless steel and the unit takes two minutes from lighting to branding. The head could easily be attached to a drill press in the workshop to brand ends of supers or frames before assembling.

– Waikato Bee Notes

Mead book out

How to make mead (honey wine) is the subject of a new book by Roger A. Morse, professor of apiculture at Cornell University, Ithaca.

Mead is an ancient drink. It has been called ambrosia and the nectar of the Gods. It was the national drink in England and Poland for centuries. The Norsemen, too, praised its special virtues.

To make mead, one dilutes honey, adds nutrients and yeasts and gives the fermenting mixture the time it needs to mature. Morse's 128-page, hard cover book, in step by step fashion, indicates what is needed to make an excellent mead. Chapter titles include "Equipment for mead making", "Recipes and formulas", "Fermenting, aging and racking", "Sparkling mead", "Bottling and closures", etc.

Morse has kept bees, studied, taught and written about them for more than 40 years. He has done bee research and education projects in Africa, Asia, Europe and South America. He is also the author of "Bees and Beekeeping", "The Complete Guide to Beekeeping", "Comb Honey Production", "Rearing Queen Honey Bees", and has edited "Honey Bee Pests, Predators and Diseases".

"Making Mead" is a recent release by Wicwas Press, 425 Hanshaw Road, Ithaca, N.Y. 14850. 128 pages, 6" x 9", hard cover, $9.95 postpaid anywhere in the world. Alliance Bee Supplies are New Zealand agents for Wicwas Press.

N.Z. work wanted by PNG beekeeper

An experienced Papua New Guinea beekeeper requires work in New Zealand:

"I come from Papua New Guinea where your government is aiding the beekeeping industry. I am seeking employment in New Zealand under a three year contract so that I can learn about the beekeeping industry and maybe save enough so I can establish my own industry when I return. There is no commercial beekeeping in my

country although it has great potential due to the humidity and thick rain forests filled with wild flowers.

"Since graduating from high school in 1973 I was employed by a Japanese honey company. After a few months the Japanese company left all the hives and the property in my charge. I continued keeping these hives on my own until 1975 when I officially joined Beekeeping Research with the Department of Agriculture.

"In 1976 I was sent to Adelaide, South Australia for six months to study commercial beekeeping. After this period I was issued a certificate with passes in practical and theoretical beekeeping. When I returned home I wanted to establish my own beekeeping enterprise but couldn't due to the expenses incurred in establishing it.

"I am now working in an office in Mt Hagen but I am not suited to this job. I have been trained in the field of beekeeping but I cannot obtain employment with any beekeeper in this country because of there being no commercial beekeepers. I am requesting anyone's assistance in giving me a job in beekeeping for 3 years. I am willing to work for anyone, anywhere in New Zealand."

If you are interested or require more information please write to:

Manda Ikio,
P.O. Box 1253,
Mt Hagen,
W.H.P.,
Papua New Guinea.

A murmur of bees

An unusual bee book:– A collection of 70 odd sonnets, verses, epigrams and anecdotes has been sent to the editor for review.

Published by the Oxford Illustrated Press, "A Murmur of Bees" is compiled by Amoret Scott and illustrated by Dodie Masterman in rather smudged black and white.

The collection of verses is of more admirable quality and, being about Readers Digest size, would fit neatly into the pocket. Quaffing his Athol Brose in the noonday heat, the beekeeper may delve into such music as Walter de la Mare's:

> "Thousandz of thornz there be
> On the Rozez where gozez
> The Zebra of Zee:
> Sleek, striped, and hairy,
> The steed of the Fairy Princess of Zee . . ."

Even James K. Baxter is included with a poem as touching as any other in the book and just as deep . . .

> " . . . Tragedy is written distinct and small:
> A hive burned on a cool night in summer,"

in his poem of a raid on a wild beehive.

All told the slim volume has its own mystique, and should appeal to beekeepers of a literary bent.

The copy has been forwarded to John Heineman for the library, and thanks go to the publishers for the opportunity to review it.

Steve's dream answered

At last there is a smoker on the market that any beekeeper would be proud to own. Made by Maxant in the USA, it has a stainless steel pot with wood and vinyl bellows. The lid is dome-shaped and is pressed from one piece of stainless steel with the handle, spout and hinge spot welded on to give a much superior join than on other smokers.

The bracket which holds the pot and bellows together is also pressed in one piece. The bracket is held to the pot with six large pop rivets and screwed to the bellows, thus creating a very rigid join.

A wire guard gives adequate protection from the hot pot and also incorporates a hook for conveniently hanging the smoker on the side of the hive. The grate in the bottom of the smoke pot is easily removed to make cleaning an easy job.

After four months spring work our two smokers have not shown any sign of wear. A good clean out every month makes sure none of the blow holes become clogged with tar.

If you want a convenient place to put your hive tool I suggest you get a pair of side-cutters and snip one of the top ends of the guard wire off. When the vinyl on the bellows eventually becomes worn, try replacing it with light leather to give longer bellow life. A light application of leather oil once a month should also help.

At $33.75 (September) they are very good value for money and should last for years.

– Steve Lyttle

CORRESPONDENTS

EUROPEAN DISEASE NO THREAT

Dear Sir,

This association views with some concern the derogatory statement made by Mr White of the Department of Agriculture of N.S.W. (Aust.) in the September 1979 issue of your journal under the heading "Australian disease not wanted" by Trevor Walton, and which appears on page 21.

Speaking for Victorian beekeepers I can say that the disease European foul brood has in no way put any beekeepers out of business, broken up any families, or devastated the economics of beekeeping in this State.

The facts are (and I am speaking only for Victorians): European foul brood was first noticed in hives here in the spring of 1976 as this was a very poor year for pollen and honey production. The first apiaries to contract the disease were badly affected with heavy losses in some cases.

With the use of chemotherapy the following spring, apiaries were quickly brought back to normal production with only a few hives showing infection.

Since then, with the use of teramycin and good management under the direction of our apiary inspectors, European foul brood is almost forgotten and poses no threat to normal production in future years. Honey production in the past season has been particularly good for Victorian apiarists.

Yours,

I.R. Campbell,
President,
Victorian Apiarists' Association.

Alleviate elevation problems

In the beekeeping business there is often no way round the old problem of bending and lifting, according to Murray Reid writing in his "Waikato Bee Notes".

However, there's no excuse to carry on doing this in the honey house and extracting room in particular – unless you like bending of course. There is a range of equipment used by beekeepers to keep the pile of supers that are being uncapped, at a comfortable working height.

Permanently fixed floor rams are operated hydraulically by oil pumps or mains water pressure. Others favour the barrow type with forks that can be raised or lowered by a drum and cable mechanism. The electric motors can be either mains operated or powered by a car battery.

Easily-constructed paraffin-wax dipper

by Andrew Matheson, Apicultural Advisory Officer, MAF, Nelson.

FOR A LOT of beekeepers, a paraffin wax dipper is an essential part of their outfit. Paraffin dipping is an excellent method of preserving hive equipment, and can be used for sterilising diseased gear if the permission of the local MAF apiary officer is obtained.

An article in the June 1978 "NZ Beekeeper" described a paraffin dipper designed and built by Mr Norman Finlay of Ohaupo, in the Waikato. This dipper had a hollow central core, from which the chimney protruded. This feature ensured even heating of the wax, as cold spots are a problem of many simple vat-type dippers. Another advantage was that less wax would initially be needed than for a vat type.

Following the publication of the article quite a few dippers were built to the same basic design, and these work very well. However, the type does have a couple of drawbacks. The height of the chimney is an unsatisfactory compromise between being low enough to lift boxes over, and high enough to keep smoke out of the operator's face.

The bath is limited in the quantity of odd-shaped gear it can handle at one time, e.g. floorboards, nuc boxes, etc. And finally, the welding is relatively complex, which makes it an expensive proposition for those who can't make their own.

Quite a number of beekeepers have shown interest in building a paraffin wax dipper, but want one that can be simply constructed, will easily accommodate different types of gear, and still ensure evenly heated wax. Such a type has been built by Mr Keith Detlaff of Ross, Westland.

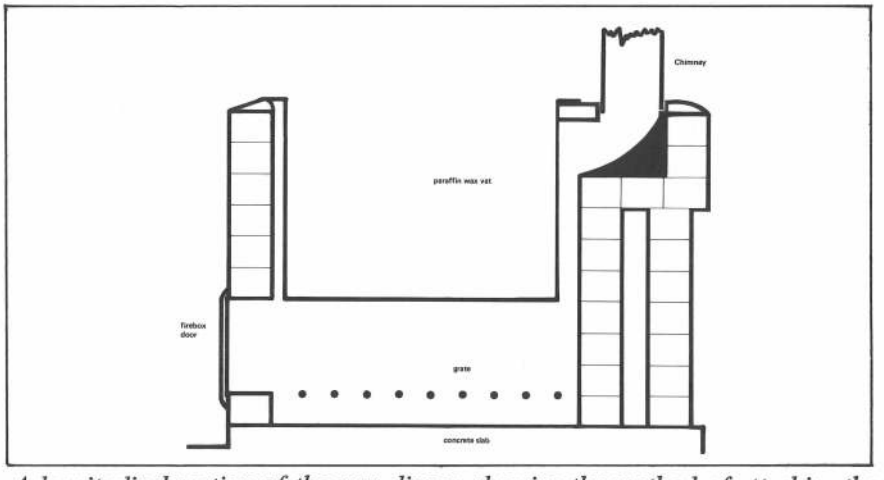
Keith's brother Basil, who keeps bees at Harihari, first modified an existing wax dipper by adding a double skin of brick to ensure even heating of all sides of the tank. Keith then built his own dipper from scratch, using a similar principle.

Its main features are

- a steel vat to contain the paraffin wax
- a brick surround to provide a double skin
- a long chimney
- a firebox door to enclose the fire.

The steel vat sits in the brick surround, supported by a 50 mm lip of 6 mm plate steel on all sides (see fig. 1). The actual tub is 635 mm long, 430 mm wide and 480 mm deep to the rim. The bottom is constructed of 6 mm plate steel, and the sides are 3 mm thick. In this case Keith made the sides out of one piece of steel which he partially cut and bent on three corners.

The fourth corner and the cuts were then welded together. This made use of some materials which happened to be available, but there is no reason why four separate pieces cannot be used for the sides.



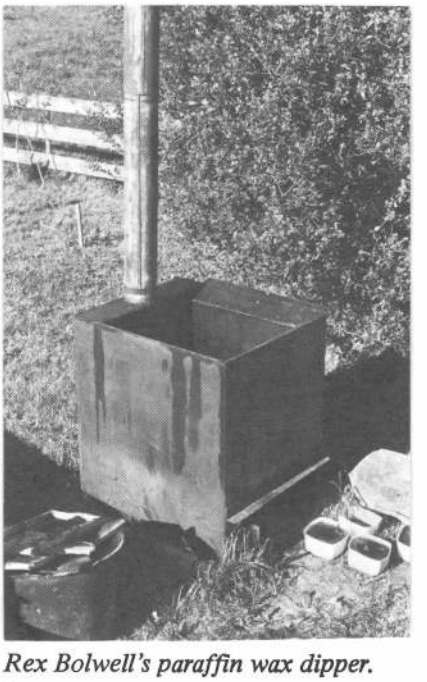
A longitudinal section of the wax dipper, showing the method of attaching the chimney.

The vat hangs inside the brick surround, with about a 32 mm gap on all sides to allow the fire to circulate. At the rear of the dipper there is an extension which accommodates the chimney (see diagram). The bricks sit on a concrete slab. Bricks were used because they radiate much less heat than a steel-walled firebox, which makes the job of wax dipping a lot more comfortable. The bricks also happened to be available and so all that was needed was a day's bricklaying work, which Keith did himself.

A grate is provided in the firebox, and while this is not essential, it does make managing the fire easier. For safety reasons, the firebox is enclosed by means of a door from an old copper, although a small hole must be chipped in the mortar below the door to allow air into the fire. The two-metre high chimney draws well, and keeps smoke away from those using the dipper. The damper is a relic of the chimney's previous service in a copper, and is never used there.

