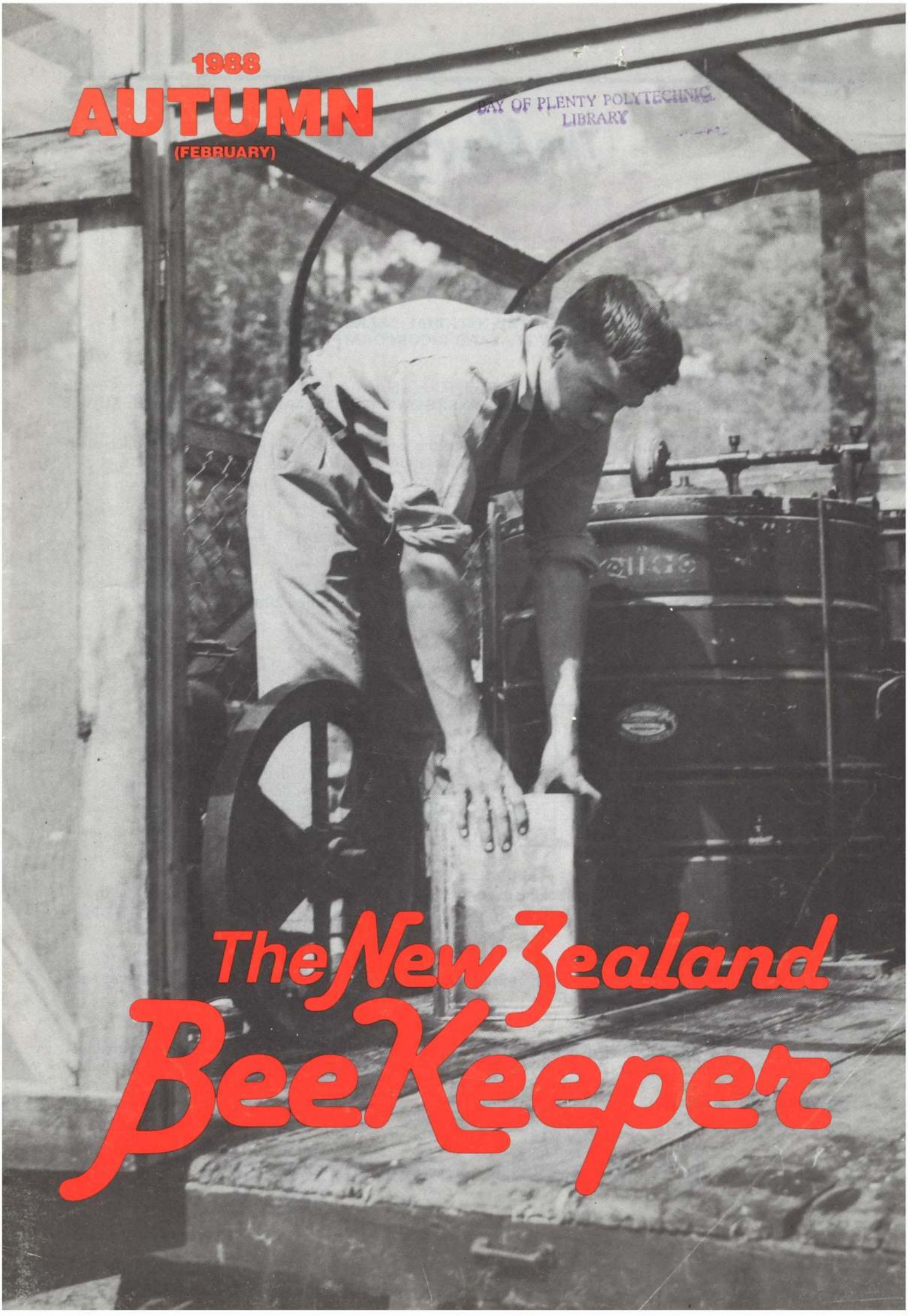

1988
AUTUMN
(FEBRUARY)

The New Zealand BeeKeeper

The New Zealand BeeKeeper

OFFICIAL PUBLICATION OF THE NATIONAL BEEKEEPERS' ASSOCIATION OF NEW ZEALAND INCORPORATED

CIRCULATION, 1,550 . . .
To Members of The National Beekeepers' Association of NZ Inc. who own more than 50 hives each and so are legally subject to the annual hive levy. **THESE HIVE-LEVY PAYERS OWN APPROXIMATELY 87% OF ALL BEEHIVES IN NEW ZEALAND.**

To Beekeepers with less than 50 hives who subscribe to the journal at $22.00 a year (incl. GST) which also includes membership of the National Beekeepers' Association of NZ Inc.

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The New Zealand BeeKeeper

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FOOTROT FLATS.

Diogenes Designs Ltd

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Let's keep our doorstep clean

The NBA has recently received an interesting letter from Vienna .... in German, so don't request a copy unless you speak the language. The essence of this letter is that although Austria in particular and Europe in general has honey to burn, what it does not have is what the writer describes as pure, untainted honey.

Apparently a good market exists for honey from bees which range over territory unpoluted by pesticides and where the bees are not fed sugar in winter but subsist on pure, unadulterated honey. In my last editorial, The Carriage Trade, I noted that we must find fresh products for markets glutted with our traditional exports.

This letter from Vienna indicates that we may find such a market in Europe, if not immediately then in the middle or long term, provided we maintain our environment. But we must work at this maintenance, not let it slip until it becomes too late as it is obviously too late for other parts of the world. Europe would like to restore its environment but it is overpopulated and is probably, I suspect, now destined to exist on the chemical base already poisoning fish in its rivers and daily destroying acres of forest. For how long nature will tolerate this is, of course, anyone's guess.

Man is a consistantly stupid animal. Because he has a hundred or so years of history in a laboratory he thinks himself qualified to muck nature about. He forgets the aeons of trial and error which have erradicated natural inperfections. If the cow did not defecate on the grass, fertilise it, to produce fresh growth for the cow to eat, both cow and grass would doubtless no longer exist. Instead, man in his conceit declares this, that, and the other noxious because it does not suit his immediate book either practically or morally. He peers into microscopes, surveys, researchers, pontificates, and generally holds his mouth right, or so he thinks. It's probably too late for Europe — and many other parts of the world — to learn, rectify matters, it simply means we must not let our standards slip but maintain our pollution free environment and we can cash in on mistakes made by others. Think about it.

Michael Burgess
Editor

New tyre sealant for instant repair

Punctures up to 7mm wide can now be plugged with a new tyre sealant. It acts as soon as the tyre is pierced and leaves a permanent and legal repair. Cost for a typical tractor front tyre is £4.90 and for a trailer tyre is £9.80.

HONEY HARD SAUCE

Cream ⅓ cup butter and beat in gradually ¾ cup honey. Add 1 teaspoon lemon juice. Chill.

LETTERS

Dear Sir,

I am trying to contact whoever is the agent for "Ross Rounds" comb honey system. It was once handled by Curtis Wicht of P.O. Box 280, Auckland. From my persual of back numbers I don't think the system was ever advertised in the New Zealand Beekeeper, but I wonder if anyone, particularly members of the Executive, might know of this system and where it may be bought.

I have made inquiries locally, from Ceracell Products, and from Pender Beekeeping supplies, Australia, but have as yet heard nothing.

Any information anyone can find for me will be greatly appreciated.

P. B. Thomson
4 Forth St
Timaru

Dear Sir,

I am 17 and would like to work in an apiary in New Zealand. I have already worked for Mr Gary Jeffery at his Mountain Beech Apiary and have a few years' experience with queen breeding. For details about my experience please ask Mr Jeffery, Mountain Beech Apiary, 3 R.D. Loburn. Telephone (0502 28)745.

M.K. Shankar
P.O. Box 8160, Nalasi,
Suva, Fiji

Dear Sir,

The staff of the Pyramid Valley Organic Beefarm wwish to praise and thank you for the presentation of our article "Wasps in a State of Balance" published in N.Z. Beekeeper, Winter '87.

We thought your editorial "you can't have it both ways" was brilliant. Cheers for your excellent work.

We enclosed "Broom is not Noxious (It's a Saviour)", sparked off after reading the article "Biological control of Broom," in the last issue of NZ Beekeeper.

It makes us sick the Kiwi attitude of the persecution of broom and all other much needed healing — flowering plants.

We think the animal farmers have got away with the persecution long enough and it's time for the Beekeepers of NZ to stand up and voice their feelings on the Noxious Plants Act and abolish these laws, which were made by the animal farmers who are destroying these islands fast, for money.

We can't express how angry we feel about the proposed introduction of more broom predators as eventually they will arrive here on this natural bee farms' much loved and mduch needed stands of broom (beyond our control).

The staff here wish to invite you and your family to visit this bee farm any time you come to the South Island, you are welcome to stay. It is about 50 miles north of Christchurch, seven miles west of Waikari and we look forward to seeing you some time.

We hope you and all the family are well.

Surrey, Ben, Chas.

Dear Sir,

As a beekeeper running 25-30 hives I find myself with the following problems, which I haven't been able to find an answer for in any of the textbooks.

1. Could someone give me more information about the starting and running of top's in conjunction with spring requeening from queen cells. Especially as it relates to Canterbury conditions and in some detail please.
2. As none of the books deal in detail with hive management after the honeyflow, could somebody please give me some ideas on the following. As I have two apairies in two different areas a. in a light land short honey flow situation and b. in a heavy land longer-term flow area.

In particular with population control by curtailing brood rearing to coincide with the end of the honey flow eg. cramping queens on to foundation or locking them up in queen cages. It may be a bit radical to some but I would like to hear from anyone who has practised it in a dearth period after the flow.

3. I would like some contacts from people willing to lend or contract gear or services for the following (in the Christchurch or surrounding area). a. Comb removal, wax rendering and frame cleaning b. Honey extraction and packaging in to own bulk containers or purchasing a percentage of crop.

The above is for between 20-40 supers per year as I am trying to have a four to five year comb rotation, as I find much better brood laying in white comb compared to dark comb. The above can be for a fee or exchange of products.

Could all you commercial guys please write some detailed articles on new management technics for the whole season.

Roger Orchard
7 Heihei Rd,
Christchurch 4

Bee alarms

Scientists in Britain are looking at biological ways of manipulating the behaviour of bees to ensure that they are nowhere near a crop when it is being treated with a pesticide.

Bees have some powerful alarm pheromones which act as repellants; one is contained in the sting gland and another in the mouth parts. Scientists at Rothamsted research station, north of London, have found that these natural "switch off" chemicals can repel other foraging bees.

Field tests showed promise with an 80% reduction in foraging in the crop for 30 minutes after the pheromone was released. Over 20 alarm pheromones from the sting have been analysed, and some are more powerful than others.

Eventually it is hoped to be able to copy nature and produce man made versions of the naturally occurring repellant and attractant pheromones.

ATTENTION!!
Conference '88
NOTE YOUR DIARY NOW
Venue: Airways Motor Inn
AUCKLAND
Date: Tues & Wed 12-13 July
Enquires To:
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Market Rd
Auckland

Do we need new beestocks?

By Don Gibbons

I am sure longer-toothed beekeepers are reminded of some of our more talented orators, able by emotion or sheer verbal volume to sway Conference in the past-not always to the benefit of the Industry as a whole, I suspect.

We of the NZQBPA cannot boast such linguistic expertise so we must rely on cold, hard facts to make our points.

First, congratulations, Harry, on your continued and successful efforts to improve your Italian stock. I agree we would gain little or nothing by importing new Italians. However, one thing successful specialist queen breeders have learned is that another beekeeper's specially-recommended queen may not have solely desirable characteristics for you. To avoid the mistakes you outline, Harry, we breed a few queens only initially. They are tested as daughters for their suitability, or otherwise, **before** being used for serious queen production. Knowing what we want — and recognising what we don't — we can discard a failure before it affects the quality of queens produced for sale.

Believe it or not some queen breeders have travelled far in the course of their market research. Consequently the Carniolan proposal arrived at Conference **only** after we had examined every possible effect — good, bad, and indifferent — that their introduction might have on the New Zealand scene.

Harry, you have developed your queens despite the stocks from neighbouring beekeepers and no doubt despite the feral colonies that have existed from time to time in your vicinity. And I think you will agree that the results of mating of virgins with Carniolan drones can be seen much more readily than those of virgins with a foreign Italian drone.

A guy names Isaac Hopkins (I suspect you might have heard of him) introduced Carniolans to New Zealand many years ago. They were not apparently successful. Had they been we might now have had Carniolans as our predominant strain rather than Italians. I, for one, have no doubt that I can continue to produce Italian queens without the dangers you suggest. In the North **anyway** aggresive ferel bees exist yet we do produce large numbers of Italian queens in the same area.

I am sure that any queen breeder in Northland will willingly supply you, Harry, or any other interested beekeeper with a sample of a ferel bee so that you, he, or she may ascertain the level of Italian influence.

