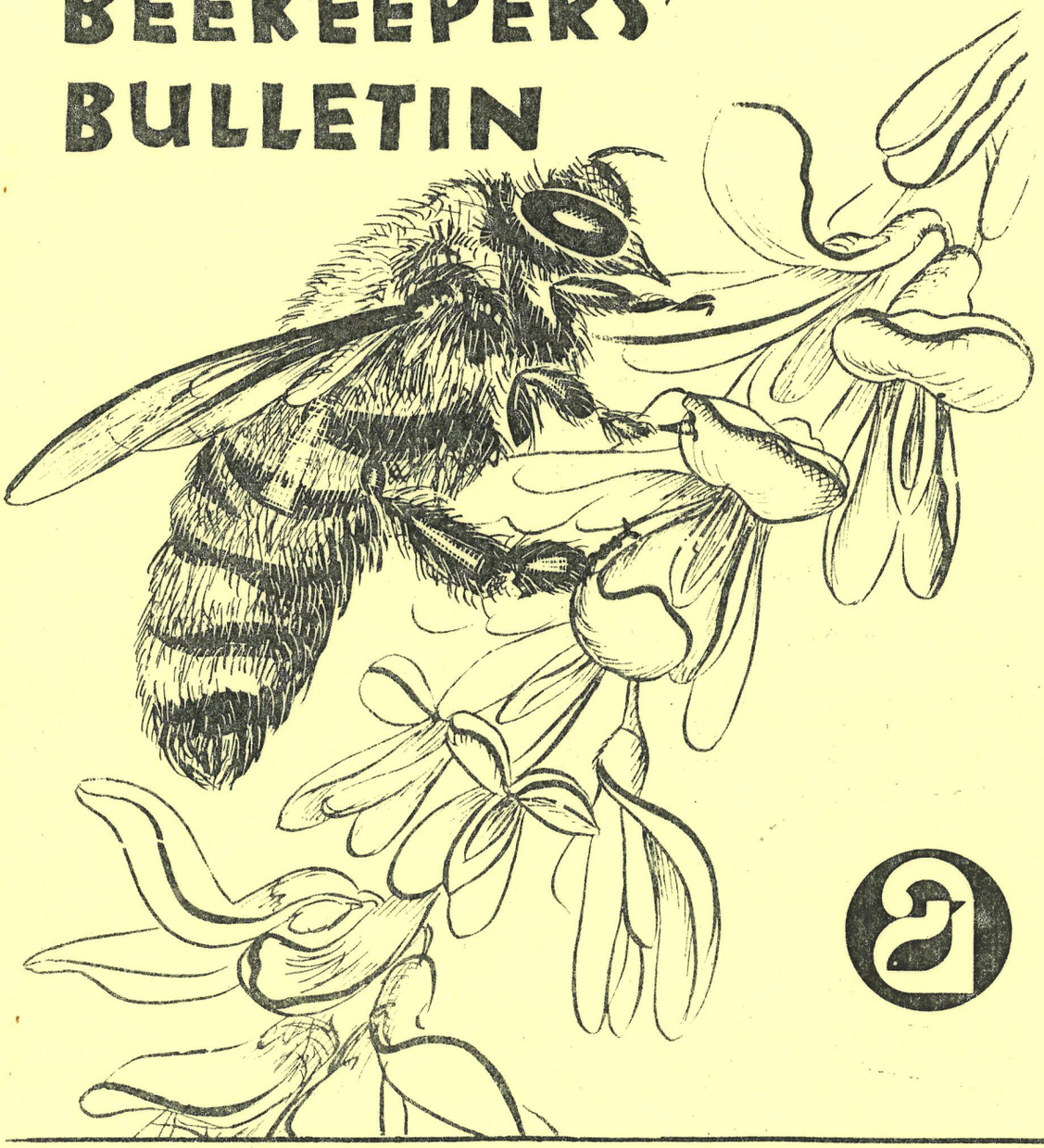
THE BEEKEEPERS' BULLETIN



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Volume 3 number 2
December 1981

November's Bulletin is a wee bit late this year; I didn't have time for quite a few things in October and November, so newsletter writing dropped off the bottom of the list.