This wax dipper holds about 85 to 90 kg of paraffin wax, when filled to its normal operating level 125 mm below the rim. Paraffin is currently around $1.00/kg. The paraffin should be

Keith Detlaff's paraffin wax dipper ready for use.



Rex Bolwell's paraffin wax dipper.

heated to 160 degrees C, and it is a good idea to use an oven thermometer attached to a stick, rather than relying on guesswork. Hive equipment normally gets about five minutes immersion, although for sterilising diseased gear 15 minutes is required.

A temporary draining board made of corrugated iron is being used at the moment, but Keith does intend to make a more permanent arrangement in the future.

With this method the boxes are drained for a few seconds while more gear is put in the dipper, and then quickly scraped clean of any quantities of propolis or blistering paint. The boxes are immediately given two coats of acrylic paint which is drawn into the wood by the cooling wax, and dries almost instantly.

The cost of this unit is difficult to assess, as most of the materials were already available and Keith did all the work himself.

Mr Rex Bolwell of Riwaka had a wax dipper built for him, incorporating the same design principles. This unit was made entirely out of 3 mm plate steel, and was manufactured by local engineering firms. The cost of steel, cut and folded, was about $150, and the welding cost $70.

In this version the vat is 600 x 500 x 600 mm deep. which is deep enough to accommodate two full-depth hive bodies. There is 100 mm space between the vat and the outer skin, to allow for free circulation of flames. The vat is supported underneath by a length of 25 mm angle iron welded to the outer skin on each side. This is not welded to the vat, which simply sits on the support.

Other features of this model are the sloping lip at the top of the vat, a detachable chimney (again, about 2 m high), and a drain pipe at the bottom of the vat, which leads out through the outer skin. It is important that this is welded to the vat only and not to the outer skin, to allow for expansion of the metal. The drain pipe should be about 25 mm in diameter, with a simple threaded bung to seal it. Provision of a drain means that the paraffin can be removed and replaced with water, for melting out old combs.

The bottom of the vat is made of two thicknesses of 3 mm plate steel, to give extra strength and longer life. All joints are welded from both sides to reduce the risk of the vat bursting. The dipper sits directly on the ground, and the firebox is about 250 mm high. There is no firebox door at present. The vat is deep enough to accommodate two full-depth boxes and still leave an adequate safety margin at the top. The disadvantage of this depth is that it costs a small fortune to fill.

Nevertheless when it is full, a relatively small amount of wax is consumed in dipping hive equipment, probably only about five cents worth per super. Paraffin dipping is becoming increasingly common these days, and is a wise protection for expensive hive equipment.

Make sure your accountant does it right

FOR INCOME tax purposes beehives are regarded as plant.

The cost of hives bought by someone starting beekeeping and the cost of extra hives bought by an established beekeeper should be treated as capital. In other words, the cost of new hives is not deductible in calculating assessable income.

You cannot depreciate hives in your books, but first year depreciation in terms of section 112 of the Income Tax Act 1976 may be claimed in the year when the additional hives are first used. The rate at present is 25 per cent of cost.

If hives which have been subject to the first year depreciation allowance are sold, any depreciation recovered in the sale price will be added to the beekeeper's assessable income.

The cost of repairing or replacing hives which have become dilapidated is fully deductible.

This treatment has been in use for quite some years. It was described in the New Zealand Beekeeper issue of March 1976. However, some beekeepers have been using a standard value system incorrectly described in some reference books.

The Inland Revenue Department is currently asking beekeepers who are not following the current practice to make the necessary change.

Preserving beehive timber

Photo: Trevor Bryant.

Southland beekeepers, spraying hive boxes with paraffin wax. With the cost and availability restricting the use of this product, other methods of preserving beehive timber need to be examined.

By David Williams, Rotorua.

PARAFFIN WAX dipping of beehives is not a recognised preservation technique in the technical sense.

Commercially preservative treatment is generally taken to mean the infiltrating of some chemical into the wood which will make the wood resistant to fungi or toxic to insects, or both.

The two main preservation processes in New Zealand are diffusion or pressure:

Diffusion

In diffusion the freshly sawn timber is dipped in a strong chemical solution and then held in the wet state for some weeks while the chemical spreads through the wood. This is usually done with boron salts for treatment against insects.

Pressure

In pressure treatment the wood is first dried and then placed in a cast-steel pressure treatment cylinder and has the chemical solution forced into it under considerable pressure.

This can be used for boron but is most generally used for what we call the multi-salts, which are various combinations such as copper-chrome-arsenic that can be put in at fairly low levels for interior framing up to very high levels for fence posts and higher levels again for such things as marine piles. Unfortunately most of these mixtures are poisonous to bees, and neither pressure or diffusion treatments are really practical for the hobbyist.

We are fortunate that radiata is suitable for beehives and that it can be preservative-treated easily. The heartwood has a certain natural durability because certain resins are laid down in it during the transition from sap to heart, the transition also making it unattractive to boring insects.

Wax dipping works to a limited extent as a surface treatment and as a means of keeping the timber drier.

Decay fungi must have water before they can attack the wood and the lower threshold limit is usually a moisture content of 20 per cent (this means that the timber contains one-fifth as much water as wood by weight – wood weighing 10 kg oven dry, would contain 2 kg water at 20 per cent), while the optimum temperature is between 20 to 30 deg. C.

Fungi will not attack dry wood (they also find it difficult to attack thoroughly saturated wood because of the absence of oxygen, which is why logs in lakes decay only slowly).

However, hives are generally prime sites for decay. Certainly a coat of paint will hopefully run off most of the rain but the moisture tends to soak in at edges and corners and stay there, while summer temperatures may well encourage fungi which, once in, tend to stay there. These may well be less active in cooler weather but are ready to continue colonisation as conditions improve. Only complete drying out of the wood for a significant length of time will eliminate them.

For beehives, a preservative should be: Toxic to fungi and borer, harmless to bees, long lasting, easy to obtain and apply, and economic to the beekeeper.

In Queensland they have formerly used hoop pine, *(Araucaria cuninghamii)* for their hives, which needed no preservative. Now they are getting timber from New Guinea, Malaysia, and also New Zealand radiata pine, and this needs preservative if it is to last satisfactorily.

Scientist Peter Vinden recommends that New Zealanders, depending on size and facilities, use either:

- **Copper naphthenate.**
  Trade name: Metalex Green
  Applied: By brush before assembly. Allow to dry.

Or

- **Alkyl Ammonium compound**
  Trade name: Protek Q (50% a.i.)
  Applied: Hot and cold bath

The preservative is administered through a "bath". Any steel trough will do. The material to be treated is weighted down under plenty of solution, cold, and then brought up to boiling point, or at least 95 deg. C, and then allowed to cool again.

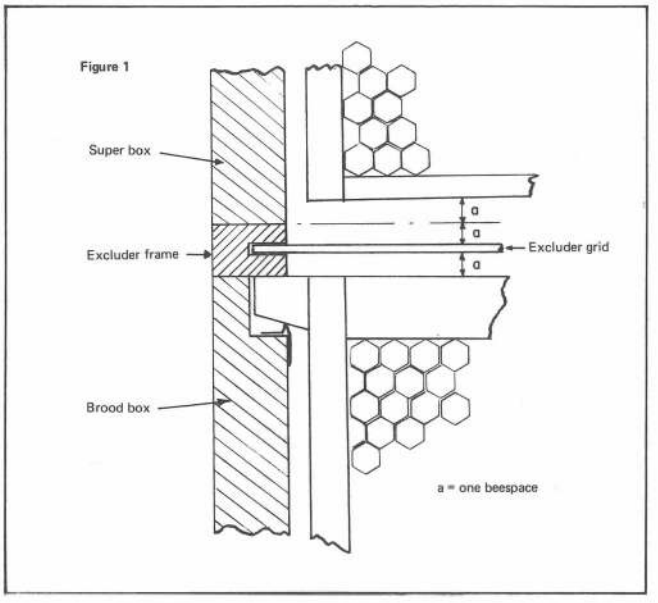
Doing this, the timber soaks up plenty of solution and has to be dried out carefully before use. For this reason it is best done on rough sawn timber before manufacture but it can be done later.

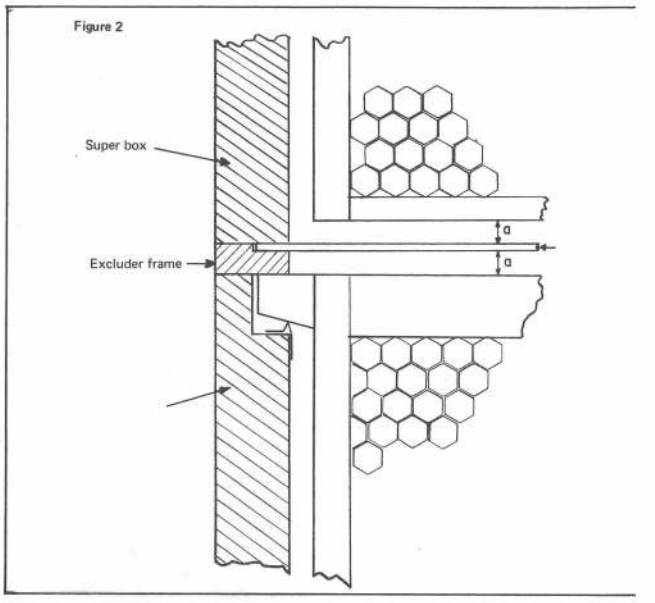
With boxes now costing more than ever before and the price still rising, preservation should be regarded as an insurance for the future. Temptation is always to keep using unsatisfactory boxes, which reduces beekeeping efficiency when proper treatment can give hives a life of many years.

For further details write to:

Technical Publications,
F.R.I., P.B.,
Rotorua.

asking for a copy of our reprint No. 1277, "Wood Preservation for the Farmer". Remember to include your name and address.





Wax build-up on queen excluders — a matter of bee space

by P.H. Andrews, New Plymouth.

I HAVE read with interest David Williams' interesting article concerning queen excluders which appeared in the last issue of the N.Z. Beekeeper and would, if I may, like to enlarge upon the subject.

Along with most other beekeepers, I too was once plagued with the problem of wax build-up on my excluders. The periodic removal of this wax proved to be both tedious and time consuming and, in my opinion, really amounted to no more than attacking the effect rather than the cause.

Analysis of the problem revealed that the cause lay in the design of the excluders I was currently using. These were of the well-known wire grid type, available from most equipment suppliers. The grid itself was contained within a wooden supporting frame dimensioned to produce one beespace both above and below the plane of the grid.

When placed into position on top of the brood chamber the wooden frame of the excluder in question caused the grid to be positioned exactly one beespace above the tops of the brood frames below. The bees respected this space and refrained from blocking it with wax.

When a honey super was placed on top of the excluder the situation changed however, for then there were two beespaces instead of only one above the wire grid. (see Fig. 1). One of these was provided by the frame of the excluder itself and the other by the fact that super boxes are designed with bottom beespace. The result of all this was that the bees tried to block up the excessiv clearance with burrcomb.