Finally I can not stress too strongly that there is no suggestion that queen breeders will attempt to push Carnolians on to New Zealand beekeepers, but we must not close our eyes to any potential export market nor to maximum customer satisfaction.

The Carniolan proposal will not destroy our industry or even harm it. It will, however, if implemented, widen our range of exports by helping satisfy some of the needs of the troubled Canadian beekeepers.

Broom is not noxious; it is a saviour

From the Pyramid Valley Bee Farm

It is obvious that the Noxious Plant Council, MAF, and the Commission For The Environment seem bent on the destruction of the NZ environment with the release in 1986 of the broom seed-eating insect *Bruchidius Villosus* and the proposed introduction of more broom seed and foliage eating insects.

They fail apparently to understand just how vital broom is for healing overgrazed, overburnt, and totally mismanaged eroded hill and high country.

These islands are being ravaged by mass overgrazing, burning, and chemical usage. The riverbeds are already full with shingles and/or clays . . . isn't this enough?

Broom's place in the environmental web is to **STOP EROSION** and it is good at it. So why the persecution: be it chemical, fire, biological, machine, or otherwise? Doesn't the Government and MAF care about the massive erosion problems?

Where broom is found colonizing hillsides, river terraces, or wherever, it is either healing or preventing erosion by:

(1) Stopping topsoils, clays, shingles and rock from disappearing down the waterways.

(2) Feeding poor, eroded hillsides with nitrogen.

(3) Providing a nurse environment for native and/or exotic trees, wild or managed, or

(4) Conserving water.

There is nothing noxious or aggressive about broom. It is a beautiful soft plant and can be walked through without a scratch, it provides shelter for young trees, also providing them with compost when cropped. Most important of all for the bees and beekeepers, it provides the bees with abundant pollen to make healthy brood for the vital two-month spring build up. For many apiary sites broom is the only pollen source.

As environmental bee farmers we know the introduction of more broom predators will be another major blow against us, the beekeeping industry, AND the environment. Already in two years the impact of *B. Villosus* is evident in broom colonizing unstable steep hillsides in Canterbury, making more erosion inevitable.

The persecution of broom, by greedy animal farmers who want more grazing on already overgrazed, overburnt eroded hill and high country waterways, backed by the irresponsible Government action of releasing broom predators, **IS DESTROYING THE ENVIRONMENT OF THESE BEAUTIFUL ISLANDS FAST . . .**

BROOM IS NOT NOXIOUS, ONLY THE PEOPLE WHO PERSECUTE IT ARE!

The Pyramid Valley Organic Bee Farm.

Hot headed for Hamilton

By George Nichols

I kept four colonies of bees in MD hives in a suburban London back garden. On a nice sunny afternoon with my neighbours busily gardening I dropped a frame of bees. Gardening stopped. Later that day my neighbours came and moaned in a body. Loud and long and bitterly did they moan.

New Zealand seemed less densely populated so next year it gained five citizens: me, wife, and three children. I met Trevor Palmer-Jones doing bee research in Wallaceville and he suggested I should go to Hamilton where Roy Paterson and Alf Bennett were "a couple of live-wire beekeepers." The live-wires fixed me up with a research job at Ruakura research centre and later on found me 32 bee hives for sale.

My small trailer took eight hives at a time. Off I went with baby Austin and trailer to negotiate. The owner of the hives was a little difficult. He had had meningitis and the overdose of antibiotics given him had made him totally deaf. He helped me load the first eight hives, grumbled at the second eight, got a bit nasty at the third, and refused point blank to help with the final lot. The trouble with me is that I suffer from duck's disease: bottom too near the ground. Hence trailers tend to be rather high. I put a rope round my neck (don't get me wrong) and looped the other end under the floorboard. With an appropriate grunt I managed to lift a hive.

Not let me set the scene. The hives were in a small paddock which contained 30 jersey calves and a dog in a kennel. The dog was tethered to a 30 metre length of No.8 wire to give him a bit of mobility. The poor devil needed it. I loaded seven hives using my loop of rope and then came number eight, It was heavy, I was tired, hot and sweaty and the rope broke. Bees covered me from head to foot and I looked like a grizzly bear. Bees inside my veil and shirt. I repaired the rope, put the hive back together and heaved it onto the trailer. By then the calves were making a rapid circular tour of the paddock, heads up, tails up, heads up, tails up. The dog took off for a 30-metre run shouting: "I'm in a hurry." Hit the end stop, reversed and came rushing back to his kennel still shouting "I'm in a hurry." Bees in his kennel so out he comes again.

I took off in a slime of mashed bees, got about a kilometre away and crawled into a ditch under a barberry hedge to debee (no, I didn't have a drink). Far in the distance I could hear the dog still in a hurry. I sat in the ditch until I could once again open my eyes, crawled into the car and eventually arrived back in Hamilton. My wife gave me a cup of tea, helped me remove the dried out stings, gave me a meal and put some life back in me. I was dreading unloading the hives but the journey had taken the fight out of the bees and there was no further trouble.

George Nichols

Library News

Please enter the following into your catalogue:

MAF. RECENT COMMUNICATIONS POLLINATION RESEARCH AND DEVELOPMENTS. collected 1985, papers by several authors on crop pollination. 89p.

DSIR Entemology Division. ANNUAL REPORT 1984/1985. 1986, 115p. NZ.

COMMERCIAL POLLINATION SERVICES ASSOCIATION (Inc.) CONSTITUTION and RULES.

DIVERSIFY: The buzz word of the day

By Lin McKenzie

Diversification, that's the thing! Who remembers Angus McGlurkin and his three-tier hedgehog farm? We've got a farmer and a butcher down here taking tourists fishing. We've got cockies all over the country into goats, llamas, tourists, deer, possums and high-fashion woollen garments; garages selling groceries; banks into usury, and the local pub doing better than Reuters and the NZPA combined!

We have the Social Welfare Department as the rising star in the growth industries with impressive assistance from the state-owned enterprises. I'm not too sure where MAF figure in all this or even where it went.

What are the beekeepers doing to diversify? Well, we've got high-moisture honey, comb honey, fruit and honey combinations, tourist traps, pollination, queen rearing, package exports, help the supermarkets get richer by cutting the price campaigns, while we teach more beekeepers so there will be even more excess honey sloshing around in the system. Drums might be short this year so I may be able to pick up a few bucks by tipping out all the unsold honey in our yard and flogging off the drums. And then we might turn up on the Christchurch scene with a few tonnes of wax-impregnated kindling wood. And of course you can always write for The Beekeeper!

We have for the last couple of years been working on another diversification. The project had its birth a couple of years ago when we were still wintering down in July. It gets a little coolish down here for a few days around that time of year! My smoker had been standing in the shade of a hive in the snow and I noticed the plume of smoke was standing very still and when I threw it on the back of the runabout it broke off. Being a bit slow I was five miles down the road before I realised the smoke had frozen! What possibilities opened up before me. When shifting hives a lump of frozen smoke on the flight board slowly thaws out on the trip, wafts gently into the hive keeping the bees quiet: no swirling mass of bees when unloading, no hassle with dropped matches in the dark. The kiwifruit boys will go a bomb on this. We are now through most of the development problems, and there have been a few. The Health Department Regulations caused most. Not a food item, you see, so you can't use food grade equipment. No stainless steel was allowed, a non-nonimpervious floor and walls that could not be wiped clean were required and the water used to put out the odd fire that got away on us when we were generating smoke had to be carted in from a duck pond five kilometres down the road because the local town water scheme had just been upgraded to Health Department specifications. And a blast freezer rebuilt so it is unfit to handle food lines and therefore can be used to freeze smoke cost an arm and a leg.

We have delayed coming on the market until after this years pollination season so we would not be killed in the rush but are now ready to roll.

DSIR declares war on wasps

The Department of Scientific and Industrial Research has declared war on wasps.

Wasps have always been regarded as a pest, but the arrival in New Zealand in recent years of a second species, the Common Wasp or Vespula vulgaris, has caused a population explosion which could have serious consequences.

DSIR scientists are so concerned about the dangerous and disruptive effects of wasps that they have introduced a parasite into New Zealand which will feed on wasp nests and hopefully reduce the number of wasps.

This biological control programme is underway in the South Island and will be extended to the North Island if territorial authorities wish to contribute financially to the research.

A scientist at DSIR's Entomology Division at Lincoln, Dr Barry Donovan, who is in charge of the programme, said the traditional methods of controlling wasps using poisons, petrol, or kerosene, were hazardous. Even just locating the wasp nest could be dangerous.

"Poison-baiting has never really worked permanently," he said. "However, the parasites in the biological control programme seek out the wasp nests themselves. Wasps are the only things they live on. They can find even very small wasp nests.

"If the parasites do their job they will provide a permanent long-term, low-cost solution. If it works it will work forever," he said.

Dr Donovan pointed out that biological control was also part of the move toward reducing reliance on chemicals and of providing a more acceptable solution without polluting the environment.

"However there is a risk that the programme may not work," he said. "We cannot guarantee success."

Wasps cause pain and fear. In New Zealand they have killed a seven-year-old girl and have caused allergic reactions which have rendered some people unconscious. They have forced schools to close, campers to leave camping groups, and have frightened away tourists.

Wasps can seriously disrupt business. They have attacked and strung workers in food shops, forests, orchards, vineyards, sawmills and have disrupted work in many of these industries, particularly forestry and sawmilling. They also spoil the fruit of commercial and home orchards.

Dr Donovan said that reports of increasing numbers of wasps in the South Island have caused concern. Wasps have damaged the beekeeping industry and wildlife by eating insects and honeydew which native birds normally feed on.

He said there was no doubt wasps were a problem in New Zealand and were becoming more so with the second species here.

The first to arrive, in the 1940s, was the German wasp: **Vespula Germanica.** It is believed to have landed at Te Rapa, near Hamilton, with aircraft parts flown in during WWII.

The second immigrant, the common Wasp, described as a vigorous coloniser, slipped in, probably at Wellington and Dunedin, a few years ago.

Six nests were discovered in Dunedin in 1983. The nests were six times the size of northern hemisphere nests and produced 23 times as many new queens. Nests are now spread throughout the country. The scientists believe the absence of natural enemies, and the mild climate and abundance of food, such as insects and honey, are fostering a population explosion.

The parasite the DSIR has introduced from Europe is a natural enemy of wasps. It is known to attack both the Common and German wasps, with a preference for the Common. The adult parasite is rather midge-like and resembles many insects already found in New Zealand.

The parasites attack wasp nests only. They lay their eggs in wasps nests and, when the parasites' eggs hatch, the grubs feed upon and kill developing wasps.

Tests have shown that the parasites attack nothing other than wasps. They do not attack humans, bees, or other insects, and they cannot sting.

DSIR's Entomology Division is asking all territorial councils-city, county, and borough councils, as well as beekeeping, forestry, and associated concerns — to contribute to the cost of this biological programme to control wasps.

After successfully releasing parasites in the South Island, the Division would now like to extend its work to the North Island. It proposes to produce a minimum of 50,000 parasite cocoons a year for three years if councils and other interested organisations support the project.

The South Island tests have been encouraging. In less than favourable conditions the parasites attacked three out of six German Wasp nests and six out of seven Common Wasp nests.

Dr Donovan said a significant aspect was that the parasites multiplied in several nests. "Progress during the first 18 months of mass-rearing has been excellent," he said.

DSIR scientists believes that if the project is successful the parasite offers the best long-term, low cost, hope of bringing wasps into a better balance within the New Zealand environment.

The scientists cannot, however, be certain that the parasite will establish itself in all areas or that the wasps will be reduced below nuisance level. At best some wasps and large nests will still exist. They will provide hosts for the continued presence of the parasite. The prolonged life cycle of the parasite suggests that several years may elapse before the success or otherwise of the programme can be judged. The scientists are certain, however, that, if successful it will safeguard people and natural wildlife.

Bee-keeper stole hives from farm

Hawkes Bay Herald Tribune
9 Sept. 1987

A self-employed beekeeper was fined $200 for stealing eight hives from a farm in Middle Rd, Havelock North, by Judge R.M. Elliott in the Hastings District Court yesterday.

Judge Elliott said he was puzzled why someone with access to bees would steal hives.

"You must have had bees in your bonnet," he said.

Stuart Grant Neilson, 23, Terrace Rd, Hastings, stole the hives worth $640 from the property of Mr Steven Keith Leadley.

Lawyer Mr David Porteous said his client did not know why he did it.

"The defendant regretted his actions immediately," he said.

UNCOOKED HONEY FROSTING

1/8 teaspoon salt
1 egg white
1/2 cup honey
1/2 teaspoon flavoring

- Add salt to egg white. Warm honey over hot water. Pour in a thin stream over egg white while beating vigorously. Add flavoring. Continue to beat until thick and fluffy.