It's waiting time for beekeepers at the moment. Spring weather was similar in the three provinces - very changeable but overall fairly kind to bees. Honey flows are generally a bit late in starting, hence the waiting game as I write this.

Pollination is drawing to a close, except for kiwifruit. Some spray damage has shown up, as it always will do. Reducing the apparent magnitude of the problem will require co-ordination among orchardists and between them and beekeepers. It will also need a change of mental attitude by the beekeepers, to accept that some spray damage is "normal", or at least inevitable.

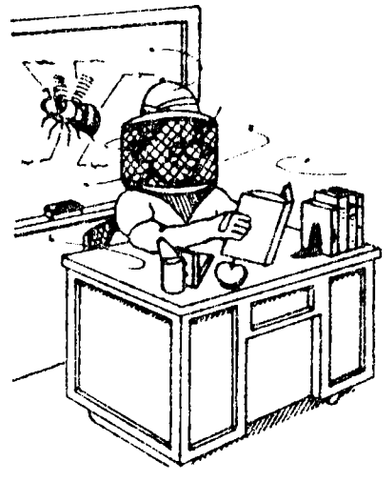
At least we didn't see an example of what happened in the Bay of Plenty last month - apparently one beekeeper lost 150 hives in one go.

Foulbrood has been popping up in odd parts of the district, but levels don't seem to be high. The picture will become a little clearer when I get all the inspection reports in, so will have some more information for the next "Bulletin".

Which brings me to another point - you've had an extra month this year for getting your returns in, so there's no excuse for lateness! If you could send them off as soon as you've completed your inspections it will save the clerks sending out a lot of reminders.

Still on the subject of disease - some M.A.F. people who have different jobs such as fruit inspection or livestock disease control are being trained in bee disease work. They will spend some time each spring doing part-time inspection, supplementing but not replacing the valuable work done by beekeeper part-time inspectors.

I was involved with a course at Telford in October to train 18 Ministry PTI's for the South Island, 3 of whom were from the Nelson district. They will now get further training with M.A.F. apiary officers and commercial beekeepers. I hope that these people will get your co-operation as they carry out this work for the good of the beekeeping industry.



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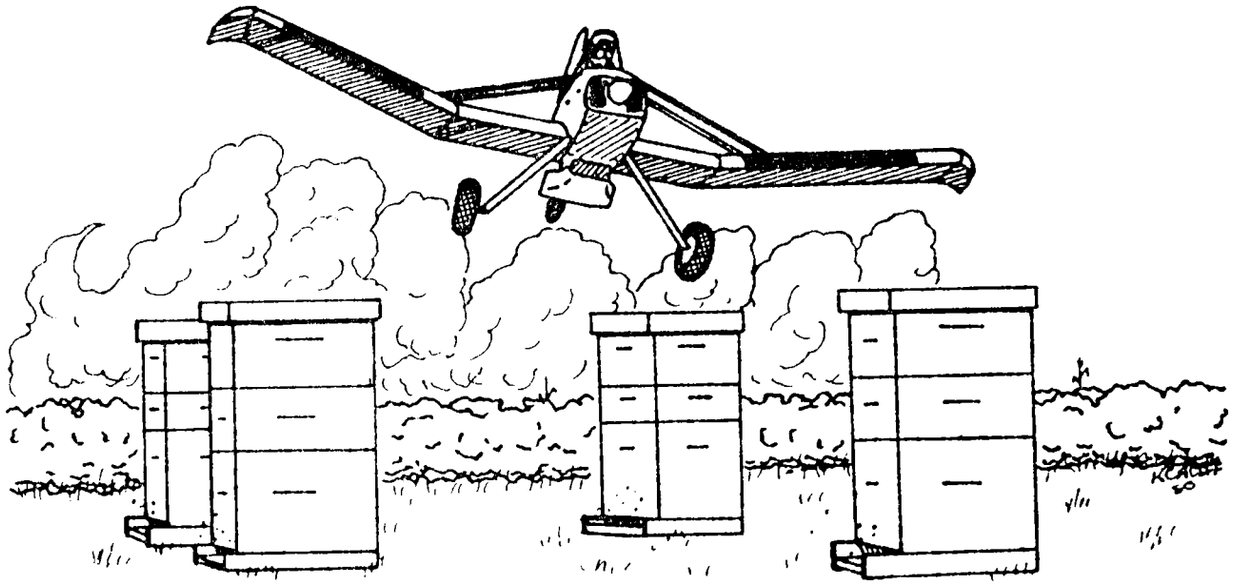
DON'T BE CONFUSED