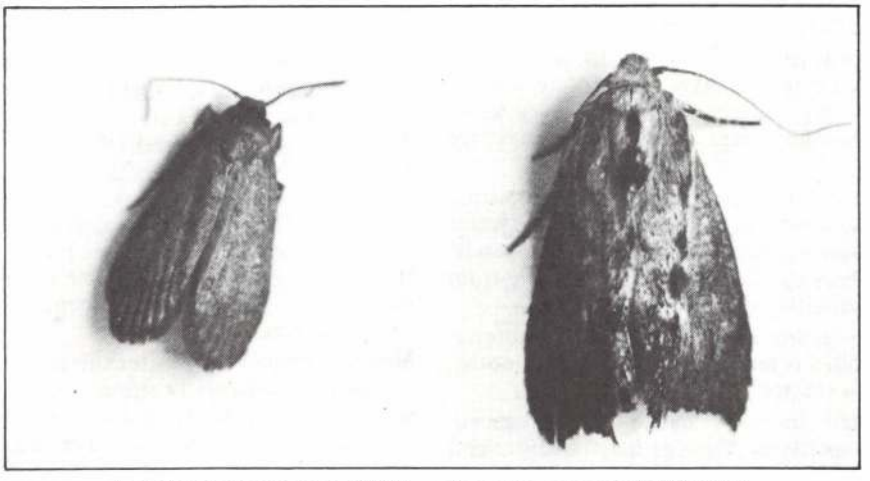
I was able to rectify the above situ tion by removing and discarding th original frames of my excluders an replacing them by frames having beespace only below and not abov the plane of the grid. When installe in the hive, these modified excluder result in no more than one beespac clearance both above and below th grid, as shown in Fig. 2.

Apart from the occasional sma pillar of burrcomb, my modifie excluders remain more or less wa free and are a great improvemer over the original design. Hopefull it will one day be possible to purchas excluders with beespace clearance o the bottom only.

SPECIAL FEATURE

Breakthrough in wax moth control in bee combs and comb honey

by A.G. Matheson, Apicultural Advisory Officer, Ministry of Agriculture and Fisheries, Nelson.



Lesser wax moth male (left) and greater wax moth (female).

1. Wax moths and traditional methods of control

THE GREATER wax moth *(Galleria mellonella)* and the lesser wax moth *(Achroia grisella)* are both pests to the beekeeping industry in most parts of the world, including New Zealand. Severe damage – often total destruction, of bee combs both in the hive and in storage, comb honey, and pollen, may occur following infestation by wax moths.

Both species of wax moth have a world-wide distribution and were introduced to this country with early importations of honey bees, probably from Australia. The lesser wax moth was first noticed in Canterbury in the 1890s, and was widespread throughout the country within a decade. The greater wax moth was first collected from Taranaki in 1922, and was widely established in the North Island, at least, before the Second World War.

The lesser wax moth is familiar to most beekeepers in New Zealand and the greater wax moth is also found throughout the country, although it is most abundant in the North Island, apart from inland areas of higher altitude, and in Nelson and Marlborough.

Greater wax moths

Greater wax moths vary considerably in size and colour depending mainly upon the diet and temperature experienced while developing. Females may be up to 20 mm long, and are predominantly light grey in colour, with a darker portion at the extreme ends of the wings (see Fig. 1). Males are smaller and similar in colouration.

Moths mate outside the hive and the females return to the hive in the evening to lay several hundred eggs in the combs, and particularly in cracks and crevices in hive woodware. Although eggs are visible to the naked eye, this concealment means that they are difficult to detect.

Larvae hatch from eggs and tunnel through the combs feeding on honey, pollen, beeswax and the general debris which collects in brood combs. They possess special enzymes which enable them to digest beeswax, a feature which is unusual among insects.

The tunnels through the combs become lined with silk and spotted with faecal pellets. Development of larvae is rapid in warm conditions, and bee combs are quickly destroyed (Fig. 2).

In preparation for pupation, larvae move to a wooden part of the hive and grow a shallow depression, before spinning a silk cocoon. This is particularly destructive to hive parts, and often weakens frames sufficiently to warrant their disposal. There may be up to 10 000 pupal cases in a severely infested two-box hive.

Lesser wax moth

The lesser wax moth has a wider distribution in New Zealand than the greater wax moth, apparently being more tolerant to cold. It is generally less destructive than the greater wax moth, but still capable of damaging stored combs and apiary products.

Adult moths are uniformly silver-grey in colour, and are considerably smaller than greater wax moth. Life history and habits are generally similar to those of the greater wax moth, although no damage to hive woodware occurs when these moths pupate.

Because both species of wax moth are similar in habits, control measures suitable for one species will generally be effective for the other species also.

Wax moth damage

Beehives are not significantly damaged by wax moths, as long as they are inhabited by a strong bee colony. If the colony dwindles from the effects of disease, pesticide poisoning, etc., then the wax moths present will rapidly increase in number, destroying all combs present. Dead hives must either be restocked with bees or retrieved and treated in the same manner as cull combs.

Stored combs are at great risk from wax moths, particularly in the warmer areas of the country. Extracting combs, whether stored wet or dry, may be totally destroyed while in storage. Culled combs in storage awaiting processing, are also at risk.

Comb honey, though rarely if ever damaged while on the hive, may contain wax moth eggs when packaged. In warm storage conditions these will rapidly hatch, and the resulting larvae tunnelling through the comb are undesirable from both the health and marketing point of view.

Feed honey must also be protected from wax moth infestation during storage. Pollen is readily infested by wax moths, either in the traps or in storage.

Clearly, all major apiary products and appliances can be, and are, infested by wax moths. Damage may be severe and so most beekeepers in New Zealand are forced to use some types of control measures. The cost of these to the industry, in terms of labour and materials, has not been measured in New Zealand. Also unknown is the actual extent, in dollar terms, of wax moth damage.

Although no economic surveys of wax moth damage have yet been undertaken in New Zealand, J.L. Williams of the United States Department of Agriculture surveyed commercial and semi-commercial beekeepers in the southern U.S.A. in 1973, to ascertain the seriousness of the wax moth problem (1). The results showed that the greater wax moth resulted in the destruction of 3.3 per cent of bee combs per year, which is greater than the loss of equipment due to American foulbrood (1 to 2 per cent per year). This indicates that, according to the best evidence available, the greater wax moth is probably the most serious pest or disease affecting the beekeeping industry in the U.S.A.

Control of wax moth

Many different wax moth control measures have been practised from time to time, both in this country and overseas. There are three main factors to be considered when selecting a wax moth control method:

- Beeswax readily absorbs many insecticides. These are later released slowly, weakening or killing colonies of bees when the affected combs are placed on hives. Beekeepers have often found this out the hard way, particularly with dichlorvos ("Vapona").
- Control measures used on comb honey must not leave any residues which are toxic or noxious to humans. Feed honey must similarly remain safe for consumption by bees.
- Any wax moth control measures must be safe and easy to apply.

Good management practices can reduce wax moth damage in *apiaries.* These include: Keeping all colonies strong. Replacing any strains of bee that are particularly susceptible to wax moth attack. Removing wax and debris from the bottom board of hives at least twice a year. Avoiding sudden depopulation of hives, such as that caused by diseases, poisoning, etc., especially in warm weather.

Wax moth damage to combs during *storage* can be reduced by initial sorting of combs into three classes: "White" extracting combs in which no brood has been reared and no pollen is stored. Combs which have been used for brood rearing and may contain pollen. Cull combs waiting to be melted down. These should be evenly spaced at eight or nine per box.

Several methods of controlling wax moths in these stacks are commonly used in New Zealand.

Natural climatic factors: In inland North Island areas and all the warmer areas of the South Island, the coldness of normal winters will retard wax moth development sufficiently to protect stored combs from significant damage. In such areas, stacks of supers are stored in sheds with ventilated floors and walls, or in partly open sheds with boxes raised above the floor with lengths of timber.

Para-dichlorobenzene (PDB): This chemical is a white crystalline solid which slowly sublimes at room temperature. The fumes both repel and kill all stages of greater and lesser wax moths except the eggs. Fumigant must be applied to individual stacks of supers, and repeat doses given when necessary. This means that labour costs are high, and so this method is seldom, if ever, used on a large scale. However, the chemical is non-inflammable and relatively non-toxic to humans, and therefore is frequently used in small beekeeping operations.

Methyl bromide: The technique of fumigating apiary appliances, particularly stored combs, with methyl bromide was first described by Roberts and Smaellie in 1958 (2). Fumigation and storage of supers outside on concrete pads was outlined by Paterson and Bennett in 1963 (3). The use of methyl bromide is reasonably common in New Zealand for treating apiary appliances and comb honey.

Freezing: All stages of wax moth are killed by exposure to cold; up to eight hours at −1 deg. C, but only two hours at −18 deg. C (the temperature of a domestic freezer). No large-scale trials have been carried out with freezing supers of comb, but pilot experiments carried out by the author indicate that this technique is effective and may be suitable for beekeepers with access to large freezers, for instance those found in horticultural areas. After freezing for 24 to 48 hours the combs must be stored in a moth-tight stack.

All stages of wax moth present in *comb honey,* especially eggs, must be destroyed, without any damage to the product. Methyl bromide is the only chemical currently used for comb honey fumigation in New Zealand. Freezing comb honey for 24 to 48 hours is another satisfactory control method (4).

Wax moth infestation of *pollen* while still in the trays is prevented by frequent (usually twice-weekly) collection. Pollen is then frozen for at least 24 hours before being dried. Wax moth eggs can also be destroyed by drying at 49 deg. C for one hour, before subsequent drying at 38 deg. C. Pollen can also be stored in plastic bags before drying, provided the air is replaced by food-grade carbon dioxide. This kills wax moths and prevents fermentation of the pollen.

Fumigas 10 EtO being administered to an experimental stack of supers.

2. Wax moth control with ethylene oxide

METHYL BROMIDE fumigation of apiary products and appliances is used widely in New Zealand. The usual technique is for fumigation to take place outdoors for safety reasons, under polythene or PVC sheeting. A concentration of 1 lb per 500 ft^3 (1 kg per 31 m^3) is effective in killing all stages of wax moths if it is maintained for 48 hours. However, a need for an alternative fumigant is created by three factors:

Supply of methyl bromide (MeBr). – Because MeBr is highly toxic, yet odourless and colourless, a warning agent is usually added. This is 2 per cent chloropicrin (a "tear gas"). Chloropicrin is readily absorbed by honey and wax, and will easily taint honey either directly or through contamination of combs. Beekeepers must arrange a supply of 100 per cent methyl bromide, but as theirs is almost the only use for such a product, this is often difficult. Some beekeepers have on occasions resorted to using the mixture containing chloropicrin (MC 2), an action which is capable of damaging New Zealand's reputation overseas as a producer of high-quality honey.

Safety hazards: Methyl bromide is highly toxic, and the Health Department recommends a threshold limit value (time–weighted average) of 15 parts per million (ppm). This is to be reduced to 5 ppm in 1981, because of increasing concern about its toxicity. (Cyanide gas for instance, has a TVL of 10 ppm.)

Residues: Apart from operator toxicity, the possibility of bromide residues being incorporated in the wax is the reason that methyl bromide is not used in the United States for fumigating bee equipment or products.

A combination of these three factors led to the author searching for an alternative wax moth fumigant to methyl bromide. A review of the overseas literature on the subject suggested that ethylene oxide might be suitable.

Ethylene oxide

Ethylene oxide (epoxyethane) is manufactured in large quantities in the United States as part of processes for manufacturing other organic compounds. Ethylene oxide (EtO) forms an inflammable and explosive mixture with air, but in the late 1950s it was discovered that a mixture of EtO and an inert propellant is safe to use at any concentration in air.

Since then, EtO/inert gas mixtures have been produced commercially, and are widely used as fumigants and sterilants. EtO is commonly used in food processing plants and in hospitals, where heat and moisture-sensitive materials must be treated.

The first test of EtO's application to the beekeeping industry was carried out in 1964 by A.S. Michael of the U.S. Department of Agriculture (5). He tested the gas against a wide range of organisms, and found that exposure to 450 mg EtO/litre air at 25 deg. C would kill all stages of the greater wax moth in 30 minutes.

The only other experiments involving EtO and wax moths were also carried out in U.S.D.A. laboratories; by T. Lehnert & H. Shimanuki in 1968 (6) and G.E. Cantwell et al. in 1975 (7). The former showed that 36 mg EtO/litre killed adult greater wax moth in 5 minutes, eggs in 30 minutes, larvae in 60 minutes and pupae in 90 minutes.

The lowest concentration of EtO to kill all stages in 24 hours was 18mg/litre. Cantwell et al. showed that both

greater and lesser wax moths were killed after 30 minutes exposure to 18 mg EtO/litre, but did not specify the stages used in the experiment.