Westland

After a brief, fine, hot spell in mid-November the honeyflow began earlier than usual but the weather soon returned to that experienced during early spring. A cool inclement December 'put paid' to any likelihood of a big crop from Kamahi, in spite of its good flowering this year. From reports from other areas in the provinces the Coast kamahi crop is below average.

One bright spot is the appearance of rata, again very early, with trees varying from light to heavy flowering. An unusual flowering, in that some trees, already well up mountain sides, are in bloom while others low down are just starting to show colour. However, rata being rata, given a little summer weather, Westland could yet finish up with a good average crop. There has never been a West Coast beekeeper whose spirits don't rise considerably at the sight of rata in flower. So, with a depressed market and reports of very low prices for honey, a little rata may give a much-needed shot in the arm. If you have to face a problem it's probably better to face it with a full stomach rather than an empty one .... likewise, full drums rather than empty.

Chalk brood has been reported in one area and appears to be on the spread as other beekeepers are reporting 'finds'. It appears initially at least, that chalk brood has a significant economic effect because some hives have up to half their brood infected. Some branch members think that a more thorough inspection and quarantine of apiaries in the north could well have presented the spread to the South Island.

The whole aspect of hive inspection is causing concern to the Westland Branch, with the dropping of that responsibility by MAF to all intents and purposes, we haven't seen hive inspection down here for quite a while. It seems they are not even prepared to give authority to the Branch to carry out an inspection programme, for we have been seeking that authority for some time without success. Could it be that MAF want to see the colour of our money and an assurance of a job for themselves rather than giving beekeepers the right to inspect for this so-called 'beekeepers' disease'? When you sum everything up the incentive to beekeep is not only dampened by the weather but killed by bungling bureaucrats. Thanks for the first gripe of 1988.

Sandy Richardson

Poverty Bay

After a mild winter, expectations were typically high for a bountiful season on the Sunrise Coast. Torrential rain over the kiwifruit pollination season soon shattered those dreams. On a dreary Monday morning, an over abundance of utilities at the local sugar wholesalers' indicated the panic button had been hit. Kiwifruit blocks with good males should have sufficient pollination but it was definately a patchy period. Hives are limping on lowland sites while high country ones have collected a little more light grade honey, to date.

We had a visit from Andrew Mathieson introducing himself to the area. It is concerning how fast MAF may be willing to drop disease surveillance from their services with the privitisation angle. We might well have to consider team inspection days to protect ourselves.

One of our more sociable members co-ordinated his pollination from a hospital bed with a cracked pelvis. In the depths of a night he had made an unsuccessful attempt to dislodge a bridge. His recovery had to be seen to be believed.

Noel Craft

Hawkes Bay

Our branch notebook is just the opposite to what it was a couple of months ago, an almost empty page. After predictions of an above average honey crop the general opinion from around "The Bay" so far is that it is "a bit patchy."

The highlight of the last few weeks was undoubtedly the Dine and Dance Christmas Party, a reasonably good attendance by members a delightful meal, and a fantastic band meant a fabulous time by all; even those who jumped into the pool for a midnight swim had nothing but praise for it all.

The kiwifruit pollination came and went with no problems that we heard of, but now the comparatively new venture of squash pollination is an added project for the pollination group.

Our next branch meeting is on February 9 at the Community College and our guest speaker is Mr Alan Berry who will talk about beekeepers accounting systems and financial matters.

The one sad note from the Branch is the news of the sudden and untimely passing of Mr John McFadzien early last November. A life member of the association he was, at the time of his death, our honorary auditor and had been for longer than any of our present members can remember.

Gordon Sutton

Nelson

It is too early to predict a useful honey harvest: a lot must happen yet. These hot, westerly winds are certainly drying up the mud along with pastures and clover paddocks.

Swarm control seemed harder this year for some strange reason. Some of us thought we had a pretty good system going, but that was this year shot down in flames.

At the moment this is the hottest of many years on the Waimea Plains. Other areas around Nelson might not have been as hot although their temperatures have been reasonable.

The local hobby horse-kiwifruit pollination-has been shocking this year. I wonder if the weather holds the secret? We've had about two suitable days only. Some growers report a very patchy job. Many bees came out of the gardens in a very poor condition — and these from hives of reputable apiarists, so goodness only knows how colonies of lesser quality fared.

In spite of higher temperatures I have seen very few wasps. That leaves me to believe that the frequent rains have given the started nests an untimely bath.

In a previous issue of The Beekeeper I mentioned the possibility of trapping wasps in the way we used to trap blowflies. No one has asked me about these traps so I assume everyone knows the principle and will have traps out in force the moment the wasps show up in numbers.

As the price of honey is now on bedrock this is a likely year for a good crop everywhere. What a rip off we see this price is when we learn how much honey is fetching overseas!

Ron Stratford

Northland

It rained most of spring and early summer but stopped on Boxing Day. The landrover created two deep drains in the farmers' paddocks and they had to be filled in with heavy gumboot work. There was great interest at Waiwhatawhata marae, "What was the old kvia doing, stamping up and down in the middle of a paddock?" The rain spoiled the manuka flow.

Now, with the damp soil, all the pasture plants are blooming.

Our farmers' crops of blackberries, ragwort, and thistles are a joy to see. Penny royal looks healthy.

We are very sad about the low prices for honey and wax. Will the low price of honey be passed on to the consumer? Will our foundation be cheap this year?

George Nichols

Waikato

Our hives came through the winter in very good order and for a start little feeding was needed. However unpleasant weather during October made regular feeding necessary and late November, some areas still required feeding. Willow and barberry where available helped build-up and some unsprayed flat country produced some supers of buttercup honey.

Queen raising was a worry with many young queens confined to barracks by bad weather. We began to wonder if they would ever get out and mate but eventually the weather improved enough for them to mate and start laying.

Clover was very slow appearing in the pastures; it showed first on the rolling country just before Christmas and late December/early January on the flat country.

Up until January 3/4 the weather was against honey production. The improvement at that time saw the flow start but there is not much chance of a big crop as we have strong westerly winds which will dry pastures out very quickly.

Our Branch held an afternoon meeting on Friday October 16 to discuss the many problems facing the industry. Members are greatly troubled about the large amount of honey held at the premises of producers and packers for which there appears little market. Those who attended this meeting were dismayed to hear their honey was currently worth from 80 cents to $1.00 per kilo.

I made the point at that meeting that most years the bulk of honey crop is sold in NZ, a market which is reasonably stable in quantity and price. Many packers sell only on their local market and there should be no need for them to drop the payout to their suppliers.

Are packers going to start a price war which will see the price to NZ consumers drop an alarming 40 to 50%; a war which some of them may not survive? This would be disastrous.

The NZ honey industry has always had too many packers and the payout to producers has been reflected from this over competition. New beekeepers come on the scene and before long they enter the fray undercutting others to get into the market place. Averaging out good and poor years and we remain a cottage industry!

Many took advantage of the Kiwifruit pollination for a better income and have done very well but with the payout to Kiwifruit growers down to $6.50 to $7.00 per tray which is about the cost of production, it may not be long before growers look to beekeepers to lower the price of pollination hives.

An oversupply of honey on world markets I can accept but I hope the payout to beekeeper-producers will be much better than a dollar a kilogram.

The other problem causing concern is the increase of BL disease. Auckland area has had to destroy over 1,000 hives and in my own area many cases have turned up: an area free for 15 or more years.

I find myself wondering how the industry and MAF are going to face this increasing problem.

Ray Robinson

North Otago

A lot of wind and rain September to early November kept our enthusiasm pretty low as hives were full of brood and bees were low on tucker.

Willow flow was nil due to high winds. More rain at the end of November brightened things up. Plenty of grass to keep ahead of the sheep but persistent cold showers and dull days over Christmas gave the sheep a chance to catch up and the season looks like a pretty average one. However, we never know until it's in the tank.

G.R. McCallum

Marlborough

Summer has been kind and we expect a little above average crop. The concept of a crop coming in January means a good crop is being proved correct. All of November and December the weather mucked about not warming for more than a day or so but rain kept the soil moist. Good for the fire danger if or when it does dry out.

Organisation for our Lake Roto-iti weekend from January 29-31 is well underway with 40 of the 80 beds booked. The programme looks interesting with Dr Denis Anderson, accompanied by the overseas bee geneticist, to fill some of our time slots. Examination of a wasp nest with Dr Henrik Moller is also on the agenda. Mead making and sampling sounds a good way to spend a Saturday night and hopefully the marketing boys can add some cheering news.

James Jenkins

Otago

November and December weather has been very so-so. Well below average sunshine hours and a lot of chilly weather. Christmas was a rough break. The first day of 1988 brought some improvement but it is still very unsettled and beekeepers' nails are getting bitten to the quick. The few good days we had before Christmas at least spared us the need to go back to the sugar bag.

Paddocks in general show a little clover flower; it could come yet. And that is all at present. Hope to be able to report an above-expectation crop in the next issue.

John Heineman

Oh Dear — seems the NZBK is not the only one to cop flack, as this letter to "The Editor" of Gleanings indicates.

"In the heat of the moment

Being a rainy old day, I was glad to see the June issue of Gleanings with the beautiful cover in the mail.

But when I opened it to *The Inner Cover* I was sorry to see "damn" and "Hell" used so recklessly.

This is the first time I've seen such language in any bee magazine. While I know it is commonly used on TV now, it is not proper to use in a magazine like yours. Please do not demean *Gleanings* with language like this. **"**

AVOCADO PEAR SALAD

• Combine equal parts of honey and lemon juice. Beat well and serve over slices of avocado pear and sections of grapefruit on crisp lettuce. Garnish with berries. Suggestion: A dash of paprika or chopped parsley may be added if desired.

The central bee research institute, India

Beekeeping on modern, scientific lines was introduced into India a little over three decades ago. Bee research in India is even more recent in origin. A small beginning in bee research was made at Mahabaleshwar (Maharashtra State) when the Bombay Village Industries Committee established an Apicultural Research Laboratory in 1954. The scope of work of this laboratory was then restricted to parts of the Western Ghats of Maharashtra. Encouraged by the results achieved at the Apicultural Research Laboratory and realising the need to expand the scope of this type of work to cover the entire country, the Khadi and Village Industries Commission, a Statutory Body of the Government of India, decided to establish an Institute for bee research. Thus the Central Bee Research Institute was established in Pune on 1 November 1962. The basic **objectives** of this Institute are (1) Improving the productive efficiency of the Indian honeybees through improvement in (a) bee forage, (b) bee management and (c) bee breed. (2) Standardisation of bee-keeping equipment. (3) Quality control of bee products. (4) Assessment of utility of honeybees as pollinators. (5) Organisation of graded training courses at all levels and specialised training courses.

The Central Bee Research Institute established fifteen Field Observation Stations and experimental apiaries in different parts of the country. During the past 24 years, the Institute made rapid progress in fulfilling its objectives and earned national status and international recognition.

Among the Institute's **achievements** are the evaluation of over 3,000 flowering plants for their utility to honeybees, building up a permanent reference of pollen slides of these plants, standardisation of beekeeping equipments, standardisation of bee breeding techniques and evolving improved strain of honeybees, identification, control and prevention of bee diseases and pests, processing and quality control of honey and other bee products, introduction and propagation of bee plants and assessment of utility of honeybees as pollinators in oilseed, pulse, vegetable and fruit crops.

The Institute is the only centre in India giving training from beekeepers' level to the post-graduate level. Specialised courses in management of colonies for pollination, queen rearing, quality control, and processing of honey and wax etc., are also periodically arranged. The Institute is recognised as a post-graduate centre for conducting apicultural research by the University of Poona. The Institute has been regularly training candidates from tropical developing countries. The Institute has a specialised and unique collection of books, reprints of papers, photographs, journals etc., on bees and beekeeping, and is the only one of its kind in the country and in Asia. It is recognised as a branch library of the International Bee Research Association and serves its members in Tropical Asia.

The Institute has **departments** of (1) Botany (2) Palynology (3) Apiculture (4) Entomology (5) Pathology (6) Breeding (7) Bio-chemistry (8) Pollination (9) Training (10) Library and (11) Administration. All these departments are housed in a functionally-designed building of its own with a garden containing several bee plants of India.

Action

By John Heineman

With the Beekeeper appearing a month earlier now a little adjustment is needed when compiling these notes. A month makes a fair difference to our bee-work calendar. It is really an advantage as it gives us more time to put our PLANNING into ACTION.

A thought which crosses my mind: how fortunate our category of beekeeper is at present not to have to worry about the weather and market trends. Disappointing it may be if you did not get those supers filled, and as for honey prices they are of little concern to you. Financially you will manage just the same. Very different for those who have to earn a living keeping bees.

Your crop may have failed. Don't let it discourage you. Look forward to next season. And now is the time to prepare for it.

Presuming that whatever surplus honey your hives have produced has now been taken off and extracted, or the comb honey been cleaned up and stored for your enjoyment, have you given thought to some practical PR? A bit of honey passed on to your neighbours or the owner of the land where you have your apiary site is a very practical way to keep the peace or show your appreciation.

