THE NEW ZEALAND BEEKEEPER

FEBRUARY, 1965

NON-PAYING PASSENGERS

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CONTENTS

Bees Follow The Sun

IT IS EASY to fool chickens and birds into thinking that the day is long and the night is short, thus encouraging far greater than natural egg production, and similar treatment is successful with pigs who are encouraged to eat great quantities of food under artificial light with the mistaken impression of a long day.

Bees, however, cannot be fooled in this way according to Dr. Cameron Jay of the University of Manitoba's Entomology Department, who has been investigating the social habits of the honey bee and has discovered that the bees follow the cycle of the sun even when kept under artificial light. "We have tried turning the lights off and on during the day, but they still go to sleep with the sun, no matter what the artificial lights are doing," he says. "This is really quite a discovery in the field of entomology." Dr. Jay has also found that bees are sensitive to colour, particularly blue and yellow. "Now we are experimenting with different colours and design of hives to find those colours a bee can locate most easily."

With all the meticulous research which has been carried on by scientists throughout the world for so many years, we could be tempted to think that everything possible to be known about bees would have been discovered long since. But even the rawest amateur quickly realises that there is so much yet to be understood and discovered before we can in truth deserve the label of "Beemaster". Who is there amongst us who can adequately describe or define the "master mind" of the hive which governs the orderly conduct of the colony from day to day and generation to generation?

Whilst great advances have been made since the day that Langstroth made possible easy manipulation by the introduction of movable frames in 1851, we are still at the stage where answers to seemingly simple questions cannot be given. We have indeed much to learn.

Wide range of topics at

N. B. A. EXECUTIVE MEETING

The N.B.A. Executive met in Wellington on November 25 and 26, under the Chairmanship of the National President, Mr Harry Cloake, with Messrs T. S. Wheeler, G. T. Winslade, J. R. Barber, J. Glynn, D. A. Barrow and the General Secretary, Mr R. A. Fraser.

Amongst the business dealt with was the appointment of the new General Secretary, following the resignation of Mr R. A. Fraser, Price Control, the Export Incentive Scheme, Conference Resolutions, the Seminar, the Overseas Study Tour, and itms under General Business.

General Secretary: Following consideration of a number of applicants for the position of General Secretary, it was agreed that Mr K. E. Moody, P.O. Box 127, Upper Hutt should fill the vacancy. (Reference to Mr Moody's appointment is made elsewhere in this issue).

Conference Date and Venue: The 1965 Conference is to be held in Dunedin on Wednesday, Thursday and Friday, July 21, 22 and 23.

Price Control and Prices: The Secretary advised that no decision had yet been received from the Minister of Industries & Commerce on the Association's application for the release of honey from Price Control, although the matter had been under consideration by government for some months. Correspondence was also to hand from the Honey Marketing Authority advising that the Authority had made application for a review of the controlled price of honey packed in glass jars. Prior to the meeting the Secretary had made arrangements for a deputation comprising himself, the President and the Chairman and Manager of the Honey Marketing Authority to meet the Minister on the following day.

Following representations, the Minister indicated that he was not prepared to give a final decision on de-control, but suggested that immediate application be made for an increase in the Price Order. (The outcome of the application was an increase, details of which are listed elsewhere).

Export Incentive Scheme: Correspondence to and from the Honey Marketing Authority and the Minister of Trade was presented and considered, and it was noted that neither the Authority or the Minister were prepared to include extracted honey packed in retail containers in the list qualifying for exports. Following further representations to the Minister, sanction has since been given for the inclusion of Comb Honey in the Export Incentive Scheme.

Conference Resolutions: Replies were received from the Money Marketing Authority and the Director-General of Agriculture to various Conference resolutions which had been referred to them for comment. After consideration of the replies the correspondence was RECEIVED. RESOLVED "That copies be sent to all branches."

Timaru Training Seminar: Mr Winslade gave a verbal report of the Timaru Seminar on practical beekeeping which was held in September. RESOLVED "that the verbal report be received and that Mr Winslade be requested to furnish a full written report, financial statements etc. to the next meeting of the General Executive so that the same be available as a reference file for future seminars."