These three results showed that EtO is effective in killing all stages of wax moths in laboratory fumigation chambers. Safe mixtures of EtO and inert gases are available commercially in this country, the gas is safer to use than methyl bromide, and no residues appear to be likely from its use with bee products. With these factors in mind, preparations were made in 1978 to test the effectiveness of EtO for wax moth fumigation. Experiments were carried out in 1979 and 1980.

EtO experiments

Supers of empty combs which were severely infested with all stages of greater and lesser wax moths were stacked on a concrete pad and covered with 0.005 m (125 mm) polythene sheets (Fig 3). This is the same method as is used for methyl bromide fumigation of stored combs or comb honey.

EtO was supplied as the New Zealand Industrial Gases Ltd product Fumigas 10, which is 10 per cent EtO/90 per cent CO_2, a non-inflammable mixture. The gas was admitted through a small hole at the top of each stack as it is considerably heavier than air, like methyl bromide. A nozzle delivered 3 grams of gas per second.

After the combs had been fumigated, samples were removed and placed in a laboratory incubator, to test for presence of viable wax moths. The results of the experiments are shown in Table 1. In the second series of experiments, methyl bromide was also tested at the recommended rate (1 lb/5003 or 1 kg/31.2 m^3).

Table 1 Appearance of wax moth after EtO and MeBr fumigation (all experiments)

Stack	Gas concentration	Time taken for appearance of wax moth (days)
1	18 600 ppm EtO	*
2	15 000 ppm EtO	*
3	10 000 ppm EtO	*
4	10 000 ppm EtO	*
5	7 500 ppm EtO	*
6	5 000 ppm EtO	2
7	2 500 ppm EtO	2
8	1 kg MeBr/31.2 m^3	*
9	0 (Control)	2

** = none after 28 days.*

The concentrations of gas used in these experiments were based on the experiments of T. Lehnert & H. Shimanuki, mentioned above. They found that 36 mg/litre EtO killed all stages of the greater wax moth in 90 minutes, and 18 mg/litre EtO killed all stages in 24 hours. These two concentrations are equivalent to 18 600 ppm and 9 300 ppm respectively.

The New Zealand experiments showed that the lower concentration of 9 300 ppm (18 mg/litre) will kill all stages of wax moth in practical field conditons, as well as in the laboratory. Indeed, the slightly lower concentration of 7 500 ppm was also effective. Material that had been treated at the still lower concentrations of 5 000 and 2 500 ppm showed no difference from the control, when first examined in the incubators.

Samples of comb honey were included in the wax-moth infested material which was fumigated in these experiments. These were later recovered and analysed for residues of ethylene oxide and ethylene glycol (a reaction product of ethylene oxide and water). No residues of either chemical were found in the experimental honey, even that which had been fumigated at twice the effective rate.

Conclusions

- Ethylene oxide fumigation of beekeeping appliances and products for control of wax moth can be carried out using the same techniques as are used for methyl bromide fumigation.
- An initial gas concentration of 7 500 ppm is effective in killing all stages of the greater and lesser wax moths in such conditions.
- The technique leaves no detectable residues in comb honey.
- Safe ethylene oxide mixtures are readily availabe, and are much less toxic than methyl bromide.

Acknowledgements

New Zealand Industrial Gases Ltd, for supply of equipment and gas, as well as assistance with this project.

Nelson Apiaries Ltd and Golden Bay Apiaries Ltd for provision of facilities for the experiments.

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FROM THE COLONIES

NELSON

After a wet winter, a mild spring has allowed hives to build up well on heather and willow flows.

In regards to pollination which was well under way by mid-October, our association has approached the Fruit Growers' Federation, Nelson and relations between the two horticultural groups are steadily improving. The extensive propagation of kiwifruit in the Nelson province has also increased demand for pollination hives along with boysenberries and blackcurrants.

Our club is promoting honey with a childrens' bumper sticker competition and good radio coverage from our local station 2XN, will help make it a success. Well, with the clover and kamahi flows now under way, let's hope for a good yield this season.

Jeff Lukey
Stoke

Kiwifruit: Good liaison reported with growers in Nelson and Bay of Plenty.

BAY OF PLENTY

District fortunes have been well contrasted this spring. The western district hives have had extensive supplementary feeding to save starvation.

The eastern district however has been blessed with the best build up from willow experienced for many years. All hives throughout the region are fairly strong, providing good management practice was carried out.

Barberry and hawthorn have been of some real use this year, the stage being now set for our first main crop, i.e. rewa rewa. Although this is already flowering well the main crop is not gathered until November. We are hopeful of a good flow.

Clover is coming on well with some signs for an early flow.

Recently held liaison meetings of kiwifruit growers and beekeepers have been particularly encouraging. There is some very strong concern being expressed by the orchardists about the welfare of hives during the pollination period.

This year for the first time a programme of pin-pointing hives as they move in and out of orchards will be monitored at the Fruitgrowers Federation office in Te Puke. There is an agreed policy of no insecticide spraying within a 2 km radius of pollination hives. Hopefully this comprehensive programme will overcome the main concern of beekeepers. The general rate for pollination is around $40.

Bruce Stanley
Whakatane

FAR NORTH

We opened the summer season with a field day at the club's hives at Sweetwater, on Saturday September 20. It was a beautiful sunny day, and with a very good turn-out of members and other interested people, the hives were opened and inspected to see that they were healthy, queen-right and had sufficient stores of honey, pollen and sufficient space for increasing amount of brood and new bees.

Both hives were well-stocked and strong so the honey season was away to a good start. The following social hour was interesting and valuable as the group gathered over a cup of tea to informally talk bees.

On Sunday October 19 the hives were again inspected to see if more space was required by expanding numbers of bees. However, over the intervening month, the weather had not lived up to its promising start and progress was slower.

We still meet regularly, on the first Monday of the month. There have been increasing numbers of members and interested people turning up to these sessions. We have a main topic at each meeting, which is usually related to what is currently happening with our bees at that time of the year and this is followed by a discussion of members' problems and questions.

These sessions are very lively and are of great interest because someone else's problem may one day be ours. We all are constantly learning new aspects of beekeeping, and the questions that crop up prompt us to go home and do more homework on the 'grey' areas.

On October 21 two officers from the Ministry of Agriculture and Fisheries were in Kaitaia to offer an evening meeting for beekeepers. These extra meetings are few and far between and it is good to have the opportunity to learn more. Graeme Walton, chief advisory officer with the MAF in Wellington, talked about diseases of bees in other countries, varroa and European brood disease in particular. We feel ourselves to be in a very privileged position in that New Zealand is one of the few countries in the world which does not have these diseases and are aware of the fact that this position needs guarding by good beekeeping practices.

Our apiary instructor, Brian Milnes, showed the excellent Australian film, "Honey – Nature's Liquid Gold" and spoke about pollination of orchard crops, particularly kiwi-fruit. There is obviously a role for beekeepers in this expanding fruit industry.

We look forward to a really good honey season after several indifferent seasons in past years.

Wendy MacPherson

SOUTHLAND

With winter being wet and colder than usual, most hives have opened up with good supplies of honey. Strong nor-west winds and a frost produced a short willow flow.

There is above average flowering on all trees. Pollen is plentiful except that bees are having to contend with strong winds which we haven't had for a few years – back to normal seasons we hope.

We met our relieving apiary adviser Mr Van Eaton from Canada at the last branch meeting.

Our field day will be held on February 7 1981, at Tony Clissold's (Glass Bros Ltd), Waikaka Valley.

Andy Booth
Drummond

NORTH OTAGO

Spring is past and although it will not go down on record as the best spring; it was the best we have had for many years with most of us getting a few extra stores which is always a help. In the last issue we were praying for some fine weather. Well, we did get it, along with some strong nor-westers which made some parts of North Otago resemble parts of the Sahara Desert. However, in the last two weeks we have had some rain and hopes have risen for a reasonably good season.

I had the pleasure of showing our new advisory officer Kerry Simpson around parts of North Otago which he finds different to where he came from. The North Otago branch put on an evening to welcome Kerry and his wife to our district and we trust that he will like his new district.

At the branch meeting we were fortunate to have as our guest speaker, Mr Kevin Cusach. He has been involved in co-ops for the last 25 years and we certainly know more about what is involved in co-ops than we knew before.

Well the next thing to look forward to is the hope of a good season. On behalf of the North Otago branch I would like to convey our best wishes to yourself and wish members of the association a happy Christmas and a prosperous new year.

George Winslade

OTAGO

Spring has come and summer is not far away. A higher percentage of hives than usual were found to be queenless or had failing queens after winter. Willow flow was good for a few days, but bad weather cut it short. Some areas report good flows from native bush sources.

In general, build up is progressing very well, but a good amount of feeding has taken place. Cell raising conditions have been excellent in many places and pasture is in good condition. Given the right kind of summer the honey could come in really well.

We are pleased to see a new advisory officer in Oamaru and wish Kerry all the best in his part of the province.

Trevor Bryant's place in Gore has been filled by Clive van Eaton from Canada until Trevor returns. A number of branch members gathered for a pleasant and informal evening to meet Clive when John Smith brought him to his destination. It was good to meet under these conditions and we look forward to further contact with our temporary advisory officer in the near future.

John Heineman
Milton

CANTERBURY

The branch held a successful spring field day at Loburn early this month with a big crowd attending. Among the items of interest was a demonstration by three beekeepers of their methods of dual queen hive management.

John Smith demonstrated inspecting and burning a diseased hive and Peter Pearson won the Sargeant Memorial cup for his MK II ingenius hive splitter. The day ended with a pleasant barbecue.

Canterbury has experienced extra-ordinary weather during September and October, with record temperatures and hot dry nor-westers blowing across the plains. This has resulted in a good early honeydew crop, but some pastures are drying and even cracking up. Without considerable rain in the next month, prospects don't look good for the clover honey crop. Because of the lambing percentages this year, over-stocking pastures could also be a problem.

The willow flow was generally patchy this year, with very good flows in sheltered areas and poor in exposed sites. North Canterbury was quite good.

With the roadside clover in flower and manuka yielding; beekeepers are keeping their fingers crossed for the summer.

Tony Scott
Christchurch

WEST COAST

The bee's supply of stores that appeared plentiful coming into spring have now dwindled to the extent that panic stations have been mounted to save the loss of some hives. All of this caused by persistent wet, cold weather.

With the use of parkas, umbrellas or any other device to shelter beekeepers and bees, queen cells have been put out later than usual and the resulting queens are having difficulty finding enough fine weather to mate. Their expected prolific progeny will miss the main honey flow.

The main event to take place this quarter, was the initiation of a discussion group which was held in Keith Detlaff's honey house. Fifteen attended from places ranging from Blackball in the north, to Franz Josef in the south, also two visitors from Papua New Guinea.

President Alan Braid addressed the gathering explaining the origin and intentions of the group and welcoming those present asking each person to introduce himself and state his interests. Andrew Matheson introduced the New Guinea visitors, who were in New Zealand on a familiarisation tour to see our industry and learn how to identify bee diseases which they don't have in New Guinea. The knowledge would be useful should disease be accidently introduced into their country, they would be able to recognise it immediately and take steps to eradicate it.

Some time was spent on the discussion group's future programmes, it being agreed that its success would depend on the individual research put into the items to be discussed by each member.

Andrew spoke on the genetic aspects of queen raising, illustrating his talk with diagrams on a blackboard. The talk proved very interesting and informative.

After lunch, discussion concentrated on the rearing, grafting and age of larvae used, and the effect of its age on the ultimate performance of the resulting queen.

A local beekeeper explained how he made a "queen cell comb" by drilling holes through plywood and placing appropriate sized pegs through them, then immersing and removing from molten wax. When the wax had set, the pegs were removed and the resulting "comb" placed in a strong hive and the queen laid in the cells. However bad weather prevented the experiment being carried to conclusion.

Keith Detlaff opened up several hives and explained his method of queen raising.