What must be done from now on and before winter arrives again? As suggested in the last issue of this magazine, autumn is a good time for requeening. It has a number of advantages.

1. Hives are usually strong. The colony does not suffer from a set-back this time of the year when the unavoidable break in the brood rearing does occur. It takes the bees perhaps up to a week to release the new queen and one has to count on probably a period of 10 days before the new queen is properly under way.
2. A young vigourous queen helps the colony through the winter in good shape.
3. There is little risk that this young queen will pack up during the winter. A far greater number of hives headed by old queens (two years plus) will cop it. They may die halfway through the winter and you finish up with a dead colony, or when you open up for the first spring inspection you find a drone layer, cells with multiple eggs, or just a poor old ragged and good-for-nothing queen wandering around.
4. Young queens introduced in autumn are still young next spring. They build up well (given enough food and reasonable conditions) and generally cause little swarming.

Of course there are a few disadvantages in autumn requeening. There are a lot of unemployed older field bees about, making it more difficult to find the old queen. Bees are usually more aggressive in autumn. Also robbing is a greater problem. And wasps may be about. All this could become somewhat too tough for your skin and nerves.

However work away quietly and things will fall into place. Make sure you are well organised before starting on the job. No delays with hives exposed any longer than strictly needed. And there is always the system of requeening a hive without the need to find the old queen first. Make a nuc on top as discussed in the Summer 1986 issue page 20.

All in all the advantages outweigh the disadvantages in my opinion. Then there is the importance of insurance against winter loss. For no matter what we do and how well we manage a colony, for one reason or another it may still die out between now and Aug./Sept. So a nuc wintered on top of a parent colony is just as important as the spare tyre in the boot of your car. If not needed it can be used to increase your stock or you can try to run a two-queen colony next year. (More about that next time).

Of course there is a place and necessity for spring re-queening if it is what you want. That's fine! It may suit you, especially if you are fortunate enough to be living in an area with a dependable spring honey flow. But don't forget to order your queens **now.** If you wait till September with ordering you may not get them till late November.

Extracting has been done and now you are confronted with the STORAGE of COMBS and SUPERS. Store them wet or dry? Lots of beekeepers store their combs wet but if you have a small number of colonies it may be more convenient to let the bees dry out the extracted combs before storage. Wet combs must be stored in bee-proof surroundings because of robbing. If you depend on your garage or garden shed for space you would finish up with a cloud of bees making it unpleasant for everyone around and run the risk of disease spreading if it were present.

Drying out should be done by one or two hives. Make sure robbers cannot get into gaps and cracks or under the lids. Once finished (a few days) they can be removed, any bees adhering shaken off in front of the hive. Or you can place them over an escape board overnight. Then place the next lot of wet combs on the hive(s) till the job is done.

Store the dried out combs in the supers after sorting them over. Make three lots. Cull outs; good, suitable for brood; not-so-good, but still OK for extracting. The not-so-goods may have patches of drone comb or other imperfections but are too good for scrapping. The supers go into tiers of course. In many areas wax moth can be a factor you must take into account. There are greater and lesser wax moths. The first occurs in the warmer parts of the country and can cause a great deal of damage in a very short time. The second, smaller one, is found throughout the country but is usually slower off the mark and takes longer to play havoc with the combs. If a problem invest in a tin of PDB (paradichlorobenzine) available from bee-equipment outlets. Place some newspaper on top of each super and put a tablespoon of crystals on it. The gas generated is heavier than air so it sinks. Cover top of the tier. Rodents too can do a great deal of damage if they set up house amongst the combs. Beware! The PDB treatment may need to be repeated for it does not kill the eggs of the moth. When the eggs hatch this could start the cycle again.

We are all familiar with poison or bait traps to combat mice and rats.

Then there is that amount of CAPPINGS to deal with if you do not have the use of some kind of capping reducer. Few small operators will have a reducer. You have a heap of wax particles mixed with a considerable amount of honey. The simplest way to rescue most of the honey is to make a muslin bag and shovel the mixture into it. Then hang it up in a **warm** and **bee-proof** place to drain over a large enough basin. The honey which leaks into the basin is fine for eating as it is the same as you extracted and has not been exposed to excessive heat.

The next step is to give the drained cappings to the bees so they may remove the last of the honey. Again use only one or two hives for this job. Perhaps the same ones you used for drying the combs.

Make use of two supers or boxes made to the same measurements. Box one receives a bottom and double inner ends with a gap between the ends for the bees to pass through. This is your drawer to receive the dry cappings falling from box two on top. Box two should have a bottom of fine bird netting. The drained cappings are deposited into box two. The bees will soon come up from below to work the cappings and will take any honey they extract to supplement their stores. The dry cappings will fall through the netting into the drawer box two. It is advisable to stir up the sticky cappings after a while to help the bees in their endeavours. It is amazing how fast a strong colony will deal with a box of wet cappings.

When finished simply shake out the dried cappings from box one and store in a plastic bag which can be tied to make it bee and moth proof. But when making this simple equipment please make it accurately for robbers will find any gaps and there will be hell to pay besides the risk of spreading FB (BL). It will also be preferable to place the cappings out towards evening for obvious reasons.

This capping wax is usually first grade. You will also have a few scrapings from the hives gathered during the season and by now will have those few cull-combs. It is all wax and at least very suitable for conversion to foundation. If your lot on its own is too small to send to the factory economically why not band together with some others in the same position? Cooperation pays. You cannot expect to receive the same weight of foundation as you send in. There is some waste, especially in old combs. But trying to press the wax efficiently is messy and very wasteful if one has not the right equipment. If you have more wax than needed for foundation it may help pay for freight and conversion costs.

March/April is the time to seriously think about WINTERING DOWN your colonies. First check:

1. Bacillus larvae (foul brood). Again? Yes, certainly, for it is the NZ Beekeeper's enemy No. One and is always round the corner. If you find anything suspicious but are not sure please forget about false pride and ask someone with more experience: apiary advisory officer, part-time inspector, other beekeeper. It is in your own and your neighbour-beekeeper's interest. Don't play around with anything you are not sure of.
2. Is the Queen OK to face the winter? If you are so unfortunate that she shows signs of packing it in at this time of the year, and you have not a laying queen to replace her, unite the colony with another or with a nuclei. A failing queen going into the winter means a dead hive in the spring. Probably with mouth eaten or wax moth riddled combs while the stores are robbed out.
3. The all-important factor of adequate WINTER STORES. How much? As a rule of thumb if you winter your hives in two full-depth supers have one full super of honey to see them through into September. Some honey in the outside combs in the bottom super gives an extra margin, So much the better. But there should be some empty combs for the bees to cluster on. If you have a safe source of feed honey supplement it with as many combs as needed but do not remove good pollen combs. They are also needed.

You may have to turn to the sugar bag to supplement stores because a. the season has been very poor and you have no feed combs, b. or your own greed at harvesting, c. excessive autumn breeding or d. the colony was too weak during the honey flow. Whatever the reason you have to make up the shortfall by feeding. Some beekeepers feed dry sugar, personally I prefer a strong syrup. A 1 grade sugar is proba-

bly the best to use but raw sugar has proved to be satisfactory. Mixture at this time of the year should be two of sugar to one of water (by weight, not volume). That is two kg. sugar to one litre of water. Use hot water: it makes dissolving easier. Stir until sugar grains have disappeared. Don't feed out hot syrup. Let is cool first.

Quantity required per hive of course depends on how much feed is already stored. To make up for a good comb of honey probably 2½kg. of sugar (dry weight) is required. A certain amount of the syrup fed is immediately used by the bees as they have to expand energy in handling syrup. Shifting from feeder to comb, reducing moisture, fanning out excess moisture, all means work.

Nuclei wintered on top of parent colonies have smaller populations and need less to get through. Three good combs will see them right but an early spring check is needed for them.

Syrup feeding requires the use of some kind of feeder. Feeding small amounts at the time is not the best for autumn. That induces breeding. Get the required quantity into the hive as quickly as possible. For a full-sized colony a top feeder is the best. A very simple one can be made from a worn out super cut down to about 125 to 150 mm Two slots cut into the bottom edge will hold bars 10 mm thick by 20 mm wide. The bars should be the length of the feeder. On the bars rest two open egg powder tins or two half four gallon tins (a bit of squeezing) or cut open plastic drench containers. Use whatever you can lay your hands on.

We like to dip the tins in hot parrafin wax and, while still hot, shake sawdust or sand over them, That gives the bees a rough surface to climb on. Flotation is required to avoid drowning. Wood chips, bracken, pine needles are fine. Avoid straw, this can turn sour because the bees cannot remove syrup from the hollow stems.

You may also use an inner core (hardboard), an empty super, and one or two large coffee or preserving jars, friction lid tins, or even plastic two kg. honey pots with tight fitting lids. Cut one or two holes into the hardboard slightly smaller than the circumference of the lids of the containers you will use. Perforate the lids with a frame nail (say 20-25 holes). Cover over the top super, empty super on this, jar or tin filled with syrup over the hole(s), lid down of course so that the syrup can be sucked out through the perforations. Refill jars till amount required has been fed. A good colony stores away a lot in 24 hours. Feed in the evening if you can.

For feeding syrup to a nuclei a division board feeder is probably the best. That is the feeder takes the place of a comb. A bit more in making one. The top feeder with jars or a tin works well too as it puts the feed right over the bees. No travelling required which of course is an advantage for a small colony.

One thing about sugar feeding is that it offers no chance of spreading disease. Although the gear used can of course become infected.

Hopefully some more about feeders in the next issue of this journal.

4. It is advisable to restrict the hive entrance during the winter. The colony becomes inactive when the weather gets cold but wasps keep going longer and mice are always looking for a nice snug place. A simple entrance reducer can be made of a bar fitting tightly into the entrance in one of the front corners. Reduce the height of the little entrance to something like 9 mm: enough for a bee, too small for a mouse. To guard also against wasps it has been found that a strip of galv. flat iron cover-

ing the entrance and sharply bent round the hive corners so that it will stay in place will do the job. With tin snips cut a series of small cuts 10 mm apart. Bend these bits alternately in and out, creating openings large enough for the bees. Bees seem to have no trouble adjusting to this obstacle but wasps cannot solve the problem and keep outside. Reducing the entrance compounds the ventilation problems of a hive. An inner cover which has a nuc. entrance cut in the rim can be turned over so that the entrance takes over the function of a ventilation hole. This works well with a telescopic lid which does not fit too tightly.

5. Hives should be dry inside and should not stay wet on the outside. Dampness is far worse than cold. Shelter is good but not to the extent that no air movement takes place. Shade in the winter should be avoided.

Have the hives on blocks or bricks off the ground. Cut the grass or weeds round them for long wet grass rots your equipment. It is also a nuisance when working and looks untidy.

If need be repair fences to keep stock out. Disturbance in the winter can be fatal to bees.

6. Make sure all hive parts are sound and fit well. Replace now any poor supers, roof or bottom boards. Put aside what can be repaired. Don't leave rubbish lying about. Excluders can be taken home for cleaning in hot water. Sometimes beekeepers place them under the bottom super as a mouse guard. A job well done will pay dividends!!!

Pair given PD for bee thefts

Hawks Bay Herald Tribune
18 November 1987

A Hawke's Bay beekeeper and his former employee were sentenced to three months' periodic detention when they admitted stealing hives in the Taupo District Court yesterday.

Stephen Gourlay McManaway, 25, apiary manager, Napier, and Roy Stuart Smith, 24, unemployed, Hastings, appeared before Judge G. P. Monaghan.

The court was told McManaway's company, Bay Blossom Apiaries, had been in financial difficulties in September, when the theft occurred.

The pair had spotted 90 hives as they drove along Whangamata Road, Kinloch, and had taken 35 of them. These were re-sited at Kawakawa Bay, a little further around Lake Taupo.

Registered numbers on the hives were painted out and new ones put on. The defendants later returned to Napier with the hive lids and floors.

In all, $3500 worth of stolen property belonging to a Mt Maunganui man who operates a honey supply company had since been recovered said Sergeant Neil Paterson.

McManaway had been in the process of selling his company when the theft was discovered and both he and Smith confessed to the police.

Lawyer Mr Paul Thomas said the theft had been a spur of the moment thing when the pair came to Taupo to service their own hives.

As they drove past the Kinloch property, McManaway decided to take some beehives and Smith agreed to the action.

Mr Thomas said the value of the stolen hives had probably increased because of the work the two men had done on them.

The new MAF

The Ministry of Agriculture and Fisheries is organised into four business groups each covering a wide variety of related functions. The overall aims of MAF are defined in its mission statement. The mission of each business Group is derived from this.

MAF's mission, or task, is to carry out efficiently and effectively the Government's policies and programmes relating to the farming, horticultural and fishing industries, and to advise on how to maximise the national benefit from those industries.