Seminar Profits: In relation to the profit of approximately £30 made on the Timaru School, it was RESOLVED "that seminar profits be held for use

in future seminars or training schools and that the funds be identified separately in the Associations' accounts."

Future Seminars: There was general agreement that a similar seminar should be held in the North Island preferably Hamilton in 1965. RESOLVED "that Mr T. S. Wheeler be appointed the project convenor for the North Island Training School." Mr Wheeler accepted this appointment.

RESOLVED "that this Executive expresses its appreciation to Mr G. Winslade for his services as convenor of the Timaru Training Seminar."

Overseas Study Tour: Answers to correspondence was awaited from Canada as to the extent of the assistance which would be available to host a bursar from New Zealand. Absence of such information made it virtually impossible to finalise arrangements for the selection of a bursar and to make arrangements for him to be in Canada by April of this year to coincide with the Canadian production season.

Hopkins Bequest: The Director of the Cawthron Institute, Nelson, had confirmed the existence of a fund for Agricultural Research and invited the Association to nominate a project for scientific examination out of the proceeds. A request had been made to the Director, Dr Barnicoat, to ascertain the amount of the funds in hand, so that the Executive would be in a more informed position to suggest a work project.

General Business: In the course of discussion of general business, the following motions put forward by Mr D. A. Barrow were carried:—

1. That the Executive request the Secretary, N.B.A. to write to Mr T. Palmer-Jones, Principal Scientific Officer at Wallaceville Research Centre asking for a twice yearly report on Beekeeping Research work being undertaken by him and his staff. These reports to be printed in the N.Z. Beekeeper.
2. That the Executive direct the Secretary of N.B.A. to send a summary of the minutes of each Executive Meeting to the Branch Secretaries of the N.B.A.
3. That the Secretary write to Mr Smaellie, Superintendant of the Beekeeping Industry requesting (1) An immediate reinstalment of the Apiary Section in the **"N.Z. Beekeeper"**, and (2) A fuller account of Departmental matters to be published in the **"N.Z. Beekeeper"** than has been the case in the past.

The meeting terminated at 6 p.m.

HONEY PRICES on LONDON MARKET

Heavy stocks of Argentine honey on the London market continue to depress prices, reports the market review of the Bank of New Zealand, which lists New Zealand clover honey at a steady price of 175/-, with extra light amber at 160/- and light amber at 152/6 to 155/-.

There has been slight increased activity in sales, with Australian light amber at 92/6 and Argentine at 90/- c.i.f. Brokers comment that prices may weaken until such time as the extent and quality of the new Argentine crop are known.

LIBRARY NOTES

SUGGESTIONS FOR AUTUMN READING

City of the Bees — Frank Stuart
The Bee-Keeper's Handbook — Mace
Wonders of the Hive — Lavine
Successful Beekeeping — Wedmore
Queen Rearing — Laidlaw & Eckert

Several old copies of "ABC & XYZ of Bee Culture" available for long-term loan.

Available to Members—Send 2/- to your Hon. Librarian, Beekeepers Technical Library, P.O. Box 423, Timaru.

THE EFFECT of PHOSPHAMIDON on HONEY BEES

An interesting paper on the effect of phosphamidon applied as a spray to a crop of white clover has been published on the work of T. Palmer-Jones and I. W. Forester of the Wallaceville Animal Research Centre, Wellington. The original experiments took place near Christchurch in December 1963, the findings being first published in the N.Z. Journal of Agricultural Research, November, 1964.

The systemic insecticide phosphamidon may have possibilities for control of clover case-bearer moth (Coleophora spp.), but under the Apiaries Protection Regulations 1957, the application of an agricultural chemical, that is toxic to bees, to flowering leguminous crops is prohibited. Accordingly a study was made of the effect on honey bees of phosphamidon applied to a white clover (Trifolium repens L.) seed crop.