Outstanding morning and afternoon tea's were provided by the hosts, and appreciated by the guests and the occasion was a success if the remark of one of the Papuan's is an indication, "Man, I've learned a lot today."

Peter Lucas
Hari Hari

HAWKES BAY

Spring has been good. The weather has been kind to the bees. The willow build up has been fantastic with quite a few frames of honey stored.

The pollen flow was good too with one beekeeper trapping 84 kg off 18 hives with Canadian style pollen traps.

This weather is a difference from last year, as we were in the middle of a drought at this time.

The flow of manuka is just starting in some areas with prospects pointing to a more than average crop.

All hives were out of the orchards before Labour weekend this year, but we still experienced some spray poisoning, in spite of a more intensive education programme toward the orchardists.

Paul Keats our B.L. inspector is on top of the disease situation. It is good to know we have a good keen man on the job.

Wishing everybody the compliments of the season.

Keith Leadley, Hastings

WAIKATO

There were only two fine days in August, and none in September, just continuous rain, wind and mud.

Early sources were a wash out in most places, the bees just stayed home and multiplied and ate feed and got drier and drier. The willow gave just enough to keep them for a while, but barberry, about 10 days late in starting has finished at the normal time – being over very quickly, but it has given some honey and should get a lot of colonies through.

Queen rearing started early they say! You must be kidding. I think it was Murray who introduced us to "Murphy's Law", which means "That if anything can go wrong it does, or will". We had to wait until Labour weekend to get some good mating weather, but I see the first queens are laying so I hope the rest are.

Waitemata Honey Co are the latest honeyhouse to be burnt with the loss of a lot of boxes of combs and all extracting departments. How many beekeepers have had their boxes of combs all together, attached to their honey house so that if one goes the lot goes.

Combs should be in separate buildings, at least two, away from the honey house, wax and boiler areas on their own, smokers in metal containers when on the truck, and unloaded when you get home – "outside".

Bush sources look good as both tawori and rewa rewa have good budding, but it breaks my heart to see girls who are paid by the government destroying all our nodding thistles, but like the rabbit, I hope they survive.

Buttercup is showing up with some large areas of gold, so we may be back to the old Waikato season, boxes of buttercup as a premium to start.

Finally, a challenge to anybody who can throw the bricks on the hive lids further than our gang. All challenges accepted.

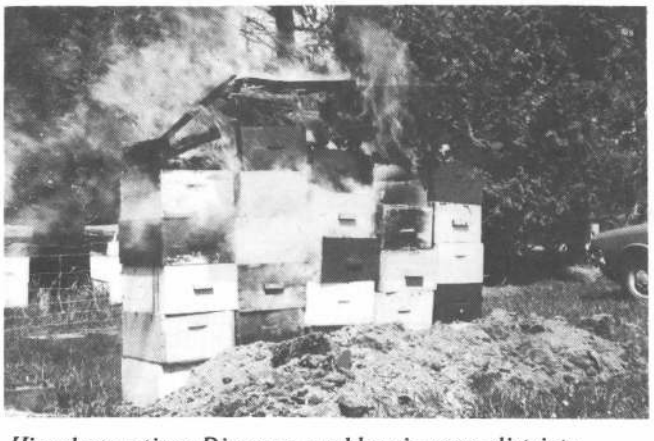
C. Bird

SOUTH WESTERN

Just a little more than a month to go before the start of the main honey flow. It's not only inside the hives that there is a lot of activity, there's sugar feeding, nuclei to be made up, queens to be introduced and a hundred and one other things that seem to pile up at this time of the year. It will be a relief when the first supers go on and the bees start working for us.

A field day held at Trevor Rowe's apiary, Eltham was thoroughly enjoyed by a large number of beekeepers from all over the South Western districts. Apart from the usual interest in factory and working layout of an up-to-date establishment like Trevor's, there was an interesting talk on cell raising by J. Lloyd of Manaia, an old time, and well known beekeeper of Taranaki, and also in the afternoon a valuable talk on taxation.

It was with Lloyd Bros at Manaia that our long serving apiary instructor Bill Rodie, received his first training in the art of honey production.



Hive destruction: Disease a problem in some districts.

All reports from our different districts speak of hives coming along nice and strong. There is heavy sugar feeding, with the exception of Masterton, where apparently there was a big carry-over of last year's honey. It was pleasing to hear that Arthur Elliot's country which unlike much of the East Coast has not dried out.

The rain we've had lately, after a couple of weeks of fine weather, should help our chances of a good crop coming up.

Stuart Tweeddale
Taihape

POVERTY BAY

On September 26 members of the local association enjoyed an informative address by Mr Doug Briscoe our new apiary instructor who has taken on this area in addition to the Bay of Plenty. Points raised at the meeting included the need to develop better liaison between beekeepers and kiwifruit growers in the district, to counter problems that may come up.

Past experience with this in the Bay of Plenty could be put to good use here, particularly with problems of spray mortality. The 8 to 10 per cent incidence of American brood disease in the area is disturbing, and we hope to reduce this to the national average of 0.4 per cent in four years. Further outbreaks have occurred this spring – particularly among neglected hives which infect others.

The local association held a field day on November 2, at one of our member's farms. It was for the benefit of the hobbyists and amateur beekeepers who comprise the bulk of our members. It was an informal gathering with friends and families coming along too with a barbecue lunch.

There was a reasonable turnout and a lot can be gained from these types of gathering. It is hoped to hold further local field days with film evenings to instruct new members and inform the public.

Hives are generally building up well with good willow flowering in early spring. Stone fruit and citrus is flowering at the time of writing. Indications are towards getting reasonable yields this year.

Barry Foster
Gisborne

SOUTH CANTERBURY

Following two wet cold springs we at last had the perfect spring for beekeeping. July and August were warm and sunny allowing bees to fly, gather pollen and commence brood rearing. Unfortunately in the back country and on the plains, nor-westerly winds dried out the ground, suppressing growth. Drought conditions on the coastal and light lands now prevail.

Willows came out two weeks early but perfect weather allowed bees to take maximum advantage of the situation and so we had the best willow flow in memory. Native bush also produced extremely well and to cap it off dandelions gave a remarkable boost to the spring flows. Very little feeding has been necessary and generally hives are in very good condition.

Unfortunately there is a black side to all this, disease has flared up and beekeepers are finding this difficult to explain. Perhaps the wet cold autumn and winter lowered the bees resistance to the disease and so allowed it to develop.

Apart from the coastal and light land areas conditions for a normal season look good, ample rain has fallen in most areas and with the sub-soil being still full of moisture from last autumn the heavy land should stand a dry spell.

Kerry Simpson has now settled in as the apiary advisory officer for this district and we look forward to a pleasant association with him in the future.

Harry Cloake

Beekeepers make successful honey knife

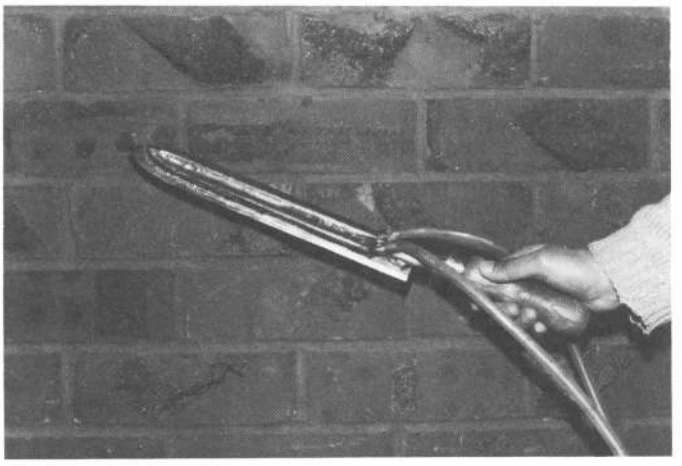
by Nick Wallingford, Rotorua.

WHEN FACED with the prospect of purchasing an uncapping knife, two beekeepers from Lake Okareka, near Rotorua, decided that they would try making one for themselves.

Tom Pinfold and John Merson have about thirty hives near their homes which are close to native bush clad slopes around Lake Okareka. Tom is a joiner by trade, and accurate and plentiful woodware manufacture plus a keen interest in bees has helped the two in their increase in hive numbers over the last few seasons. Though most of the surplus honey from their hives has been used to feed nuclei, they couldn't leave all the tangible rewards to the bees – honey from your own hives is one of the true pleasures of beekeeping.

The uncapping procedure presented a problem. They knew that they could still get by with the relatively small number of frames – either cold knife uncapping or keeping the knives in a saucepan or electric fry pan of water, and shaking off the surplus before uncapping.

With the anticipation of larger crops in the next few seasons, they decided to get accustomed to a heated knife. The cost of an electrically heated knife convinced them to use a bit of their own ingenuity and make a steam heated knife of their own.



Photos show steam-operated honey knife and domestic power source.

The blade is fashioned off a piece of discarded electric hacksaw blade. The edges were ground to sharpen them and it holds an edge admirably. A piece of copper tubing was soldered to it for carrying the steam. Since the angle at the tip was so acute, the tube was cut and fitted together before soldering, to avoid a crimp that might restrict the steam's passage.

A length of scrap steel was bent and welded to the base and a file holder from a hardware store put on for a handle. To improve appearance, durability, and ensure the non-reaction of its metals with honey, the knife was chrome plated.

Two small clamps hold the steam-in and the steam-out hoses, to the knife. These are suitable lengths of flexible plastic tubing, one connected to the steam source and one running to waste in a bucket of water.

The steam generator is a marvel of versatility and economy. The Merson's pressure cooker was acquired (a story all of its own, according to John). Water is added, the hose to the knife is pushed over the stem on the top where the toggle weight fits, and the device is ready to go. A pressure release valve is already part of the pressure cooker and provides a safeguard. The cooker is checked periodically and more water added.

The makers admit that this first knife took a bit of time in the planning and assembly, but add that it was not difficult work. The making of a practical and well-constructed steam uncapping knife for themselves was certainly a worthwhile project for these two enterprising beekeepers.

Apiary of two-queen hives on red clover. The 1980 average first "pull" 175 lb; whole crop, 320 lb.

Dave Tegart's crew in action. One of them is Nelson beekeeper G. Lukey. These hives yielded 150 lb on their first "pull" this season.

Two queen systems of Alberta....

by T.G. Bryant, apicultural advisory officer (on exchange with Alberta Agriculture).

METHODS OF TWO queen management techniques to increase honey yields have been well documented by many researchers, extension apiarists, beekeepers, and over the years there have evolved almost as many variations as there are beekeepers.

Few New Zealand beekeepers use package bees as they do here in Canada although four frame nucs are often used for making an increase. Package bee management for honey production is quite simple, hive the package, make sure the queen is laying well, keep the feed up to the expanding colony and hopefully it will reach maximum population to coincide with the major honey flow, an over simplification but in essence there is very little management. Rather it is timing which is the most critical factor. When to feed, when to super and get the crop off.

The one disadvantage of traditional package bee operations is the need to build up colony strength on a major honey flow, alsike clover and oilseed rape, then obtain a surplus from red clover and alfalfa (lucerne). To take advantage of the earlier nectar flows, it is necessary to either overwinter or two queen. For many producers here, overwintering is now common practice but the majority of colonies are still established from package bees/ queens purchased from Californian bee breeders. Overwintering will be discussed in another article in the Beekeeper.

Canadian beekeepers use two basic techniques to start two queen units. The first, a 3 lb package is split into two, 2 lbs of bees and a queen into the lower brood chamber and 1 lb of bees and a queen into the second chamber. The brood chambers are separated by a division board with a square 200 x 200 mm hole cut into it and double screened with mesh (5 to 1") to allow bees to pass through and conserve energy. The second, install a 2 lb package with a single queen. When the colony has developed into one full box of bees, two frames of brood and two frames of honey are placed into the second brood chamber, an excluder is used to keep one queen down and a second queen is introduced into the top.