MAF aims to:
Generate revenue from goods and services as determined by Government policy, and achieve its mission by providing results in the following areas:

Productivity: By providing market led research, advisory and management services to realise opportunities in the agricultural, horticultural and fishing industries.

Protection: By preventing the introduction of exotic animal, fish and plant diseases and pests, so protecting New Zealand's status as an approved source of species and produce, and by assisting in the management of the animal, fish and plant health resources in New Zealand.

Quality Assurance: By assuring overseas government agencies and customers, where required, of the consistent purity and safety of New Zealand food products, basing quality assurance on negotiated quality control systems.

Policy Advice: By providing the Government with policy advice to obtain the greatest national benefit for the farming, horticulture and fishing industries.

MAF's Goals 1987/88

Goals are set each year within the framework of the above result areas. The following are for the current year:

- Assist industry enhance its competitive edge in the marketplace.
- Improve management of fisheries.
- Encourage efficiency and innovation in processing and marketing.
- Assist industry develop innovative quality management.
- Adapt MAF and its managers to meet the commercial environment.
- Generate income required to meet the Government's net funding targets.

Organisation

MAF is headed by Director-General M.L. (Malcolm) Cameron, who is supported by Assistant Directors-General who are also Group Directors of MAF's four businesses. They are as follows:

R.E.W. (Royce) Elliott: Group Director MAFQual.

M.D. (Mike) Gould: Group Director MAFTech.

M.W. (Malcolm) Craig: Group Director MAFFish.

P.J. (Peter) O'Hara: Group Director MAFCorp.

While each Business Group has its headquarters in Wellington, the nature of MAF's work means that the majority of activity takes place in the regions.

Business Groups

MAF has amalgamated its ten divisions into four business groups.

Government requirements have meant that MAF has had to become commercially oriented, and so its new structure reflects this need. The four businesses are:

MAFTech — This is an innovation and consultancy business and relates particularly to MAF's aims to boost productivity. This group provides research and advisory services and aims at recognising and developing new opportunities in farming and horticulture.

MAFQual — This is a quality management business relating to the protection of plant, animal and fish health status in New Zealand and to quality assurance (validation of foods as safe, true to label and uncontaminated).

This Group combines the competencies of the previous Meat, Dairy, Animal Health Divisions, a part of the Advisory Services Division and the Agriculture Quarantine Service.

MAFFish — This Group is responsible for management of the fisheries resources of New Zealand. It combines the functions of both the Fisheries Management and the Fisheries Research Divisions as well as a small group from the Economics Division.

MAFCorp — is the Group that provides management support such as management and administration of MAF campuses and offices, financial, legal, computer and information services.

MAFCorp is also responsible for analysing and assembling policy advice to Government.

This group brings together the Corporate Services and Economics Divisions and a number of previously independent groups such as Financial Management and Information Services.

Regional Organisation

MAF is a decentralised organisation with the vast majority of its staff based in rural and provincial areas where they must respond to threats and opportunities facing clients. The two agricultural business Groups and MAFCorp have four identical regions centred on each MAF campus at Ruakura (Hamilton), Batchelor (Palmerston North), Lincoln (Christchurch) and Invermay (Dunedin).

MAFFish is located at the three ports of Auckland, Nelson and Dunedin.

Details of MAF locations can be found in Contacts in Agriculture.

Ancient cure for hayfever sufferers

A teaspoonful of honey once a day is to be prescribed to 200 British hayfever sufferers in a clinical trial of one of nature's oldest healers.

Dr Laurie Croft, a lecturer at Salford University in northwest England, believes honey can cure hayfever. The two-year trial is to prove that it can bring great relief to allergy sufferers and also ease asthma, eczema and rheumatism.

Dr Croft insists three important conditions must be fulfilled for honey to succeed: that it must be entirely pure, must have a high pollen content, and must be taken in small amounts over a long period.

It was just over a century ago that pollen was firmly identified by a British doctor as the cause of hayfever. Dr Charles Blackley, himself a sufferer, showed that the severity of the complaint was related to the amount of pollen present in the atmosphere.

The use of honey to treat diseases, however, goes back thousands of years. But, according to Dr Croft, though modern science has discovered a great deal about the composition of honey, its medical attributes have never been fully assessed.

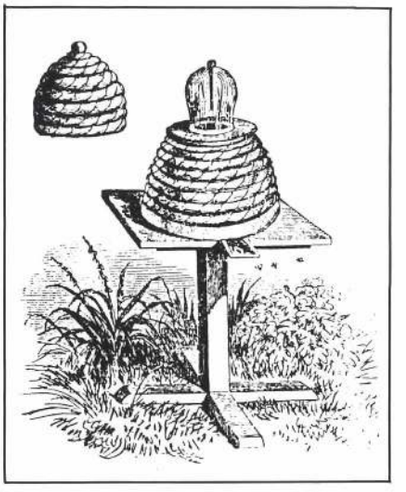
Management of bees *(From Chambers' Encyclopaedia 1876)*

BEE: MANAGEMENT OF.

It is, of course necessary that the *apiary* or stock of B.-hives should be situated in a neighbourhood where flowers sufficiently abound for the supply of honey. It is, however, by no means certain to what distance bees roam. Some authors mention one mile as the probable distance; but the opinion has apparently been hazarded on mere conjecture, and there seem to be good reasons for supposing that a much greater distance might more correctly be named. But whatever distance bees may be capable of travelling in quest of honey, it is undoubtedly of great importance that they should have good feeding-ground in the immediate neighbourhood of the apiary; and in many parts of the world, the practice prevails of removing them from place to place, according to the season, in order that advantage may be taken of the greatest abundance of flowers. Thus in the south of Scotland, B.-hives are very frequently removed to heath-covered tracts in the beginning of August, and remains there till the heath is out of flower; and this affords in many parts of the country the most plentiful honey-harvest, although in other parts, especially where white clover abounds, the greatest quantity of honey is obtained earlier in summer. The difference between *Heather Honey* and *Flower Honey* is well known in Edinburgh. No small number of B.-hives from that city and its immediate vicinity are annually conveyed for a few weeks to the Pentland Hills. The conveyance of bees 'to the heather' is generally accomplished either by a handbarrow or a spring-cart of easy motion, so that the combs may not be displaced by shaking; and the mouth of the hive is carefully closed with a plate of perforated zinc, or other contrivance for keeping in the bees and permitting circulation of air. Fifty or one hundred B.-hives may often be seen collected in one place, and under the care of one person, during the heather-season. — In Egypt, far greater numbers of hives (of *Apis fasciata)* are often kept in a single vessel on the Nile, and are conveyed from place to place on the river, according to the succession of flowers in the different districts. A somewhat similar practice prevails on the Rhone; and the transporting of bees *(Apis Ligustica)* from pasture to pasture has been usual in Greece, in Asia Minor, and in Persia, from remote antiquity.

As to the form of B.-hives, and the material of which they should be made, there are great differences both of opinion and practice. Glass hives, and hives with glass-windows, which can be covered at pleasure with wooden slides, are employed by those who wish to observe the movements and habits of bees; but for profitable purposes, wood and straw are in Britain the only materials in common use. A simple and useful form of a capped hive is shewn in the accompanying illustration. For the material of a hive, wood has the advantage over straw in its greater neatness and durability; but there is a disadvantage in the greater likelihood that, unless shaded from the sun, portions of the comb may be so much melted as to fall in hot weather. In some parts of Europe, cylindrical cork-hives are much used, made by removing the wood of a portion of the cork-tree, and leaving the bark uninjured; and hives of earthenware are common in Greece and Turkey. The form of hives is of little consequence; but it is important that the owner should have facilities for giving increased room both above and below the stock-hive: increased room above is required for the reception of pure honey-comb unmixed with brood, and the capability of adding to the hive below, by raising it up an additional story, is often requisite to prevent swarming, which is incompatible with the collection of a large store of surplus honey.

Bees require attention at the time of swarming, that they may not fly away and be lost. They require also to be fed during winter, when, on account of a bad season, the lateness of the swarm, or other cause, they have not enough of honey to support them. A common rule is, that the weight of the contents of the hive must be at least twenty pounds, that the bees may survive the winter without being fed; and even in this case a supply of food for a short time in spring promotes the activity of the bees, and their summer prosperity. The food ordinarily supplied to bees is either the coarser kind of honey, or sugar and water. Strong ale and sugar boiled are also frequently given as food. The practice has very largely prevailed in Britain and elsewhere, of killing bees by fumes of sulphur, in order to take from them their honey in the end of autumn, a portion only of the increase of the stock being kept through the winter. This practice still has its advocates; but many now take only what they can by top boxes or *supers,* or by cutting out combs, preserving all hives which are not so light that there is no good hope of their surviving the winter.



Simple form of Bee-hive, With cap removed to show glass top.

It may be doubted if, in almost any part of the country, the number of bees kept is so great as nearly to exhaust the floral resources, and in all probability this may yet become a much greater source of wealth than it is in Britain.

When honey is to be taken from bees, the person doing it must be carefully protected from their stings by gloves, veil, &c. It is best done during the heat of a fine day, when the bees more readily leave the combs of the *super* that is taken away, and return to their hive. A little gentle tapping generally causes them to leave the combs, and a feather is used for brushing off those which are slow to do so. The smoke of the common Puff-ball (q. v.) causes them to fall down in a stupefaction from which they speedily recover, and its use is very convenient. It is gathered and dried for the purpose. Chloroform is also sometimes used for the same purpose, but the effect is apt to be fatal, unless care is taken to choose the morning of a fine day, so that the stupified bees may have time to recover in the air and sunshine.

Bees are much less apt to sting when swarming than at other times, and in general all the necessary operations are performed without gloves or veil, and with perfect safety. The sting of a B. is to many persons a thing of no great consequence, although, in some, it causes great local inflammation and swelling, and general derangement of health. The application of a little ammonia usually relieves the pain; or an onion cut through the middle; or the common 'blue-bag' of a washerwoman.

The apiary should, if possible, be in

a sheltered place, and where it enjoys a good amount of sunshine. The hives are very generally placed at small distances in the open ground, but some B.-keepers protect them by a shed. In the former case, each hive is usually covered with a straw-hood in winter, to keep away the rain, as damp is particularly injurious to bees. For the avoidance of damp, and to prevent the bees from coming in contact with the ground when they hang in a great cluster at the door of the hive — as they often do before swarming, when the weather is hot, and the hive very populous — each hive is raised to a height of at least fifteen or eighteen inches from the ground.

BEES, LAW RELATING TO. B. are stated by Blackstone to be wild by nature *(ferce naturae),* but when hived and reclaimed, are regarded in the nature of *property* belonging to the person on whose ground or soil they have swarmed; and in support of this doctrine, he refers to the Charter of the Forest, 9 Henry III. c. 13, which allows every free-man to be entitled to the honey found within his own woods. The qualified property which may be thus held in B. continues while the swarm remains on the soil; and in the event of flight, so long as the owner can pursue it. Indeed, so clearly are they considered in law to be of the nature of property, that it has been decided in England that B. may be the subject of larceny (q. v.).

The same appears to be the Scotch law. Mr Erskine, who may be described as the Scottish Blackstone, founding on the Roman law, lays down that, when B. have abandoned their hive, not being observed and followed, they are understood to have recovered their original liberty; and if they light on the grounds of another, and are enclosed by him in a new hive, they become his property.

BEE: HUMBLE. See HUMBLE-BEE.

"From an old book"

Sent in by Brian Smart

The humming activity of a well-ordered beehive was once a common part of country life in England, but however commonplace it may have been a respectful relationship always existed between the true countryman and his bees. This was born perhaps of a blend of gratitude and a sense of mystery surrounding this disciplined and self-contained community, for bees might be persuaded to work for man only while it pleased them to do so. Angry bees might decide to leave their hive and buzz off elsewhere, to the considerable loss of their owner, and attempts to stop them could lead to a painful sting.

Careful attention was therefore paid to keeping them happy. It was thought that bees would not thrive in noisy or quarrelsome surroundings, and old beliefs ruled that they must not be bartered or sold (except for gold), lest they take offence!

Old countrymen at work in the fields claimed to be able to recognise their own bees busy among the hedgerow flowers, and the bees were almost a part of the family. For this reason they had to be included in the ups and downs of family life and kept informed of any changes.

White ribbons were tied to the hive on a family wedding day, and a swarm on "the day" was a good omen. Stories are told of brides who have been accompanied to the church by a member of the hive who travelled among the petals of her bridal flowers!

Bees also had to be informed of a death, particularly of their owner, and in this case to be told of the new one. They might also be formally invited to the funeral although not, perhaps expected to accept, and in Devon the hives were always turned at the time of the funeral. If this operation were carried out in a hurry or by unexperienced hands, all sorts of commotion added to the solemnity of the occasion. It was important, too, that they be given a small piece of funeral cake and sometimes a little of every dish eaten at the funeral feast was left by the hive.