EXPERIMENTAL AREA The 6 ac white clover seed crop, near Christchurch, was in full flower and very attractive to honey bees at the time of spraying.

Three experimental apiaries were all kept under observation during the trial. One, of 10 hives, was one-quarter of a mile from the crop; another, of 14 hives, was half a mile distant; and the third, of six hives, was a mile away.

APLICATION OF SPRAY The application was made under calm conditions in the early morning before bees commenced to fly, finishing at 8.15 a.m. on 9 December 1963.

A 50 per cent W V formulation of phosphamidon was diluted with water and applied with a ground rig to two strips of the field, each of 0.7 ac. Five oz of active material/ac was applied to these strips. Volume applied was 12 gal/ac.

COUNTS OF FIELD BEES Bees per acre on treated and untreated areas of the crop were calculated from bee counts under weather conditions favouring activity as described by Palmer-Jones, Forster, and Jeffery (1962).

EFFECT ON FIELD BEES Toxic action of the insecticide was studied by collecting groups of 44-80 bees from the crop and holding them in cages provided with feeders of sugar syrup which were kept in an empty storey above a hive. Mortality was noted after 48 hours.

RESULTS

BEE COUNTS Bee counts five hours after the application were 3,500/ac on a sprayed strip and 3,900 on an untreated one. A day later they had dropped to 1,800 on the treated area and 2,100 on the other, rising three days after application to 2,200 on the treated and 2,300 on the untreated.

EFFECT ON FIELD BEES Mortality in field bees collected on the day of application averaged 45 per cent, was 57 per cent a day later, 43 per cent two days later, 47 and 41 per cent on the morning of the third and fourth days after spraying, and dropped to a normal two per cent after six days.

EFFECT ON COLONIES On the day of application irritability was shown by bees in the nearest apiary and the one half a mile distant, a few dead and dying bees were observed in front of each hive in both apiaries. Bees in the nearest apiary had lost their irritability the following day but mortality was still apparent. In the other apiary irritability and mortality were

now more pronounced. These symptoms were not shown on the second day after application. Hives in the most distant apiary were unaffected. In the other two brood was normal, queens continued laying, and there was no effect after the mortality ceased.

DISCUSSION

Phosphamidon is claimwed to be a fully systemic insecticide which penetrates into plant tissues quickly without leaving any traces of insecticides film on the surface. Since the toxic action of phosphamidon persisted for at least four days, it appears that the mortality was due to ingestion of toxic nectar rather than to direct contact with the insecticide. In the hives, brood maintenance and other activities apparently continued normally and bee mortality was slight. However, the number of affected bees exposed to the insecticide would represent only a small proportion of the total strength of the hives. Because of its high toxicity and persistence, phosphamidon must be regarded as highly dangerous to bees.

This prime swarm settled on public property in Nelson and decided that the interior of the metal posting box would form an ideal hive.

Postal officials thought otherwise, of course, and a strictly unscheduled collection was made by two Nelson beekeepers Michael Bourke and Sam Satherley with the co-operation of a nervous 'postie' who unlocked the box for the eviction to be made.

Michael commented that the swarm was average in size but was a little awkward to handle because they had really established themselves inside the box, and if they had been left alone for a few days would have had a fine weatherproof home, with top entrance and all modern cons.

The swarm is now part of the 20 colonies in Michael's apiary.

(Picture by courtesy of the "Evening Mail" and Geoffrey C. Wood Studio Ltd.)

How to use

BENZALDEHYDE

By R. Davidson Jnr.

Having had considerable success in using Benzaldehyde as a repellant, I have been asked to pass on my method to readers of the N.Z. Beekeeper.

Success is still not 100% in spite of this being the second season of use., although there has only been one day this season when I was unable to get it going properly. Considerable trouble was experienced at the start of last season and it was only the occasional success that kept me persisting. I would not, however, go back to any other method of taking off honey.