The disadvantage of the latter method is the colony requires additional time to reach maximum strength. Mr Dave Tegart of Fairview, Peace River Region, uses the first method but uses excluders rather than the modified board, he also takes two queening literally.

The two queens are run in single brood chambers throughout the season. Excluders, two per hive, are used to ensure the queens stay in their rightful place. Using Mr Tegart's system brood nest beekeeping is essential if the bees are to be kept at home.

On each visit, both brood nests are inspected to ensure there are no swarm cells and there is plenty of room for the queen to lay. If swarm cells are found, the brood nest is removed and the majority of bees shaken from the combs in front of the parent colony. No attempt is made to find the queen. The box containing a small population, brood and honey, is placed on a floor at the back of the parent hive and left to its own devices.

Usually on the next trip or the one after, when a queen is laying, and, by then there is a full box of bees, the unit is united on the parent hive or used to strengthen a weak hive. This system which works for Dave, is not nearly as demanding as it appears. The results speak for themselves. Dave has a 10 year crop average of 285 lbs. The average for the region is about 180 lbs. As an avid fan of two queening but a traditionalist in that I have always believed uniting the two brood chambers gave the best results, it was interesting to see Dave's method.*

By way of contrast Alberta Agriculture's (apiary section) Mr D. MacDonald, ran a trial on two queen systems using two techniques, two sizes of starters (packages) with controls.

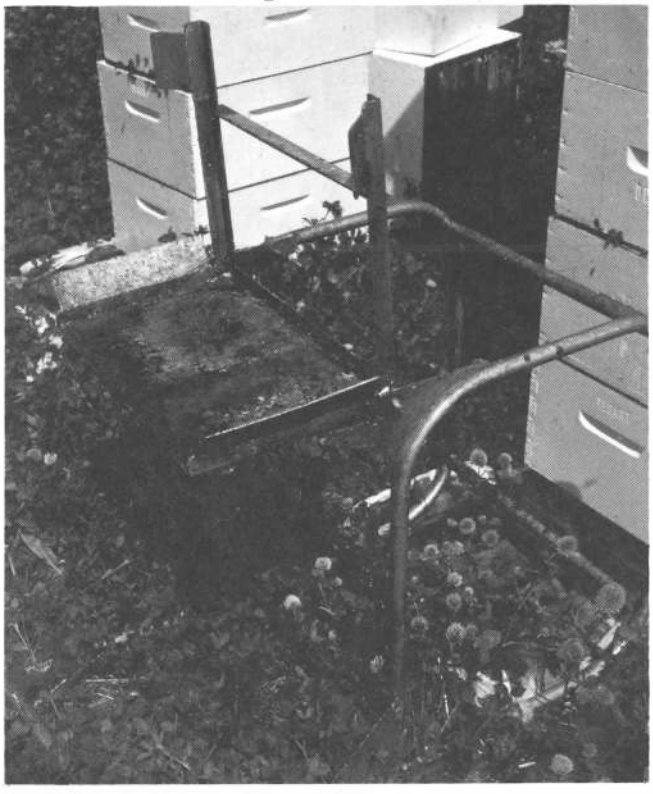
Method: a) 4 lb packages – united prior to flow; b) 4 lb packages – not united; c) 2 lb packages – united; d) 2 lb packages – not united; e) 2 lb packages – single queen.

One of the secrets to success is over supering, the bees must have plenty of room to store honey for ripening. These supers are removed when approximately 25 per cent of cells are capped and empties put on. An axion is used, when supers/cells are filled bees are idle.

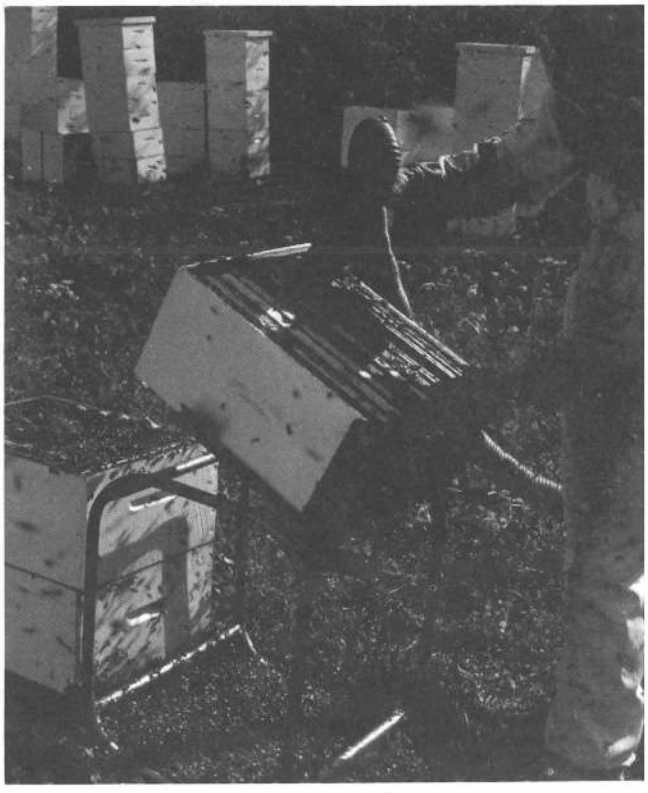
Results: Honey produced, average per colony, a) 260.25 lbs; b) 193.74 lbs; c) 211.00 lbs; d) 165.38 lbs; e) 142.70 lbs.

The results clearly indicate that uniting gave more honey, that the 4 lb packages out produced the 2 lb packages. But what they do not show is that c)'s 2 lbs united is the more profitable as you are paying for just the extra queen (one 4 lb package was split in half), and it did not require as much honey and syrup to establish and build the colony up to maximum strength.

....and a plan for a bee blower



Stand set up prior to action.



Super being cleared showing blowing position.

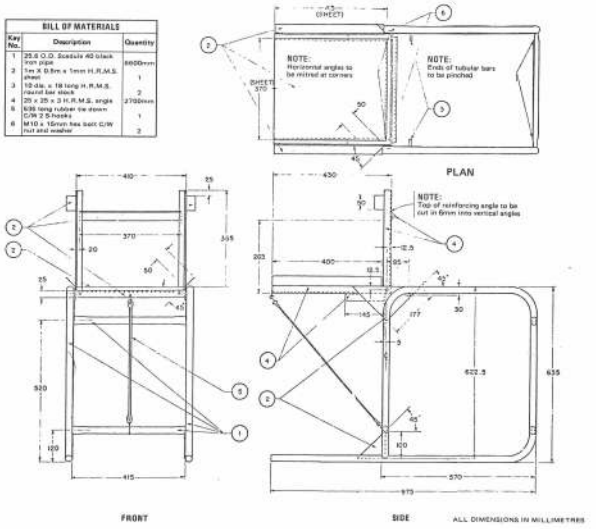
An interesting feature of Mr Tegart's operation and the Alberta Agriculture trial was that the bees were up-storers. I'm sure most beekeepers will remember Dr Don Peer of Nipawin, Saskatchewan, lecturing on this phenomenon when in New Zealand in February 1980.

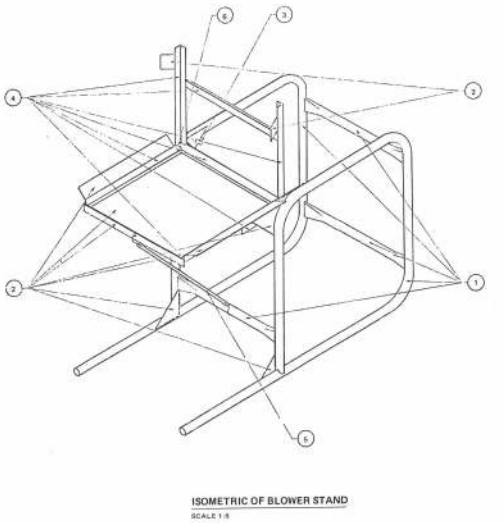
A day was spent with Dave and his crew, robbing honey, from two queen hives 9 to 10 high. The top supers were always heavier than the lower supers. An interesting piece of equipment used by the team was the blower stand, unlike the more traditional stand on which supers are placed and the bees blown from the top, the bees are blown from the bottom with the super angled into the hive entrance. The bees can be removed much more efficiently as the operator can spread the combs more easily giving plenty of room for the dislodged bees to be blown from the combs.

The detailed plan accompanying this article was kindly drawn by the Engineering Department of Alberta Agriculture. If interested in constructing the stand there are two adjustments which should be taken into consideration. Firstly the tray onto which supers are placed need not be quite so deep, for full-depth equipment 250 mm will suffice, for ¾-depth 200 mm is sufficient. Secondly, the majority of Canadian honey supers have metal spacers to spread the frames evenly and quickly, it is suggested that for New Zealand equipment beekeepers weld pins to the angle iron, which prevents the frames from falling out, at intervals which in turn will prevent combs from slapping and sliding together enabling them to be spread to facilitate blowing. Detailed enlarged designs are available from the Gore office, write to, Box 378, Gore.

Footnote:

Beekeeping terminolgy confuses many people inside and outside beekeeping. Since I have been in Canada beekeepers have, robbed, stripped, taken, pulled, moved, harvested, blown, driven, powered, escaped, cleared, honey from the hive. It's a wonder honey is not 'fenced' to get it to market.





A FRESH START
HIVE DIVISION

by David Williams

WHAT HAPPENS when a hobbyist has one hive and wants to have two?

The conditions for effective hive division are a very strong hive and an over-abundance of honey.

These conditions are best satisfied in autumn not in spring! If queens can be bought and ample frames of honey are on hand it is easy, safe and convenient to sub-divide then. Keep hive entrances small all winter and go into spring with two average-size colonies all set to build up to the honeyflow. This takes all the fuss, bother, worry and possibility of spring disaster out of it.

If we sub-divide one hive into two in spring, then we are presenting the bees with an emergency and they will react accordingly.

I have a nasty suspicion that many of those who claim to practice spring division as a routine management move, do so for negative rather than positive reasons.

They hope that by dividing hives they are reducing risk of swarming to zero, having failed to come to terms with it any other way. They ensure this by merely dividing and not feeding at all, and are quite relieved when one or other half dies out, thus freeing them of that much responsiblity.

Division should only be undertaken for positive reasons: To increase hive numbers, to achieve young queens in spring in divided hives that are later united, or as a first, primitive attempt at queen raising.

Some authorities have recommended spring division as being a form of man-made swarming, claiming that spring is the more "natural" time for such increase.

What must be realised is that even natural swarming is a dangerous, desperate endeavour for the colony and that very few of the swarms that pour out into the towns and countryside each spring, survive more than a few weeks and certainly few survive the following winter.

The few that man entraps and hives, probably represent at least as many as survive in the wild. Swarming or any other division of a colony must be regarded as a risk for both halves. This is not to say that spring division is inevitably inefficient. What it does mean is that success must be worked for.

One other thing that must be said is that "big is beautiful". It will be repeated later for emphasis.

The division

This must ensure that both halves are large enough to survive without loss of bees or brood except by natural causes. Both halves should have both sealed and unsealed brood in the centre of the second brood chamber where it is warmer and most protected and where most bees can cluster.

Do not make the mistake of dividing a two-storey hive into two one-storey halves, as this brings delicate brood down into the cold. Make sure that the queenless half has a frame with the youngest of larvae, preferably adjacent to eggs, at the bottom edge of the frame and that this is put at the top, dead centre.

Queens are only well raised when there is plenty of pollen and honey available, the queenless half goes on the original site, the other half can go wherever you care to put it – perhaps neatly alongside and a metre away. The queenless half may still swarm if strong enough when the first virgin hatches out, so one week after division go through and knock out all except the one biggest, strongest, healthiest queen cell. You may be able to use the spare cells elsewhere or donate them to fellow beekeepers.

Check very gently 12 days later to see the queen has emerged, then leave strictly alone for at least a month so make sure it has more than ample stores at division time.