"The light you think is the end of the tunnel could be only a mirror at a bend."

BEE REPELLENTS

Bee mortality caused by misuse of agricultural chemicals is a problem worldwide. I sometimes think that (as the song says) we don't know how lucky we are. Beekeepers here are fairly well protected by the excellent screening of agricultural chemicals that Pat Clinch does at Wallaceville, and the awareness of bee mortality which is created on the Ag Chem Board by the N.B.A. representative.



One line of research which is being carried out overseas is in the use of repellents for keeping bees off flowering crops which have been sprayed. It's a totally different outlook from the New Zealand approach, which is to not spray during flowering. But it could still be useful in "borderline" cases.

Many beekeepers already use bee repellents for clearing honey supers. Scientists are looking at heptan-2-one, a pheromone used by foraging bees to mark areas where no food is available, so other workers won't bother visiting them.

The main problem is that bee repellents don't last long enough to give protection from insecticides which persist for, say, 24 hours. Nevertheless, it may be a worthwhile line of research, and the Australian Honey Board is funding further work by a university postgraduate student. I know that other scientists at the University of California are also working on this problem.

HONEY STRAINING

Running out of sweaty socks for straining your honey? Look no further. Nybolt is now being sold already made up into bags by an Auckland company. Their standard size is 330 x 220 mm, but will make up any size if required. Any different rating of Nybolt can be obtained, but the distributors of the bags suggest

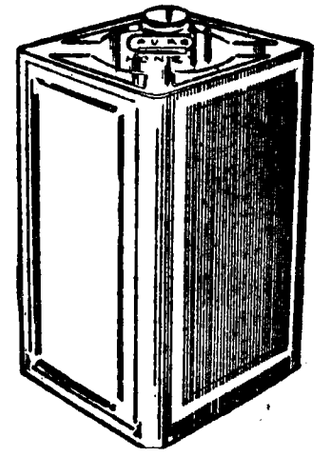
425 micron for initial coarse straining, and
280 micron for final straining.

Bags of both grades are $3.05 each (minimum 10 bags). Your contact is Mr I Meyer, who is sales manager at:

Ure Pacific Traders Ltd
P O Box 20-210
Glen Eden
Auckland Phone 888-808

BIOLOGY

HONEY CONTAINERS



Rather than paying a lot of freight on containers made in Auckland or somewhere, you might look a little closer to home at PDL (Westport) Ltd. Containers they make which would be suitable for honey are:

2ℓ "ice cream"	34¢ with lid	minimum order	1 000
4ℓ "liver pail"	92¢ with lid	minimum order	240
5ℓ bucket	$1.98 with lid and handle	(100-499,	cheaper for larger quantities)
7ℓ bucket	$2.15 with lid and handle	"	"
10ℓ bucket	$2.39 with lid and handle	"	"
12.5ℓ bucket	$3.06 with lid and handle	"	"

A litre of honey weighs about 1.43 kg

RESEARCH REPORT

Starting to pull those combs out of storage and wishing you could do more to stop wax moths? Scientists at Baton Rouge in Louisiana have come up with an idea which could show promise. It's one which is used a lot in insect control - mass release of the pest itself. Sounds crazy, but the difference in this case is that the insects released are males which have been reared in captivity and exposed to radiation.