The old countryman respected his bees and was grateful for the bounty of their delicious honey — the only form of sweetening before the importation of cane sugar. Honey, too formed the basis of many simple home remedies. It would ease a sore throat and soothe sore skin. It cured hams and made pickles and mead. Propolis from the hive made a golden dye. The wax made luxurious candles and polished furniture, it sealed preserves and waxed thread. Eggs coated with wax could be preserved throughout the winter, and the honeycombs were an unimaginable treat to a small child in the days before sweetshops.

Close association with these tiny creatures who worked so diligently and whose lives were ordered in so unfathomable a way never robbed them of their mystery in the eyes of country people. In common with other farm animals they were believed to have a special link with heaven and in Devon in particular it was known that on Christmas Eve the bees would hum the 100th Psalm! The owners would tiptoe silently into the gardens and orchards to witness this miracle and if one truly did not hear their music, doubtless the fault lay with the audience and not the performers. **Virginia Black**

FRENCH SALAD BOWL

• Place a crust of bread rubbed with garlic in large bowl while tossing the salad with Honey French Dressing. Use any one or a combination of crisp salad greens such as lettuce, romaine, watercress, endive, pepper grass, or chocory. Serve at once.

ROLLED SANDWICH

• Spread creamed honey butter on cut end of bread loaf. Cut slice of bread thin and remove crust. Sprinkle chopped nuts on honey butter. Roll slice and fasten with toothpick. Seal open edge with honey butter. Cover with waxed paper. Place in refrigerator to chill.

LEMONADE

Mix 2 tablespoons of honey with the juice of ½ lemon. Stir well. Add 1 cup hot or cold water according to whether hot or cold drink is desired.

HONEY MILK TOAST

2 cups hot milk
½ teaspoon salt
1 tablespoon butter
6 slices buttered toast

• Spread each slice of buttered hot toast with honey. Heat milk just to the boiling point, add salt and butter. Keep hot until ready to serve and then pour over the honey spread toast. Serve at once before toast loses its crispness.

COLE SLAW

Beat 1 cup sour cream (cold) until thick. Add ¼ cup vinegar, ¼ cup honey, 1 teaspoon salt, and 2 teaspoons celery salt.

MARQUERITES

Place salted crackers in a baking pan. spread crackers with honey and chopped nuts. Place in oven until slightly browned.

Recognition for a honey exporter

From the Southland Times

Fourteen years ago, Murray Ballantyne, of Woodlands, was a disillusioned builder — now he owns a thriving honey making business and has pioneered honey exporting to Japan.

This achievement was recognized by the Invercargill Chamber of Commerce when it named Mr Ballantyne as the winner of the business of the month award for December.

The Woodlands apairy was bought by Mr Ballantyne as a going concern.

Mr Ballantyne said that he had had enough of building and saw an advertisement in the newspaper for a beekeeper's assistant in Central Otago.

He took the job and after 15 months returned to his home town and bought the bee-keeping business.

At first keeping bees was "tough" and Mr Ballantyne said his body swelled up after all the bee stings. Now when he gets stung he pulls the sting right out and keeps on working.

Distinctive

His business in Woodlands, housed in the old dairy factory buildings, is distinctive not only for its bright colours (it was painted three years ago when the honey would not come). It is also the place where the producing and exporting of "high moisture" honey has been pioneered in New Zealand.

This type of honey is taken from the hives earlier than ordinary honey, making it much runnier. While it is not a big seller in New Zealand, it appears it is well suited to the Japanese pallet.

Mr Ballantyne started exporting honey to Saudia Arabia and other Middle East countries about five years ago. When this market started to drop off he began to investigate other possibilities.

Partnership

Last year he struck up a partnership with Bushu, a bee-keeping company in Japan.

The company sent two technicians to Woodlands to investigate and test the honey. This led to the Woodlands apairy exporting nine tonnes of honey to Japan last year.

Two technicians are again visiting the apairy this month.

Mr Ballantyne was the only person in New Zealand to export high moisture

The winner of the Invercargill Chamber of Commerce business of the month award, Mr Murray Ballantyne, with two of the full frame honey combs he exports to Japan. Mr Ballantyne produces the honey at his Woodlands apiary.

honey to Japan last year but the venture was so successful that about 18 people from Oamaru south are trying to export it this year.

The Japanese market is expanding, and this year Bushu wants 100 tonnes of honey.

As well as high moisture honey, Mr Ballantyne has started to export full honey comb frames to Japan. These combs are used for demonstrations, and honey from them is then sold "straight from the factory."

Mr Ballantyne said he wanted to increase full comb exports from 150 last year to 1000 this year.

The Woodlands business is a family concern. Mr Ballantyne and his teenage son, Andrew, are learning Japanese this year and other members of the family help with packing and selling.

Plans

Mr Ballantyne also plans to participate in the Foodex Fair in Tokyo in March, and possibly another trip to investigate potential markets later in the year.

The New Zealand market is also part of Mr Ballantyne's plan for this year. He has developed a new package for cut comb honey and wants to sell this in lucrative tourist towns like Auckland and Queenstown.

He said he was surprised but pleased to win the business of the month award and saw it as recognition of the work he had done in the past five years.

"Being in business was not just a matter of producing and then trying to sell the product.

"We have to find out what the buyers want and produce it for them," he said.

CREAM CHEESE SANDWICH FILLING

Soften cream cheese with enough honey to spread well. Add chopped raisins or nuts.

Pest plan angers British beekeepers

Otago Daily Times
Resident Correspondent

London — British beekeepers are buzzing angrily at a proposal by the Government's Department of the Environment that bees should be added to a list of urban pests to be killed by local authorities.

The 18,000-strong British Beekeepers Association discovered the plan by chance in a departmental consultative green paper on air pollution control.

The intention is to bring bees — as well as wasps, cockroaches and foxes — into the list of urban "pests" and give local authorities power to control them.

With most of Britain's countryside dotted with urban settlements, honey-producing bees are common in villages and towns.

The Beekeepers' Association has condemned the proposal as a "stupid aberration."

Its president, Dr Harry Riches, said most thinking people look upon bees with affection.

Honey bees and other wild bees do sterling work for mankind, pollinating farm and garden crops, wild flowers and shrubs, he said. Their lives have already been made difficult by modern agricultural practices, including the widespread use of pesticides and other chemicals.

An Environment Department spokesman has described the proposal as only a consultative paper. He said nothing has been decided.

The proposal would allow local bodies to deal with "one-off" problems, such as a swarm of bees in a factory, he said.

Britain's beekeepers are already in trouble following last year's cold, wet and windy spring, which killed many bees. The Ministry of Agriculture estimates that up to 50 percent of English bees were lost.

Insect Asides

The *Shoalhaven and Nowra News* reports that the citizens of Bomaderry, particularly those who walk along Railway Street, have been upset recently by "smelly yellow droplets" which have been falling from the sky.

They first blamed the local sewerage treatment works, but the senior council engineer, Noel Southwell, investigated and said the works did not produce any airborne wastes.

The yellow droplets continued to pour.

Mr Southwell pursued his inquiries and reported:

"Samples of the matter were gathered after we had discussions with officers of the State Pollution Control Board.

"The advice offered over the telephone was that it was most likely to be a substance known as 'Golden Rain'."

Do not be shocked, Mr Southwell explains.

"This is caused by bees suffering from a severe attack of diarrhoea which is usually brought on after periods of rain."

The only advice offered in the newspaper report to alleviate the problem is "wear a big hat".

This is the most novel diarrhoea treatment we have heard of.

Meanwhile, how will the citizens of Bomaderry protect themselves?

Health care from the bees

By Irena Czekierska

By Irena Czekierska

KAMIANNA, Poland — A mountainside village in southern Poland, fringed by forests where bears still roam and eagles nest in summer, could soon become the world's first apitherapy centre, using natural remedies based on bees.

It is just one of the schemes of Father Henryk Ostach, who went to Kamianna more than 20 years ago and transformed the near-deserted hamlet into a thriving community modelled on the beehives which are his passion.

"There is so much we can learn from the way bees organise their lives," Ostach said. "They're a model family — diligent, efficient, they love order, have great respect for their queen and are prepared to defend her even until death."

On a grassy slope behind a picturesque wooden church, Ostach has collected hives from throughout Poland, many of them old, intricately carved and brightly painted in folkloric forms of animals, cottages, windmills and peasant figures.

They are still working, and several thousand people visit the community each year to buy the local honey, which is delicately flavoured with lime tree blossoms, and said to be the best produced in Poland.

"Bees are much loved in Poland and the tradition goes back a long way," Ostach said in a recent interview. Sitting in his parish study, surrounded by natural history books in several languages, he said beekeepers there even have a patron saint — Ambrosius.

In the ancient chronicles of the amber merchants who plied the routes from the Baltic shores to Rome, Poland was described as "a land flowing with honey, full of fresh air and beautiful forests," he said.

Now, while vast tracts of the country are poisoned by industrial pollution, Kamianna is one of the last unspoiled areas with forests unharmed by acid rain and mountain springs still crystal clear.

The healing properties of honey and other substances produced by bees, together with the clear local air, could be the answer to all sorts of illnesses including respiratory complaints, eye problems and skin diseases, Ostach believes.

"Bees are the great hope of sick people," he said, producing a tome of evidence compiled by the recent fifth world symposium on apitherapy, and adding that people were increasingly turning towards natural remedies instead of modern chemical drugs.

In apitherapy, bee products including honey, wax and a sterile substance called propolis, which bees make to protect their hive, are used as ointment or processed in pill or liquid form.

Propolis, as an ointment, is already catching on as a popular treatment which some Poles swear speeds up the healing process of skin wounds. Ostach said it was used with considerable success in treating burns victims of the chemical plant disaster at Bhopal in India two years ago.

He is hoping to set up the world's first apitherapy sanitorium with facilities to treat up to 10,000 patients from around the world. The priest said he was setting up an international foundation to fund the project, and building work starts next year with a scheduled completion date of 1995.

And if that sounds fanciful, it should be remembered that when the priest, now a sprightly 62, first arrived in Kamianna, only a handful of dilapidated houses stood there and, he said, he slept on the ground with only a raincoat for a blanket.

Now there is a road which he helped build, the houses have running water and electricity, gas is on the way, and a retirement home for priests is almost finished.

Since he took up his hobby 35 years ago when he found his pastoral duties in his first parish included tending a flock of bees, the priest has become such an authority on the subject that he now heads the Polish beekeepers' association.

One of his most interesting observations was reported in the Polish press earlier this year. While the rest of the country knew nothing of what had happened for several days after the nuclear disaster at Chernobyl last spring, Ostach's bees headed straight back to their hives and stayed there for eight days.

"We couldn't understand why. It was a beautiful, sunny day and there were lots of fresh blossoms out," Ostach said.

Many of Poland's 200,000 beekeepers reported similar stories and it was only later that they realised the bees had sensed radioactivity passing over the country from the neighbouring Soviet Union.

"Bees are a natural geiger counter," the priest concluded.

As head of the beekeepers' association, Ostach is now preparing for an international apiarists' congress in Warsaw in July, to be attended by 5,000 enthusiasts from more than 70 nations, including Israel and South Africa, with which Poland has either limited or no diplomatic ties.

"He's indefatigable," said Father Michal Grabowski, who has been drafted in to help perform religious duties in Kamianna's 156-strong community as Ostach's activities end him across Poland and abroad, "but he always manages prayers twice a day."

Counting up the weight

A series of low-cost digital counting scales has been introduced in Britain with a wide range of capacities.

The EW Series is a range of bench scales in five different capacities. The low cost units have been designed with the industrial environment in mind and the touch-sensitive keypad is sealed for dustproofing. The tare button allows the operator to cancel out the weight of the container and read only the net weight. Automatic zero tracking is a standard feature. The capacities are from 1100g to 22kg.

The EC series has capacities from 1kg to 25kg. Automatic zero tracking, dustproofing and the facility to cancel out container weight are standard, but it also has a memory system and counts as well as weighs. A present quantity can be fed into the machine and the scale will give both visible and audible warning if this is exceeded.

To complement this range is the FS series of floor-standing scales where the headworks can either be remote from the platform or mounted on a pillar fixed to the baseworks. The platforms are of stainless steel, parts counting is available and standard features include pushbutton and digital tare, keyboard entry of sample size or weight, memory functions and a check counting function, giving an audible signal when a present count is reached.

There is also a range of crane scales with capacities from 1500kg to 20,000kg. (100287)

ICE CREAM SUNDAE

Pour honey over ice cream, sprinkle nuts on top or garnish with a cherry. This is a delicious and nutritious dessert.

Bee miners join B.C. gold hunt

By Wayne Lilley (via Harry Cloake)

Ordinary honey bees are confirming a long-held but largely unproveable belief among miners that vegetation above the ground is a sure telltale of minerals in it.