If division must be done in spring, best chances of success are: With a super-strong hive, fed regularly (twice a week with 1 kg sugar in 1 litre of water) from mid-August until sub-

BEGINNERS ACTION PACK

JUNE – JULY
do nothing

AUGUST
– a fine day towards the end of the month, have a quick look in the top. If short of stores, remove two empty frames, replace with frames of honey. Total time – 60 seconds per hive.

SEPTEMBER
– middle of month, check right through, clean or replace floorboard, remove entrance guards, put queen and brood in bottom box, any stores and empty comb in second. If short of stores, another frame of honey. Time – 10 to 20 mins.

OCTOBER – NOVEMBER
– check for swarm cells every fortnight by simply sliding top box slightly forward, tilting up, lightly smoking, and examining bottom edges of frames for cells; if found, examine all frames. Cell check time – 5 seconds. Method is almost foolproof.

DECEMBER
– last week of November or first week of December, rearrange bottom two boxes as for September, queen excluder on top, honey supers above that, eight frames per super.

JANUARY – FEBRUARY
Leave

MARCH
– first or second week, remove supers and extract. Check second box is full by lifting centre comb. If this is comfortably full and outside frames are full, box is good. Otherwise exchange empty for full.

Store three full frames honey per hive, extract rest. Re-queen with Autumn queens, close entrance down to 2 cm wide.

APRIL – MAY
Leave

divided at the end of September.

Also, a warm, sunny spring and a late, prolonged honeyflow ensuring that the queenless half has plenty of stores to last at least six weeks with minimum disturbance and feeding queen-right half at least weekly, as above, because it will have lost its field bees to the original site.

It is a gamble – in spring hive division you are gambling with your honey crop.

If things go well you may get as much surplus from the two colonies as you would have from the original single colony and, if things go very well, you may get more but – the reverse may be true. Either or both divisions may die out, the new queen may fail at some point, the season may be hard, or early and the two halves not strong enough to take advantage of the flow.

If this happens it is not unusual to find that the colonies never build up to full size but go right through and into the autumn as small units that then have to be hand fed up for winter. All you can do, hopefully, is to slant the odds in favour of the bees by correct application of techniques listed here, correct timing, and feeding like crazy.

Given a natural progression (without swarming) from winter to summer, a large colony will come through the winter well, build up evenly through the spring, and have an enormous number – perhaps 50 to 80 000 – of workers for nectar gathering at the start of the honeyflow over and above those needed back at the hive. A small colony is an inefficient colony, in terms of build up and nectar gathering.

And, as a reintroduction to our emergency, one other thing to be said here is that nobody waves a magic wand and makes it all happen in a nano-second. Things take their own appointed time. Let us see what these times are, under our emergency conditions.

Emergency

Simply dividing a hive into two, one half queenless, the other queen-right, means: That larvae used by the bees to create the new queen(s) may be unsuitably large and produce imperfect adults; weather and timing may be against success; the swarming instinct is encouraged. This is uncontrolled queen raising in every sense of the word except that you have initiated it.

Let us consider the timetable for the queenless half:

The queen: Egg – 3 days; unsealed larva – 5 days; sealed larva/pupa – 8 days; Total 16 days.

Emergence, mating, to laying of first egg – 7 days; eggs to workers – 21 days.

Bees start with perhaps day old larvae at start, so total to first generation workers from absence of queen is approximately six weeks.

The workers, from emergence to field duties, take 15 to 21 days so that it may be eight to nine weeks before these workers are available to bring in nectar or pollen from the first removal of queen.

Drones: The virgin queen must have drones available with which to mate. The drone takes 24 days from egg to emergence and a minimum of perhaps two weeks to puberty and beyond, therefore six weeks before the new queen emerges, drones must be on the way with eggs laid in drone cells.

Be prepared for the population implosions. The queen lays perhaps fifteen hundred eggs per day in the spring build up in a normal colony. This also means that a substantial percentage of that number also dies each day.

What happens when the hive is divided? The queen slows down or stops laying, workers bring in less nectar/pollen because smaller units less efficient and greater proportion must stay home and tend brood; and deaths of older bees means both halves have a drop in population.

So, I am saying, when it comes to spring divisions – don't!

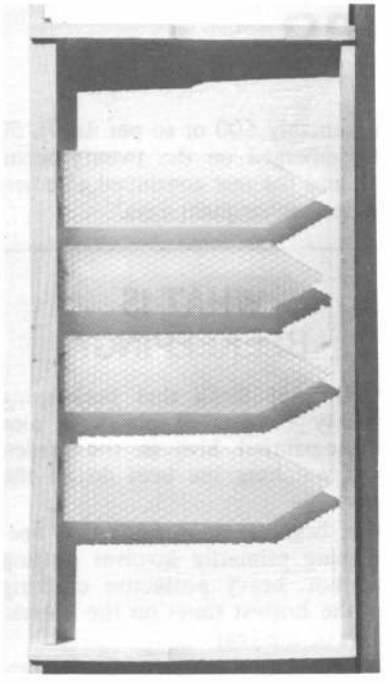
Naturally the whole situation changes when a beekeeper has two or more hives and wishes to make only one extra but that is a whole new subject which must be dealt with at another time even though, again, it is still safest and simplest to do it with bought-in queens in autumn.

Queen rearing for amateurs (part 10)

Story David Williams, photos Allan Warren

PART 9 WAS devoted to the subject of simple cells, that is either waiting until swarm cells are found and using them, or removing the queen from a strong hive and so forcing them to make emergency cells. Part 10 will deal with two case histories.

The first case history involves the last case above, the second is of the Miller method, as laid down in Laidlaw's "Contemporary Queen Rearing". Both required some slight adaptation because I only have two hives in my garden and wanted to carry out both methods simultaneously, so I used half-hives rather than full ones.



The frame

Case 1.

Hive 2.

Sept. 18 – Split hive – large colony for time of year, with ample stores. Half bees and brood left on old site, queen and other half moved two metres sideways.

Sept. 20 – Checked – six good queen cells.

Sept. 27 – Reduced cells to one large central cell. Fed queen-right half one kg sugar as syrup.

Then left alone until;

Oct. 14 – Quick check. Virgin seen, short as yet, but happy. Still two frames substantial sealed honey, plus some brood not yet emerged.

Oct. 27th – Original queen removed, hive reunited by newspaper method.

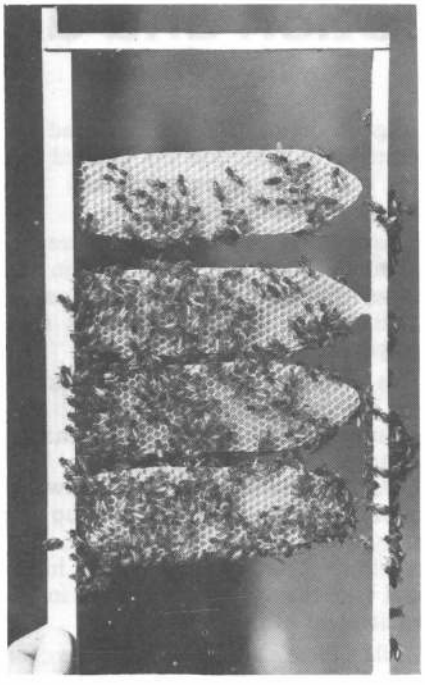
Summary – This has not been a sunny spring, nevertheless, once started the sequence went through without any hitch. Plenty of stores, and knowing when to leave the bees alone paid off.

Case 2.

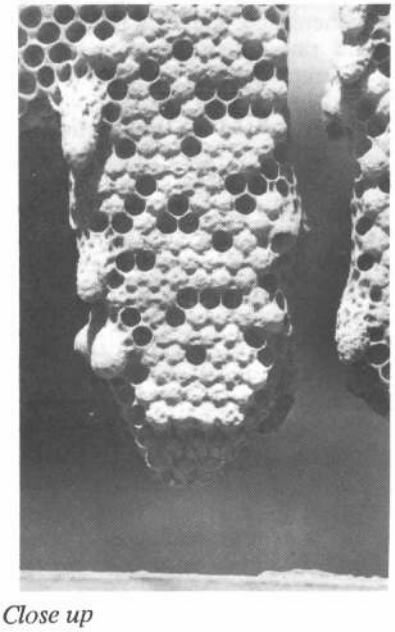
No better introduction to the Miller cut-foundation method of cell raising can be given than quoting directly from the text:–

"The frame is prepared with several strips of foundation, two or three inches wide and nearly as long as the frame is deep. These are tapered to a point at one end and fastened at the other end to the top bar of an empty frame. The prepared frame is then put into the brood nest of a selected breeder colony. About a week later the bees will have drawn out the foundation , and the comb will contain brood, with eggs and the youngest larvae towards the edges. The comb is now ready for preparation for the cell building colony."

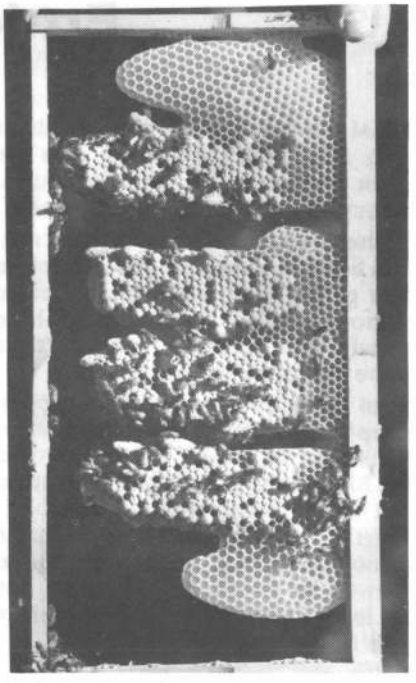
There is then a paragraph on preparing the cell building colony, then:– "The prepared comb is removed from the breeding colony and, after a gentle shake to dislodge most of the bees, the remaining bees are brushed gently from the new comb. Care must be taken because new comb is fragile and in this case is not supported by wire



After one day



Close up



Fifteen days after insertion

"The special comb is laid flat on a board and the outer margins are trimmed with a warm, sharp knife, leaving the youngest larvae intact in cells at the new comb margins. The comb is now put into the space left in the cell builder and the frames pushed together. Ten days later numerous queen cells should be ready for distribution . . . "

Hive 1 – the Miller cut-foundation method of cell raising.

Sept. 25 – Frame with four two inch wide strips full depth pointed ended foundation placed in centre of second brood chamber.

Sept. 26 – Strips nicely drawn out, a little nectar in a few of the cells.

Sept. 30 – Bees have now made frame into full comb, all drone cells except for strips. Queen on it and comb full eggs top to bottom.

Oct. 2 – Still all eggs.

Oct. 3 – Majority of eggs in drone cells are now larvae but only one worker hatched so far – did see occasional worker cells in which, although still egg, slight amounts brood food also there. Still a few cells with nectar, but no pollen.

Oct. 4 – 8.45 am. Sub-divided, fed queenless half after putting the now one-brood chamber on top of ten empty dark combs in spare chamber. Took Miller frame, scissored out all drone comb back more or less to original strips. All workers hatched except few right at point of one strip. Cut this off, so all are back to larvae. Put frame back in what is now second brood chamber on original site. Moved queen-right half one metre to right, with all unsealed brood and plenty of stores.

Oct. 6 – Fed.

Oct. 8 – Checked Miller frame. Many queen cells on various parts of the strips, particularly two centre ones but none in useful positions such as hanging down at bottom. Bees have started to fill up between strips and frame with drone cells. All cells are sealed – can only just have happened. Nick Wallingford suggests I should have left queen cells only and broken down other cells around them – as it is they are fairly buried.

Oct. 13 – Cut out 10 cells with scalpel, wrapped them with electrician's tape, took out to the country hives. Cutting out the cells was messy, strips were very soft and difficult to handle – two of four actually broke away. Left frame and cells not needed.

Oct. 16 – Checked quickly, obviously one virgin emerged, other cells being broken down and cleaned away.

Oct. 27 – United with original half, taking original queen out to country.

On November 1 sorted through and re-arranged both hives and settled them down again.