The males mate with females which either produce no offspring or else produce ones with mutations. These in turn reproduce, and the frequency of the mutation increases. A few million "radioactive" lads about the place soon makes a big dent on wax moth populations.

Nielsen, R; Brister, C.D. 1980. Induced genetic load in descendants of irradiated greater wax moths. Annals of the Entomological Society of America 73 (4): 460-467

COLONY DISTURBANCE AND NOSEMA DISEASE

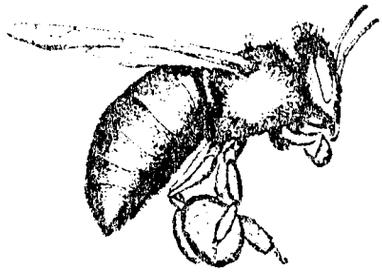
That's the title of a little article which also came out of Baton Rouge back in the sixties. It's still relevant today, judging from the questions I get asked. Colonies of honey bees were manipulated at intervals ranging from 2 days to 16 days. This involved swapping the central two combs in each brood box, and shifting some other combs around within the box.

All the disturbed colonies showed more bees infected with Nosema than undisturbed controls, up to three times in some cases. However, not much information was obtained about spore levels in the bees, and the effect of this on honey production.

Reference: Oertl, E. Journal of Apicultural Research 6 (2) : 119-120 (1967).

POLLEN SUBSTITUTES, AGAIN

It is good to know that a team of USDA scientists at Beltsville Maryland is continuing to work on this problem. Anyone can produce a diet that is nutritionally adequate for brood-rearing for at least a couple of months. There are two major problems, however, which still need to be overcome.



For scientists in North America, one is obtaining a diet which will allow brood-rearing for months on end. For beekeepers, even more important is the discovery of a diet which is attractive to bees. Just like humans, bees don't instinctively know what foods are good for them, and eat according to "attractiveness". Exactly what elicits this response (in bees) is not fully understood.

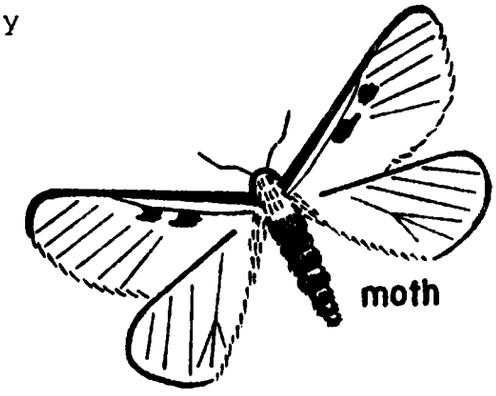
In a recent paper Herbert and others describe how they determined the sterol requirements of honey bees - another important step in the process of working out a suitable diet. However, they describe the state of the art quite succinctly by stating that "to date there is no satisfactory well-defined diet available for rearing larvae of the honey bees". We'll just have to be like Mr Micawber, and wait for something to turn up.

Herbert, E.W. et al. 1981. Sterol requirements for brood rearing by honey bees fed a synthetic diet. American Bee Journal 121 (7) : 523.

WAX MOTHS

One other possible wax moth control measure is the use of a "bacterial insecticide", Bacillus thuringiensis. This bacterium infects wax moths, but not honey bees. Some researchers have tried to bind it into foundation, or spray it on foundation as it is milled.