To give an example, I timed one apiary on a mild overcast day during a honey-flow, when 25 very full supers of honey were taken off in twenty minutes by a man and two boys. Empty supers of comb were put back on the hives and the time was taken from arriving at the apiary to departure.

To achieve this sort of success, several things must be remembered.

Firstly it **will** work, and if it doesn't it is the fault of the operator, not the gas. Benzaldehyde is not foolproof, and requires a certain amount of care during operation.

Secondly, it is a liquid that must be turned into a gas if it to be affective. To do this a certain amount of heat must be available from either the hive or the atmosphere, and if the day day is cold and the hive is cold, it won't operate very well at all.

Thirdly, the bees must be capable of moving away from the gas at the same rate at which it descends. During a period of cold weather bees move much slower than during summer weather, so that sufficient gas must be available to shift them, — as they are reluctant to move, — but the gas must not 'move' too fast least it overtake and smother them. In this case more gas on a cold board, or tray, is what is required.

The main fault with bee-keepers using Benzaldehyde is that they use too much on. In fact, it is a good rule to stick to, that if it isn't working correctly, you are using too much. Another good point to remember, is to put the first application on the trays before you leave home in the morning.

For some unknown reason, it seldom seems to work well at the first apiary unless this is done.

Trays: I had intended to make new trays, but am still using the old carbolic trays, made of tin and painted black with cloth inside and about 1½" deep. These work excellently in cloudy or cool weather, but if the sun comes out, it is necessary to lay a division board, or mat on top, otherwise the trays get too hot, the gas too fierce, and I finish up with a mass of stupified bees in the box.

One of the peculiarities about Benzaldehyde is that if the gas, as it moves down through the box, overtakes any bees, they seem to become stupidfied, crowding up into little bunches and running aimlessly about the frames.

If this happens, it is useless to persist, and the only thing is to leave it and try again later, or just take the box off and brush the bees out.

The method to use when taking off honey is to remove the lids and mats from all the hives and scrape the wax off the top bars, using little or no smoke. Then put the trays in position. In cloudy or cool weather, eight trays are enough, but in hot weather six are plenty. As each tray is put on, give a puff of smoke across the box — just enough to clear the top bars — but be careful with the smoke. The idea is to just turn the bees and start them moving in the right direction.

After the second tray is in position, lift the first just as a check. If the bees are buzzing and moving rapidly out of the box put it down again and just carry on. If the bees are buzzing and running aimlessly around, then the gas is too fierce and the tray should be turned corner-wise on, which allows a little air to circulate underneath, and water the gas down a little. If the bees are just sitting there and not buzzing, a little more smoke is required. If this occurs, check it again a few minutes later, and if they still haven't started to buzz and run out of the box, then a more liberal application of Benzaldehyde is needed.

Depending on how the bees react to that first tray is the pattern for carrying on throughout the apiary. This is very important. Always check the first tray in every apiary, and only add Benzaldehyde to the trays when the bees no longer react to it. One application will frequently last four or five hours.

Another point is to keep the bees down as each super is taken off, and put the tray back on as soon as possible with another little puff of smoke. Once the tray is taken off, the bees return to the frames very rapidly, and any delay in replacing the tray causes the upward moving bees to run into the downward moving gas. The result is very often chaos.

Also, if queen excluders are used on the hives there is likely to be a considerable number of drones in the box directly above the excluder. These drones cause a lot of trouble when taking off that particular box of honey, and I find it essential to lay the tray cornerwise on, as this allows the drones to escape out of the corners and the bees to go down through the excluder.

Finally, as each super of honey is taken off, tip it up on end, before lifting it off the hive. If the bees are left in the frames they are easily seen clinging in a little bunch down near the bottom-bars. This does not happen very often, but when it does, a quick flick with the hive tool gets rid of them, and up on the truck goes another box of honey completely free of bees.

Benzaldehyde is not all that easy to use, but with a little care, and the knowledge I hope you have gained here, the results can be really outstanding.