In fact, bees are such industrious and efficient mineral prospectors that bee hives may soon become part of the standard operating procedure of exploration companies.

Two big British Columbia-based mining companies have already participated in experiments using bees to detect minerals and the results have been encouraging enough that both plan to carry on.

Pioneer in the field

The whole idea of experimenting with "bee miners" to help pinpoint untold riches beneath the earth's surface has been given a degree of credibility through the involvement of Harry Warren, a retired University of British Columbia professor of geochemical engineering with a world-wide reputation.

A pioneer in the field of biogeochemistry, Warren published a paper 30 years ago suggesting that the high lead content of roadside plants resulted from high tetraethyl lead emissions from automotive traffic.

Verification of his findings in subsequent studies in the U.S. and Britain throughout the 1960s eventually led to the advent of unleaded gasoline now required by most cars.

Warren has since been attempting to prove that naturally occuring minerals could also be discovered by studying vegetation. But initially, "we were trying to analyze plants," he says. "And the analytical techniques to detect trace elements in plants weren't that good."

Turned to pollen

Experiments in the U.K. suggesting that diseases were transmitted by trace elements in the reproductive systems of plants and animals led Warren to turn his attention to pollen, part of the reproduction systems of plants.

And development of a technique called flameless atomic absorption spectrophotometry allowed a more exact analysis of pollen.

Warren used the method to prove that pollen collected from plants in the regions of a smelter near the Afton mine outside Kamloops, B.C. had an unusually high concentration of trace elements of lead and zinc.

But the minerals in the soil were from the smelter. "What we really wanted to know," says Warren, "was whether bees could give us more information on where to dig."

To test his belief that the elements found naturally in the soil would be similarly detectable, Warren persuaded a Fraser Lake apiarist to move a hive of bees to a location near a known molybdenum mine.

"An analysis of the pollen showed 40 times more molybdenum than at Fraser Lake," he says. "We got fired up at that."

Stanya Horsky, a geological scientist who specializes in trace element chemistry at U.B.C., says the technology she uses now to analyze pollen means he can break down samples by parts per billion compared with parts per million using old methods.

Horsky, who regards Warren as "the father of biogeochemistry," had heard of the professor's reputation before she fled her native Czechoslovakia 15 years ago.

Subsequently, she joined him in his research, insisting that the experiments be done following sound scientific method.

"When Dr. Warren brought in pollen samples, I didn't want to know where they came from," she says. "Sometimes a scientist finds what she wants to find.

"But the pollen samples from a mine area where there are known gold and

silver deposits gave us a perfect picture of the deposits."

Warren took his ideas to Vancouver-based mining companies Cominco Ltd., controlled by Canadian Pacific Enterprises, and Placer Development Ltd., 33 per cent-owned by Noranda Mines.

Both took an interest in his research and although the recession has put further experiments on hold, the miners have by no means abandoned the idea.

One of the advantages of using bees to collect the pollen is that they are industrious, efficient and have a clearly defined organization.

Bees from each hive, for instance, fly in a proverbial "bee-line" to collect pollen from one area. Thus, the location of trace elements in the pollen brought back to the hive can be determined.

"But the best part of using bees to collect the pollen is that they are relatively indiscriminate feeders so they bring back pollen from a number of plants in a square mile or so," says Ian Thompson, an exploration geologist with Placer.

The province's aggressive apiarists enhance the prospecting potential of bees as well.

Doug McCutcheon, a beekeeping specialist with the B.C. Ministry of Agriculture, says beekeepers regularly move thousands of hives to keep them near a blooming crop.

Adds Placer's Thompson: "There's a big demand for specialty honey from different plants and beekeepers go so far as to use helicopters to locate different vegetation.

Beyond honey-making

"They're already sticking hives in areas we're interested in."

If bees turn out to be as good at prospecting as Warren thinks, it won't be the first time they've proved beneficial beyond honey-making.

McCutcheon points out, for example, that the pollen they bring back to the hive has become a hot-selling item in health food stores where its touted ability to help in balancing hormones and bolstering the body's immune system has made it a favorite with allergy sufferers, among others.

But the fact that the pollen contains trace elements of minerals in the soil could put the crimp on that end of the business.

Pollen collected from plants growing in soil with a high lead content also has a high incidence of lead — hardly the stuff health food aficionados seek.

Object of experiment

Still, the object of Warren's prospecting experiments is to use bees to indicate where to dig.

Even though old time prospectors had the right idea, "nobody wanted to test drill just because some prospector noticed the moss was the same as in the region of a working mine," says Warren.

Bees, which are, after all, experts on vegetation may just give drillers a little more confidence. And high-technology analysis of pollen will contribute to the evidence.

If it all pans out, it might not be long before mining companies are drilling holes on the basis of information brought back to the hive by bees.

And the honey produced will be an early dividend.

The Africanized honey bee: ahead of schedule

(From California Agriculture)

The bee's early arrival added urgency to efforts to devise effective controls

The accidental discovery in June 1985 of a wild colony of Africanized honey bees in Lost Hills, near Bakersfield, was unwelcome news for California apiculturists and growers. The bee's appearance in California was not a complete surprise, but it was not expected to arrive until sometime in the 1990s after gradual migration and spread from its present northernmost location in Honduras, Central America. The bee's early arrival was probably caused by the unintentional importation of a wild colony inside drilling equipment shipped from South America to the oil fields in Kern County, or from a truckload of imported cargo.

As additional colonies were found during the summer, California's Department of Food and Agriculture intensified its monitoring and eradication efforts, imposed a holding action on the movement of commercial hives, and ordered the destruction of any wild honey bee colonies found in the area. Agency officials and scientists are cautiously optimistic that their actions, combined with genetic dilution, will prevent the further spread and premature establishment of the Africanized bee in the continental United States. At the time this article was written, five commercial and three wild colonies of Africanized bees had been found and destroyed, but additional finds were expected. All finds to date are of mixed parentage, indicating that the common European bee in California is interbreeding with the introduced Africanized bee, and suggesting that genetic dilution is occurring.

History

The honey bee, *Apis mellifera,* ranges from northern Europe to the southern tip of Africa, and eastward into western Asia. Across this range, the races differ little in appearance or structure, but do differ significantly in behavior. Over the years, the relatively gentle European races were taken to other continents for use by beekeepers. The honey bees in both North and South America originated from European sources, with the Italian race, *Apis mellifera ligustica,* the most favored by commercial beekeepers.

A race of African bees, *Apis mellifera scutellata,* was introduced into Brazil in 1956 in an effort to breed a bee that would produce more honey in the tropics. European bees are adapted to temperate climates and do not perform well in tropical and subtropical climates, especially in the lowlands. As part of a breeding program to eliminate or minimize the African bee's undesirable characteristics while retaining its honey-producing traits, Brazilian researchers brought 47 queens from Africa to Rio Claro in the state of Sao Paulo, Brazil. The bees were introduced into colonies equipped with double queen excluders covering the entrances to prevent their escape. In 1957, a visiting beekeeper, not understanding the strict precautions against the escape of queens and drones, removed the queen excluders from 35 hives when he noticed an accumulation of pollen at the entrances. Before his action was discovered, 26 colonies had swarmed or absconded.

After several years, it became apparent that the strain of African bees was not being diluted by the established European bee population but that European colonies were becoming Africanized. The African bee apparently hybridized to a limited degree with European stock, leading to a strain that genetically is still almost identical to the original African bee but is referred to as the Africanized or "killer" bee. Various Brazilian attempts between 1963 and 1972 to dilute the Africanized bees by requeening the most aggressive colonies with Italian bees had only

limited success.

Africanized bees quickly supplanted European stock, expanding their range 200 to 300 miles a year from the original epicenter in Brazil, and now have reached Honduras. Studies in Venezuela, Colombia, and Central America found the bee has retained virtually all of its African characteristics as it has spread.

The bees are expected to arrive in Texas around 1988-90 and to become established from Florida to California in areas with adequte nectar, pollen, and nest sites, and suitable winter conditions.

Biology/natural history

No single structure distinguishes African or Africanized bees from European bees. Differences are a matter of degree and not of kind.

Africanized worker and queen bees on average are slightly smaller than workers and queens of the European races. Africanized worker cells in natural comb are also smaller in average diameter. Color is highly variable, but most Africanized workers have yellow abdominal bands.

Development time from egg to adult is shorter for Africanized than European workers (18 to 20 days versus 21 days). During the tropical dry season when floral sources are abundant and colonies begin a rapid population increase before swarming, Africanized workers live 12 to 18 days compared with 32 to 35 days for European worker bees.

Colony growth of Africanized bees is reported to be rapid, and the annual egg-laying rate is approximately double that of European bees. Individual colonies of Africanized bees reportedly have a longer life expectancy than those of European bees, suggesting that they may be more successful at replacing queens than are European colonies.

Africanized bees nest in cavities found in the ground, in termite mounds, under buildings, in barrels, and in old cars. Sometimes they even construct combs in open exposed nests. They appear to prefer somewhat larger cavities for their nests than European bees do, even though they may only partially fill them with comb. European honey bees select smaller cavities that are large enough to store winter food reserves. Both races maintain similar brood nest temperatures.

Originally it was assumed that Africanized bees were unable to overwinter in cold climates, but recent studies in Argentina, as yet unpublished, indicate that they may be able to overwinter much farther north in the United States than was previously supposed.

Africanized bees are more excitable and active than European bees, flying in quicker and more erratic patterns and often flying directly into the hive entrance rather than walking in as European bees do. When compared with European honey bees, African bees in Africa foraged at lower temperatures and light intensities, foraged in the rain, and foraged earlier and later during the day.

In some areas, Africanized bees reputedly produce more honey per colony than European bees, although there is conflicting information on the subject. Commercial honey production in northern Brazil dropped dramatically after many beekeepers were forced out of business by the bees' temperament, but efforts to improve beekeeping techniques have changed this.

The best known characteristic of Africanized bees is their extreme defensiveness, usually misinterpreted as aggressiveness. Colonies are extremely sensitive to disturbances, such as vibration, foreign odors, and movements, and the bees respond faster, in much greater numbers, and with more stinging than European bees. When distrubed, they follow and persistently sting animals and people hundreds of yards from their colony. Recovery time after disturbance is about 30 minutes for Africanized bees compared with 3 minutes for European bees. Researchers concluded that Africanized bees are up to ten times more active in stinging than European bees.

Individual Africanized bee stings are no different from European stings. No significant chemical differences between venoms of Africanized and European bees are known. The difference in stinging episodes is due to the sheer number of stinging Africanized bees. A substantial number of cases have been reported in which animals and people have been severely or fatally stung because of the abundance and special behavioral characteristics of Africanized bees. It should be noted that some of these incidents, particularly those involving hypersensitive people, could have occurred even if European bees had been involved.

Honey bee colonies reproduce by swarming during periods of rich resources. During reproductive swarming, a significant portion of the workers and drones, along with the mated queen, leave the colony and establish a new colony elsewhere. Several afterswarms, each containing new virgin queens, may also issue from the same colony. In the tropics, Africanized honey bee colonies swarm three to four times annually. By comparison, in temperate North America, both wild and managed European bees swarm once or twice annually.

Owing to adverse conditions, disturbances, or rapid colony growth in inadequate space, Africanized bees frequently abscond and migrate to a new nest near better sources of nectar, pollen, and water. Absconding differs from reproductive swarming in that the colony produces no new queens, and all the workers and drones leave the nest with the mated queen. Euorpean colonies rarely abscond; Africanized bees do so regularly. Absconding rates for honey bees in tropical Africa are 15 to 30 percent a year, but can be up to 100 percent in some areas.

In Brazil, wild Africanized bees are abundant. In one study, an average of 107 colonies per square kilometer were found in a savanna region. Wild European bees are practically nonexistent in the tropics. High densities of wild Africanized colonies produce large numbers of drones that may mate with virgin European queens from colonies in commercial apiaries.

There appears to be some degree of reproductive isolation between Africanized and European honey bees. Researchers have several possible explanations, including greater mating flight distances from the colonies by European queens than European drones. While this prevents inbreeding to drones from the same colony, it favors greater encounters with wild Africanized drones in areas where wild Africanized bees predominate. Slight differences between the two races in the time of day when drone flights occur may also contribute to reproductive isolation by increasing the probability that Africanized queens will encounter Africanized drones during their respective mating flights. Also, European colonies may produce fewer drones owing to the presence of invading Africanized drones and severe competition with Africanized colonies for limited nectar and pollen resources.

Identification

There are two levels of identification of Africanized honey bees, one for detecting their presence, and the other for detecting varying degrees of hybridization between Africanized and European bees, once they coexist. Because African and European honey bees are two races of the same species, the differences between them and their hybrids are quantitative rather than qualitative. The problem of identification is complicated by the multiple matings of honey bee queens, which fertilize eggs with stored sperm from up to 17 drones. Thus, pure and hybrid bees frequently commingle within a single colony. Drones and workers also "drift" from one colony to another where hives are close together in commercial api-

aries, creating sampling problems.