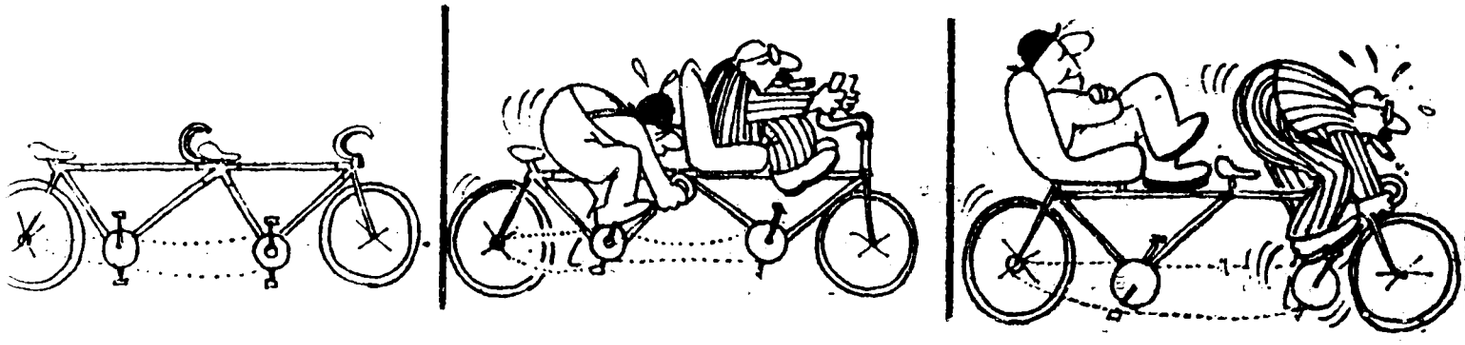
Although this sounds promising, in fact there have been plenty of problems; the bacterium is bound too tightly into the foundation, foundation is actually the last part of a comb eaten by wax moth, and the bacterium seems to exist in foundation for only about two years.



A new more effective strain of B. thuringiensis is now available, and this is useful for controlling wax moth if it is sprayed onto each comb.

Obviously that's too labour-intensive for commercial use, especially when compared with fumigation using ethylene oxide or methyl bromide. It may, however be useful to people who are unable to use these fumigants.

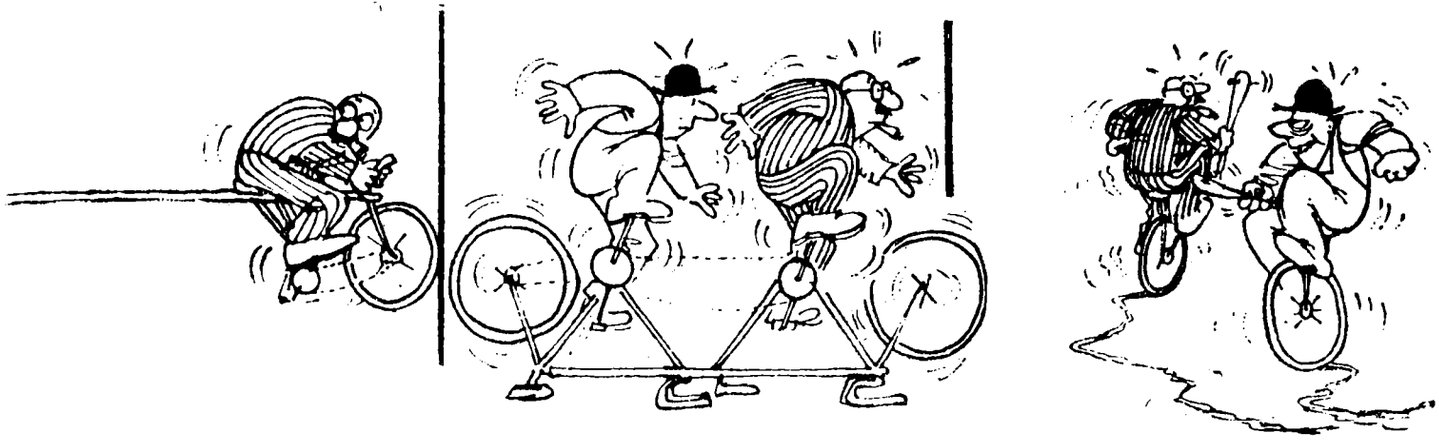
The new biological insecticide has just been released in the States under the trade name Certan.