In conclusion, for my purposes, the Miller method was an interesting experiment but one that will not be repeated – it is just too fussy and fragile. The queen-removal method is primitive but worked well and would certainly prevent swarming for that year and is, in that sense, decisive.

Emigration and drifting

by David Williams

I AM always a little dubious about such statements as "young bees are often accepted in strange hives, particularly if loaded with honey".

If the literature is correct bees may well be three weeks old or older before they go out nectar gathering, therefore cannot be called "young". They have already used up more than half their active life in the summer months.

I can easily imagine any hive happily accepting any bee prepared to bring in a full load of honey. Not only would the hive stores gain in this way at no cost to the colony but it is also obvious that any bee bringing in nectar cannot be robbing. I know the adage "Beware of Greeks bearing gifts" but beg leave to doubt they have sufficient guile to send out laden spies!

I can also imagine hives accepting young, fluffy bees on their maiden flight. Such youngsters have the charm and innocence the young of all species possess

Obviously guard vigilance changes with the seasons. During the honey flow(s) each hive is wholly concentrated on bringing in stores and there will be hardly a guard in sight. Let the honey-flow diminish, particularly if it ends suddenly, and there will be constant guards at the entrance and constant forays against them by the opposition. Similarly a period of fine weather but no flowers in spring will result in a constant testing of defences, and robbing if these are found inadequate.

So acceptibility of innocence may vary through the seasons but, speaking generally, young bees are probably judged on age and intention and there is certainly more drifting between hives than we know of, even of bees of field age.

In good times, no danger is feared and entrance is automatically granted but in bad times trespassers and beekeepers suffer equally!

I have often had amateur beekeepers point out gold and black bees in the same hive, as evidence of the queen's mating with a range of drones of a range of colour.

This is possible, but I would prefer to see proof before I wholly discounted either an unnoticed change of queen or drifting.

I was interested to read that a swarm leaving a hive will often collect up any stray bees in the neighbourhood, such as those returning to adjacent hives, and take them away, caught up in the excitement of the moment.

While there are good reasons for believing that the vast majority of bees in each hive are bona fide members of that hive and always have been, there may well be a few hangers-on and ringers-in to explain some of the discrepancies in colour amongst the workers.

I was interested to see what the experts had to say on emergence times of workers. We accept as gospel "16 days for a queen, 21 for a worker, 24 for a drone" but this is not to say that exactly 21 days after that egg has been laid a worker will pop out of its cocoon and join the clan.

The only figures I could find were from "Bees" by I. Khalifman published in Moscow in 1953 which says: "Exact observations on 2 000 cells in a comb where the queen laid eggs within 24 hours showed that some bees developing in those cells began emerging on the nineteenth day; about a thousand bees emerged on the twentieth and twenty first days (presumably 500 or so per day?), 500 bees emerged on the twenty second day, and the rest continued to emerge for three subsequent days.''

WHAT IS BEEKEEPING?

- Do not think that beekeeping merely consists of placing a nice white-painted hive in the garden and watching the bees do all the work
- a beginner soon finds that beekeeping primarily involves putting on hot, heavy protective clothing at the hottest times on the hottest days of the year
- and bending over in uncomfortable positions
- while holding heavy, wrist-aching frames
- and not being sure that what is being done is correct
- but gradually experience and confidence will be gained
- and the protective clothing will be slowly discarded
- and beekeeping will then change from pain to pleasure
- and it becomes one of the most fascinating and satisfying of hobbies
- not least for the friends made and the colleagues met
- but remember that there is always more to learn
- and to apply
- knowledge may be of interest in itself but is only really of value when used.

BEE CULTURE

"The silken winged insects of the sky"

by Justin Finlay who has recently fulfilled his lifelong urge to keep bees.

WHENEVER THE poets attempt to describe nature or the seasons they inevitably include the bees, not only to draw attention to their industry, but also to express a mood and an atmosphere which the humble bee always seems to produce.

The well known words: "I will arise and go to Innisfree . . ." continues with the words:

"And a small cabin build there, of clay and wattle made:
Nine bean-rows will I have there, a hive for the honey bee,
And live alone in the bee-loud glade.
And I shall have some peace there, for peace comes dropping slow.
Dropping from the veils of the morning to where the cricket sings."

The same spirit is captured in the words expressing a wish:

"Mine be a cot beside a hill,
A bee-hives hum shall soothe the ear;
A willowy brook that turns the mill,
With many a fall shall linger near."

Beekeepers are all probably among the large segment of humanity who long for something other than productivity or business advantage. Their bees provide that. The hunger in the human heart is for a spirit to more than match the need to work for a living and to meet whatever demands may exist. When all the work is done and the needs met economically there still remains the hidden hunger for satisfaction and fulfilment, something like that expressed in the words:

"And I shall have some peace there, for peace comes dropping slow."

There are not many occupations in life where hard work can be garnered with spiritual satisfaction, and where the reward is in the labour itself, whether the flow of honey be good or not. Who can say that a moments pause in a busy day to hear the hum of the bee and to watch it work with enterprising zeal, often outmatching the toil of any human being, to feel if but for a moment something of the mystery and wonder of nature, is not more rewarding than the material results that follow the labour. To have both is "life par excellence" and if there are valuable lessons gained for all to follow there could be no richer occupation. The observation of Anne C. Lynch Botta for instance could inspire hours of reflection.

"The honey bee that wanders all day long,
The field, the woodland, and the garden o'er,
To gather in his fragrant winter store,
Humming in calm content his winter song,
Seeks not alone the rose's glowing breast,
The lily's dainty cup, the violets lips,
But from all rank and noxious weeds he sips,
The single drop of sweetness closely pressed,
Within the poison chalice."

That thought alone, cherished and considered in one days work would make the toil more than worth while. There is no prejudice in the bees. There is nectar and pollen everywhere. Every flower, every individual species has something to offer.

The "single drop of sweetness" is in the most unlikely place, and looking around, men should never, unlike the bees, select their contributions from one source alone. It is too much a feature of the human species to say, "this man is great, this man is honoured, this man has made a name for himself I will listen only to him". Everyone has something worthwhile to say.

It is time in life to lift our thoughts. Political and economic theories grow wearisome. They are necessary but not the whole answer to life. An eminent philosopher and thinker had this written about him. "An eerie doubt was creeping on him whether any idea could save men – unless perhaps, it was a transcendent one. But not in the old Platonic sense, for transcendent had now no meaning for him unless it meant more than an idea – it must be a reality".

That is the core of the matter and following the bees could perhaps introduce us more to reality than any other trade. Shakespeare observed the organisation of the bees. In Henry V, he wrote:

"So work the honey bees:
Creatures, that, by a rule in nature teach,
The act of order to a peopled kingdom.
They have a king, and officers of sort:
Where some like magistrates, correct at home;
Others like merchants, venture trade abroad;
Others like soldiers, armed in their stings,
Make boot upon the summers' velvet buds . . ."

In reflecting upon the line "the act of order to a peopled kingdom"; knowing how much work is accomplished in orderly fashion by the bees can never do any harm in a world where time passes so quickly and so little seems to be achieved.

Whatever we think, there can be little doubt that the bees in their activity and organisation provide a poignant lesson to those who sense a loss of reality in today's world but who are still keen to tabulate, estimate and draw conclusions. The well-known Maeterlinck in "The Life of the Bee" writes:

"The bees know not whether they will eat the honey they harvest, as we know not who will profit by the spiritual substance we introduce into the universe. As they go from flower to flower collecting more honey than they themselves and their offspring can need, let us go from reality seeking food for the incomprehensible flame, and certain of having fulfilled our organic duty, prepare ourselves thus for whatever befall."

When all is said and done it is probably "the incomprehensible flame that we all want to keep alight and which unfortunately is likely to be extinguished by the trend of modern life. Success and profit are all worth-while motives, but they can only be of value where they provide time and opportunity to discover ourselves, inspired by the dedication of the bees to their tasks, something of the virtue of their work and effort as well as the inspiration of creative stillness. And there are few occupations where the music to accompany all this is so acceptable to the human ear, and all of us at times can cry:

"Listen! O listen!
Here ever hum the golden bees,
Underneath full-blossomed trees,
At once with glowing fruit and flowers crowned:"

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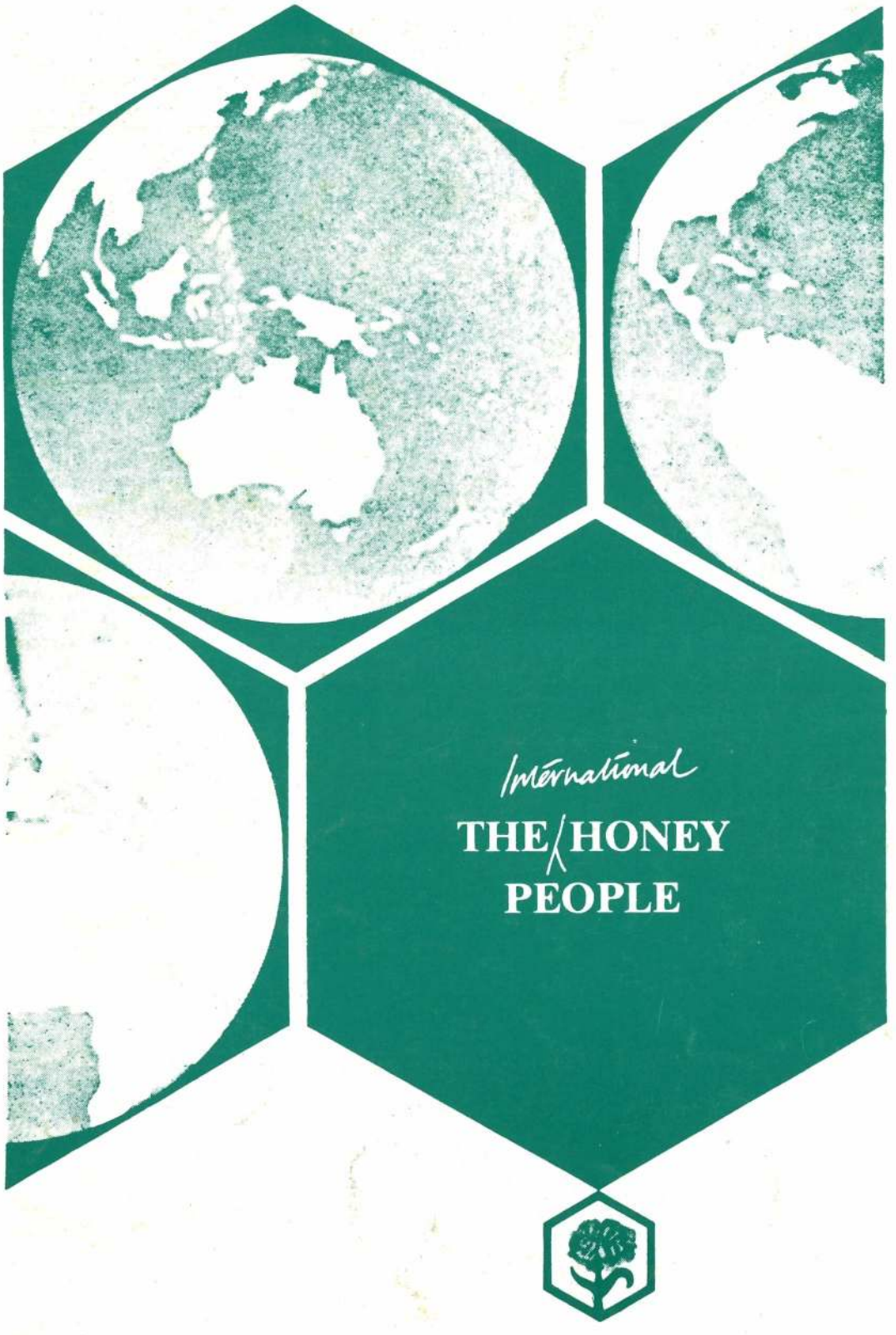

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