At present there are basically four identification methods to separate Africanized and European honey bees. These are (1) electrophoresis or isoelectric focusing of proteins in bee blood, a laboratory technique to detect inherited differences in enzymes within organisms, (2) evaluation of observable traits such as cell size, colony defensive response and bee weight, (3) gas chromatographic analysis to determine the kinds of hydrocarbons in the bees' cuticle, and (4) multivariate morphometric analysis, a statistical-computer analysis to distinguish races of bees based on measurements of many different body parts. For various reasons, none of these methods is fully satisfactory, but the morphometric method has been most frequently tested and used. This identification method was developed at UC Berkeley, with some modifications by the U.S. Department of Agriculture (USDA), and then employed in the recent infestation in Kern County.

Other methods of identification are needed to improve the accuracy of evaluating the degrees of hybridization and to monitor the purity of breeding stock in the future.

Control methods

Because Africanized and European honey bees are the same species, there is little possibility that selective control methods can be developed.

Eradication. Where Africanized honey bees are firmly established in the tropics, their very high reproductive rate, the long distance migration of swarms, their partial reproductive isolation, and their resilience to known control techniques have made attempts to eradicate them unsuccessful.

Pesticides. Frequent use of pesticides over extensive areas would not be acceptable because of the potentially severe ecological impact on nontarget organisms, the resilience of honey bee colonies (as opposed to the susceptibility of individual foragers away from the hive) to pesticides, the reproductive and migratory behavior of Africanized bees, and the political, legal, and economic problems associated with such a program. Aerial application would be ineffective, because Africanized bees nest in cavities that would not be hit by the sprays.

Biological agents. There are no known biological agents, such as pathogens or parasites, that would control or reduce populations of Africanized honey bees without also seriously damaging the economically important European bees.

Trap and bait hives. Aside from detecting and monitoring any early introductions preceding a large-scale migration, the use of bait hives to control Africanized bees appears impractical because of (1) the potential of swarms to move long distances despite available nest sites, migrating many miles through and beyond trap zones, perhaps within a few hours, (2) the numbers needed to cover thousands of square miles, and the logistics of distribution, even if they were effective, (3) the unknowns associated with the identification, synthesis, and controlled release of pheromones used to attract swarms, and (4) the expense of such a program.

Release of European drones. The massive release of European drones would be ineffective in diluting Africanized bee genes in an area. Honey bee drones are fed and maintained by worker bees within their respective colonies and must return to their colonies after their mating flights. Individual European drones released in an area would die of starvation within several hours, because they would have no home colony to which to return.

European bee colonies managed for drone production would have to be distributed throughout a given area. However, because of the partial reproductive isolation caused by differences in drone mating flight times, this method would be most effective if a genetic line of European drones were to be bred to fly at times similar to Africanized drones.

Genetic control. Genetic manipulation appears to be a promising approach. Because Africanized and European bees are the same species, Africanized honey bees should be viewed as pest genes rather than a typical pest species. All bees in a colony are the progeny of the single queen. Through artificial insemination the queen's genetic makeup, and therefore the colony's genetic makeup, can be controlled. Beekeepers therefore can manipulate the stock in their colonies by replacing the queen yearly or when undesirable colony traits appear.

It should also be possible to work within the Africanized bee gene pool to select more gentle strains of Africanized bees that would be easier to manage. New technology for quickly locating and destroying the old queen in each colony (necessary if bees are to accept a new queen) has recently been developed at UC Davis, making it economically feasible to find and replace queens in commercial beekeeping operations.

Conclusions

Africanized bees are a potentially serious threat to the pollination of many agricultural crops. Nationwide, the total value of honey bee pollination to agriculture has been estimated at $20 billion annually. In California, more than 600,000 commercially managed beehives pollinate 40 crops, valued at $4 billion annually and including fruits, melons, berries, almonds, citrus, seed crops for vegetables, and forage crops such as alfalfa.

On a bee-by-bee basis, when foraging in the field, Africanized bees may pollinate as effectively as European bees. Their colonies, however, are not manageable as commercial pollination units under California conditions, with the vast acreages of crops interspersed with roads, livestock, and people, and especially the need to transport hives frequently by truck from area to area.

Even with continual diligence by commercial beekeepers to maintain strict genetic control of their European colonies, wild Africanized bees may occupy enough hives to make apiaries unwelcome in fields and orchards because of the sting hazard. Assuming pure European stock can still be produced in California after Africanized bees become established, it is unknown whether European bees will be able to compete with a potentially high density of wild Africanized bees foraging on the limited pollen and nectar sources.

Also, Africanized bees could have a serious effect on the commercial beekeeping industry for queen and package bee production as well as honey production. California ranks eighth in the nation in honey production.

Another potential problem for U.S. beekeeping is the introduction, by incoming Africanized swarms from South America, of the mite *Varroa jacobsoni,* a parasite of honey bees. This destructive mite thrives in all climates and could spread throughout the United States and Canada.

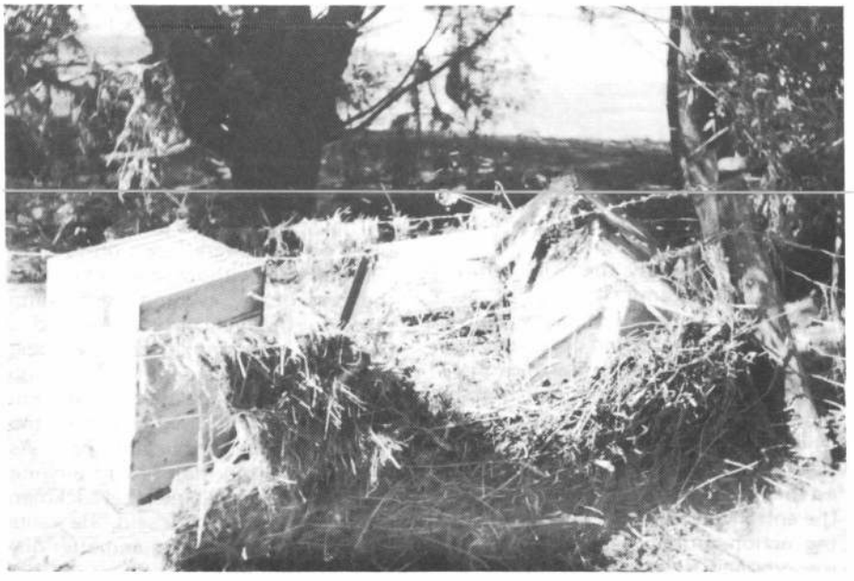
The public would most likely encounter Africanized bees in the form of wild colonies and swarms in urban and suburban as well as rural areas. Increased incidences of stinging would probably occur but might be reduced significantly by the establishment of public awareness programs, as well as continuous, permanent programs by public agencies to control wild colonies.

Research priorities for the immediate future are to continue the development of more sophisticated identification methods and to initiate, as quickly as possible, a "crash" genetics research program on honey bees. European bee breeding stock must be protected as long as possible and selection of desirable traits from African bees must be a high priority.

High country beekeeping in two easy lessons (or one hard one)

By Keith M. Herron

Keeping bees and producing honey involves more than working hives. Of the people and situations you meet some will leave an impression for years if not a lifetime. The following are some that come to mind.



All that remains of an apiary after flood.

A GATE-POST MESSAGE. The doctor's gone fishing. All traffic enters this remote property by one gate at the end of a bridge over a good fishing river. Bridge near the eastern boundary six miles of private station track beside river "Doctor gone fishing up-river" message received at station homestead. "Doctor required and address" message left on gate-post to await Doctor's return. We hope patient had patience until fish caught. We saw both fish and Doctor earlier further up-river. They may be with patient if Doctor came out ahead of us. We did not see Doctor on our way out and there is only one doctor in town.

SHEEP ON ROAD. One-way tracks often narrow. The best you can expect in steep country. All going well, big day ahead. Round the corner on the zig-zag to come face to face with 5,000 plus ewes and lambs stretched out for about two miles along a narrow cliff face. Can't drive through them, and they won't get off the track. If we push them off they'll fall hundreds of feet into the river. Would not want to meet station owner, a man of few words, for years if that happened. We take obvious action: stop truck for two-hour lunch break whatever the time. When station owner comes through with stragglers he suggested we should have come yesterday, better still, tomorrow! We have to come home this way too!

FLOOD. A wet period followed by heavy rain. Expect rivers to be rising. Take land cruiser to check some apiaries close to river. First valley OK. Over the hill in next valley, bigger river, higher than ever before. Passed where bridge washed away six years ago — only 10 years old when that happened! Nothing but abutments left now and those almost covered by flood water. Continue on new road to new bridge two miles up-stream. Old road on opposite side of river well under flood water six feet deep in parts. View a bee yard across river. Water all around the hives. Truck now ploughing through water on new road. New bridge well clear. Water on road deeper than expected. Reach bridge, find waves on river four-five feet high. Not game to go to apiary that I can see. Flood waters carrying full-size trees now, so proceed to another apiary to check. Forced to stop at a small bridge by main river, can only see top hand-rail, can't go any further. While viewing main river thought I saw a couple of beer crates. Bad luck! they were bee boxes. The last flood didn't get any hives up the river. This must be a much bigger flood so return to new bridge across main river. Watch more bee boxes go by. Now I discover that the approach has been washed away from the bridge and I'm on the wrong side. Use R.T. ask base to advise police road not useable and proceed home by another route. (That took several hours not the usual 20 minutes).

We counted the loss of hives another day, several apiaries proved to be not high enough, some hives out about Hawaii I guess. Must go and look them up some day. Some just down the river a bit.

The Government asked farmers to increase production. The farmers spread super, applied clover and grass seed, built miles and miles of fences, and spent development funds at high speed. Planes working from high-altitude airstrips spread fertiliser in distant valleys where station owners walked stock in and out. No need for vehicle tracks. We beekeepers learned of the marvellous clover flowering on the hills but could neither see nor get near it.

Bee tree after flood.

Visiting a pallet load of hives.

The station owner needed bees for pollination. He told his pilot to take the beekeeper for a buzz around the pertinent places. Easy to pick out good yard sites from the air, near impossible to get to them by ground. The pilot indicated development blocks, spoke of hundreds of tons of fertiliser, flipped across a hilltop to another high country valley, talked of more fertiliser and clover seed and about hives on that block also. Flying back over a mountain stream we spotted trout in the crystal clear water.

We prepared four hives, two each on two pallets, lashed securely, so a helicopter could fly them in, return them in the autumn.

The pilot, a friend of many years, made several interesting observations. Both pallet loads were flown in on a long line and loads under helicopters tend to rotate in one direction then when the line tightens rotate in the opposite direction. When the pilot landed the hives he saw something wet on the entrance board. It seems the rotating action probably extracted some loose honey. He also noted that after the hives were placed in the clover a circle around the hives stopped flowering within a few days, I expect the clover was pollinated. The following spring that same area became green with fresh growth first. I did not see where the hives were placed but inspected them immediately they returned. They were clean — not a lot of honey, about 15kg surplus — and the bees were very quiet with no signs of stress after the home flight.

The following season we used a helicopter again. The station had a bigger one now so we put four hives on each pallet. Each hive was the very best of our nucs and we put two supers of foundation on each nuc, covered the four-hive pallet with hive mats, several layers of cardboard, and a layer of black agriculture plastic, and lashed everything securely with nylon and chain.

The whole package had to be secure and stable because the pilot advised me that he could and would jettison the pallet should anything put the helicopter or himself at risk and I did not want my bees unloaded from aloft.

That season the six pallets with four hives on each were flown on to their summer sites without problems and in the cool of the evening. At autumn recovery the helicopter pilot and I, equipped with smoker etc., flew past two lots of hives stopping to pick up the third lot — made ready to lift them out — tried to lift load — proved too heavy, so we headed back to base. As we flew by a big mob of cattle being moved onto a back block the stockman made signals. The pilot said, "He wants to talk" so we put down and after discussion the head stockman said that he would fly home with dogs, without horse. Horse to walk home with other stockmen who still had to complete cattle drive. The stockman standing by helicopter, rotors spinning, whistled up his dogs — seven in total. Five jumped in the open door the last two were thrown in — not their first trip! They all crawled under the seat dogs' noses by the heels of our boots. Minutes later, stockman and dogs unloaded at station — half a day by horse. We flew over to the hangar and prepared the biggest helicopter: there were three to choose from that day.

Our second attempt proved successful returning all six pallets to base safely. The hives, well placed, had pollinated clover: the main reason for the hives being placed out-back in the first place. The cost of the helicopter was borne by the station that owned it. The pilot was a neighbouring farmer. The third helicopter was owned by the station across the road.

Up, up and away. Hives going home.

"Here honey lends refining touch
If not too spare or not too much."

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The Editor,
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Thank you Colin.

Yours faithfully,

B.E. Alexander

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