HONEY MARKETING.

HOW THE NORTH ISLAND WANTED IT

HOW THE SOUTH ISLAND WANTED IT.



OW GOUERNMENT WANTED IT

HOW IT IS NOW.

AND HOW THE FUTURE LOOKS!

SOME WEIGHTY PROBLEMS

(Adapted from an article by Dr I R Evans of Alberta).
What weighs most, an ounce of feathers or an ounce of gold?
Answer: an ounce of gold.
Gold and silver is weighed in apotherary or Troy ounces.

1 ounce of gold = 31.103 grams
1 ounce of feathers = 28.349 grams

Does it follow that a pound of gold should weigh more than a pound of feathers?
Answer: No. A pound of gold under the Troy system weighs only 12 (Troy) ounces, whereas an ordinary (avoirdupois) pound consists of 16 (avoirdupois) ounces. Thus:

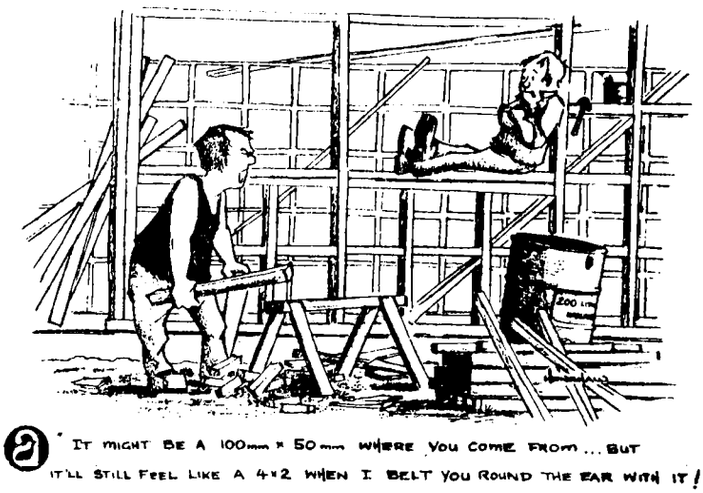
1 pound of gold = 373 g
1 pound of feathers = 454 g

We know that 20 ounces = 1 pint.
In the U.S. 16 ounces = 1 pint.
Therefore, a U.S. pint or gallon should equal four-fifths of a Canadian pint or gallon.
Answer: Wrong. A U.S. pint is five-sixths of a Canadian pint.
Why? A U.S. fluid ounce is larger than a Canadian fluid ounce.
Thus: One fluid ounce U.S. = 29.6 mℓ
One fluid ounce Canadian = 28.4 mℓ

One pint U.S. = 473 mℓ
One pint Canadian = 568 mℓ

A U.S. gallon = 3.8 ℓ
A Canadian gallon = 4.5 ℓ

If you think that the Canadian system of weights and measures is identical to the British system you are wrong again.



One teaspoon Canadian	=	4.74 mℓ
One teaspoon British	=	3.55 mℓ
One teaspoon U.S.	=	4.93 mℓ

and to really add to the confusion, one teaspoon Canadian (hospital usage) = 5 millilitres.

Anyone for metrics?

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The Inland Revenue Department's public information bulletin No. 110 is now available from their offices. It's a special issue devoted entirely to business tax incentives. Sounds like required reading these days.

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Remember the "Redline motor generator" for running mains electrical appliances, mentioned in the last issue? There is a somewhat different thing on the market called an "Epcon auto power converter". It converts the output from your alternator to 200 V DC. Electricians tell me that this will run any power tools "with a universal bush type motor, e.g. electric drills, grinders, skill saws etc".

The disadvantages are (a) you need an alternator, and (b) the motor has to be running - 2000 rpm to produce 700-800 W. The power converter costs $180 and is distributed through Alfa-Laval.