Pollen Wanted for Export

An unusual request has been received by the Director, Horticulture Division, Department of Agriculture, Wellington for a source of supply of pollen for export to the United States. Any New Zealand organisation capable of exporting powdered pollen is invited to contact the enquirer direct. The address is: Mr D. B. Sharian, General Nutrition Corporation, 921 Penn Avenue, Pittsburgh, P.A. 15222, U.S.A. The pollen is required for manufacturing purposes.

SPECIAL FIRE WARNING

THE RISK OF FIRE hazard through the unaccustomed use of benzaldehyde is a matter which has been drawn to the attention of beekeepers in America by the American Bee Journal, and it is certainly a warning which should be heeded here, so the notice is produced in full:

SPECIAL WARNING ON BENZALDEHYDE

This is a matter which should have been mentioned in releases about Benzaldehyde, but unfortunately was overlooked. Benzaldehyde changes to Benzoic Acid and in the process heat is given off. This could act the same as leaving oily rags in a confined area. Therefore, take special car with cloths or rags that have been sprinkled with this material. Fume pads and acid boards should be washed daily. This constitutes a definite fire hazard!

Honey Crop Prospects 1964-65

By E. SMAELLIE

(Superintendent, Beekeeping Dept. of Agriculture)

Reports from Apiary Instructors indicate that the total production of honey this season is likely to be about 1400 tons less than the previous six-year average. Following is a summary of the position to date:

Northland and Auckland

The main honey flow commenced later than usual. Buttercup and flowering weeds were plentiful, but clover bloom is not abundant. Pohutukawa bloom varied. Calm weather allowed bees to take full advantage of the nectar from this source. Returns from pasture nectar sources could be average with a continuation of favourable weather, but owing to poor returns from Manuka and bush sources the overall crop expected is about two-thirds of last year. The quality of the honey is good.

Hamilton

Yields from early sources were disappointing. Tawari and buttercup both produced below average crops. Clover and pasture weed sources in most districts benefited by recent rain. It is expected that with favourable weather conditions more honey from these sources will be stored and the overall crop will be about average. The honey is above average in colour and of good flavour.

Tauranga

Weather conditions were more settled and warmer than for the corresponding period last year. Blackberry bloomed abundantly. Clover, Lotus major and Catsear have all shown ample bloom.

In the Bay of Plenty region above average crops will be harvested. Night temperatures in the Rotorua districts have been cool and this may affect the yield from clover, however, it is expected that at least average crops will be secured from that area. Warm weather conditions could improve the present prospects.

The district crop overall is expected to be average to above average.

Hastings

Except towards the ranges dry conditions prevail from Hawkes Bay to Wairoa. Crops in this area are below average. In Central Hawkes Bay districts conditions are better and up to average crops are expected. Conditions in the Wairarapa are the best experienced for some years. On prsent indications the oveall district crop will be slightly below average.

Palmerston North

The weather has been consistently warm.

Heavy rainfalls maintained pastures in some districts, but in other areas conditions have become very dry. Clover bloom is very patchy. In Central Manawatu Plains the yield is below normal but on coastal sand country crops are above average. Further inland and in the northern part of the district average crops have been produced. Manuka has yielded heavily. The overall crops are likely to be near average.

Hawera

Weather has been mainly hot and humid. To date average crops have been gathered in the southern and central areas of the district. Crops are lighter in the northern area. Clove, Lotus majo and Hawkweed are blooming in profusion. If present conditions persist above average crops can be expected.

Nelson

On the West Coast fine weather has prevailed. Yields from Kamahi are average and Rata is flowering well. With a continuation of good weather above average crops will be secured.

In Nelson rainfall has been adequate. Clover and other pasture sources have yielded with a steady flow. Manuka

also yielded well. Crops in this area are above average. Marlborough has experienced dry conditions. Clover yielded well and lucerne has commenced to flower. Crops in this area are expected to be above average.