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And there's an interesting alternative to conventional heating cables for wrapping around pipes, tanks and baffles. It's called the Auto-Trace self-limiting heater system. I came across this in an overseas magazine and wrote to the manufacturers, Raychem Ltd. Their South Island distributor is:

Insapipe Industries
P O Box 22-432
Christchurch Phone 67-671

Conventional heating cables are usually fairly powerful things, regulated by a thermostat. Auto-trace is a self regulating system, which controls itself at a pre-determined level. Two heating cables are bounded together in a strip of graphite, and it looks very much like the black flex used for television aerial leads.

When the graphite core is cold, electricity flows from one wire to another, and heat is generated. As the core heats up, the graphite expands and reduces the electrical flow. That's the self regulating principle.

The amount of cable used is calculated by taking into account such factors as throughput of honey, its temperature, quantity of insulation, etc. The required length is simply cut off and wrapped around whatever has to be kept warm. There's no problem with hot spots occurring where two pieces of cable touch, because of its self regulating principle.

Auto-trace is best for temperature maintenance rather than for heating up cold substances. It has already been used in the honey industry in other parts of the country.

There are three grades - 13, 26 and 33 watts per metre, which cost $14.35, $19.01 and $23.55 per metre respectively. There's also 20% sales tax to pay unless you can find some way out of it.

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PDB crystals (paradichlorobenzene) are available from wholesale pharmacists. There's quite a range of prices, I have had quotes of $5.20/kg and $8.16/kg so it pays to shop around.

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"Rural Industry Incentives 1981-82" is now available from M.A.F. offices. It describes tax incentives, guarantees and loans available to the rural sector.

While you're there you could pick up a copy of the 1982 Agricultural Training Calendar. Details for beekeepers:

- Queen bee breeding, Telford Farm Training Institute Balclutha, 13-16 April 1982
- Expanding into Commercial Beekeeping, Telford, one week in August (dates not yet finalised).

A firm in Gisborne is making some stainless steel gear for beekeeping, at a reasonable price. You might like to check them out for tanks etc.

Endeavour Sheetmetals
P O Box 2160
Gisborne Phone 82-676

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Burning down their own honey houses seems to be a favourite pastime of beekeepers, with an annual tournament being held somewhere in the country. Honey houses are high fire-risk areas; a combination of inflammable beeswax, boilers and wierd and wonderful collections of electrical plugs which would give an electrician nightmares for weeks.

Hot rooms are problem areas, and thermostats very crucial. Having one old tired thermostat with its points almost welded together with honey crystals is a certain recipe for disaster. Now there are electronic thermostats available which have no moving parts, and remote sensors so that the thermostat is safely located away from messy conditions.

I've made a few enquiries about models available.

Cory-Wright & Salmon Ltd, GPO Box 2094, Christchurch 1
TE 1201 thermostat and sensor (-20 to 70°C) $78.41
TE 1501 thermostat and sensor (-20 to 70°C) $93.20

B R Homersham Ltd, P O Box 280, Christchurch 5
PN4 series non indicating controllers (sensor extra) $78.70

Teltherm Instruments Ltd, P O Box 22-464, Christchurch
Omron E5C temperature controller with passive thermister $95.65

Obviously these people have a vast range of models, and the ones quoted are only examples. Contact distributors for further information.

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ROUND HONEY SECTIONS

Ross Rounds - a brand of round section comb equipment, is now being distributed in New Zealand by Curtis Wicht. The current price list looks like this:

Components	Quantity	Price
VISI-CHEK HALF FRAMES (each frame holds 4 rings)	50 1/2 Frames 100 " " 250 " "	$ 46.00 $ 91.50 $227.50
SMOOTHIE SECTION RINGS (2 rings for each section)	200 rings 400 " 1000 "	$ 21.00 $ 40.50 $ 99.50
SECTION COVERS (2 covers needed for each section) Clear & Opaque	200 covers 400 " 1000 "	$ 23.50 $ 46.00 $112.50
SELF-ADHESIVE LABELS	100 labels	$ 6.00
COMPONENT PACKAGE - 8 frame 16 half frames 64 rings 64 covers 32 labels	1	$ 32.00
COMPONENT PACKAGE - 9 frame 18 half frames 72 rings 72 covers 36 labels	1	$ 36.00

Orders to P O Box 280 Auckland. Telephone (after hours) 486-509. Terms 10% deposit with order, balance on confirmation of order. Freight, customer's care.

LOOKING AHEAD

Southland field day will be at Woodlands on 30 January 1982. Programme includes displays, cut comb production, visitors and speakers from Federated Farmers, Canada, and local.

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AFRICANIZED BEES

The spread of Africanized bees through South America is continuing. Fresh evidence * shows that some early ideas about the problem were wrong. From a two day seminar on Africanized bees held by the USDA earlier this year:

- there has been no genetic "mixing" between European and Africanized strains, therefore no dilution of agressive behaviour patterns.
- Africanized swarms invade weak or queenless European colonies take over, sometimes even killing resident queens.
- competition and agression from Africanized bees means that colonies headed by European queens rarely build up beyond 5 or 6 frames in strength.
- more agressive bees do not necessarily produce more honey; Venezuela has changed from a honey exporter to an importing country. Beekeepers report up to 80% reduction in crops.
- hobbyist beekeeping has almost ceased to exist in Venezuela, and 56 deaths have occurred since 1978 as a result of mass stingings (as opposed to allergic reactions).

"Africanized bees - a problem that won't go away" by Frank Robinson, secretary of the American Beekeeping Federation. American Bee Journal September 1981 pp 625-626. See also the article by Larry Comar on p. 646 of that issue.

COMBS

I've said before in this publication that, after bees, drawn combs are your most valuable asset. We all have theories about combs - some prefer white combs for honey storage, while others say that bees store more in darks. Some beekeepers say that putting foundation in honey supers (or even in the brood nest) knocks the swarming instinct out of a colony. Is regular comb replacement necessary, and do older combs mean smaller bees?

A researcher at an agricultural university in Sweden discusses many of these theories in a recent paper *, and reports on the use of foundation in controlling swarming.

One group of hives was supered before and during the flow with supers containing an equal mix of drawn combs and foundation. The hives gathered an average of 97.5 kg surplus honey. (Hands up all those who want to move to Sweden). The second group of hives received only drawn combs, and produced a surplus of 112.5 kg per hive. The difference between the two results is statistically quite significant.

Drawing foundation obviously decreases honey yield, a finding that most beekeepers would expect. The amount of honey consumed for the production of wax is very hard to determine as it varies a lot with colony size, temperature, nectar flow, etc. (See the article in Beekeepers' Bulletin Vol. 1 No. 4 May 1980.) In the Swedish experiment about 0.7 kg of honey was consumed per comb drawn out, which translates to nearly 6 kg per 8 frame super. (Is that your profit?)

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* Fries, I. 1981. The influence of comb building before and during the main honey flow on the swarm tendency and honey yield of honey bee colonies. American Bee Journal 121 (9): 651-652, 655-656.

The experiment also looked at the number of swarm cells made per colony, and found no difference between those drawing foundation and those not.

And the answer to those other questions?

- dark combs give darker honey, even when no heat is used.
- there is no evidence to support the theory that old combs give smaller bees and therefore less honey.
- comb replacement does, however, assist in controlling nosema disease.
- bees store as much honey in 'whites' as in darks.

CAN HISTORY REPEAT ITSELF?

Exactly one hundred years ago this year a depression in New Zealand forced the closure of quite a few government offices - including all those of the tax department!

And on that note it's good-bye from me. Merry Christmas and happy honey flows.

Andrew Matheson

A.G. Matheson
APICULTURAL ADVISORY OFFICER