Christchurch

Dry and warm conditions have prevailed. Pasture growth was fair to good on heavy soils, but generally was poor on light soils. On the medium and light soils pastures have new become completely dried out. Eucalypts and Vipers bugloss yielded well. Clover and other pasture nectar sources in heavy and medium soil areas have given a reasonable return but there has been no significant yield from these sources in the light, and light to medium soil areas. Indications are for a very poor overall crop for the district. Possibly the worst on record.

Oamaru

High temperatures and low rainfall conditions have prevailed since late spring. Clovers have not flowered in the most severely affected drought areas. Effects on pastures of recent light rain were quickly dissipated by the later spell of warm weather. Catsear, thistle. vipers bugloss and lucerne are still in bloom and further light yields from these sources are possible. Manuka has yielded heavily. Irrigated land in Central Otago will yield average crops. In South Canterbury crops are below average to poor and in North Otago districts crops vary from very poor to complete failure. The oveall crop for the district is expected to be approximately fiftey per cent below average. The honey produced is darker in colour than usual.

Gore

Adequate rainfall and warm temperatures have promoted excellent pasture growth and in all districts clover has bloomed abundantly. Good yields have been secured from Manuka and Kamahi. In Southland warm settled weather is required to develop a steady flow of honey from pastures. South Otago has experienced good weather conditions and crops this season are likely to be the best for several years. Present prospects are for average to above aveage crops in all districts.

SLAVERY IN NEW ZEALAND

THE LITERARY EFFORTS of Mr. H. W. Beaumont are syndicated to a number of New Zealand newspapers, and he recently composed a contribution of good humoured criticism of the beekeeping fraternity who, he alleges, are a lot of slave drivers.

Whilst his writing on this occasion may not be entirely factual, his reasoning raises a smile, and a smile is a worthwhile contribution to any day of the week.

Under the title DOWN TO EARTH —"Slavery in N.Z.," Mr. Beaumont writes:—

'As Bill says, 'you wouldn't read it in a book,' but there it is. There are more than 5000 slave owners in this country, maintaining more than 170,000 homes for the slaves they own. Incredible, isn't it?

"The beekeepers are the biggest slave-owners in this part of the world. They keep captive nearly 3,000,000,000 bees, who slave for them from dawn till dusk. They receive no wages, merely being provided with accommodation, which contains elaborate systems of shelving to make easier the bare-faced robbery of the gold that industrious bees draw from the flowers of the countryside.

"I bought a pound of honey and considered a proposition. If a pound of honey represents the work of one bee flying 10,000 miles, what distance does the annual production of honey represent? You can check my arithemetic, Bill, against the figures in the Year Book, but I make it, in round figures, 1.433,600,000,000—about 7000 round trips to the sun.

"One third of our nation's population lives in the South Island and cares for 40 per cent of the bees, the rest being at the mercy of the inhabitants of the North Island, where the season is presumably longer, though the flowers are fewer (there being twice the population there to trample flowers underfoot and to build houses, factories and roads over the top of them).

"Be kind to your bee. She slaves to sweeten the world."

Chloroform is a Knockout

WE LIVE AND LEARN — or should do. Has anyone experienced the apparently beneficial effects of chloroform as a 'taming influence' on bees which a bad tempered mother has passed on to her offspring? J. W. Smith of Staffordshire, England, writing of his experience in the BRITISH BEE JOURNAL with one particularly sting-happy crowd of workers, reports as follows:

"My friend Wilf called on me recently in much trouble . . . he had just been discharged from hospital having received a severe attack of stinging while attempting to remove three deep supers from a double brood chamber National hive that was inhabited by an extremely strong lot of real B's . . . The history of this lot, which had no pedigree had built up a shocking reputation, having been **given** to my friend by an old beekeeper who claimed they were beyond his control. They had apparently been dragged into their present position, at the bottom of his garden, on an old door, this upset them and they obviously had nursed this grievance, and from this hide-out had persistently attacked anything that moved within a hundred yards or so of their territory.

Fools Rush In . . .

In a weak moment, feeling sorry for my friend who still looked the worse for his ordeal, I offered to help to remove his supers and, choosing an ideal evening, motored over to "have a go."

I was met by his wife who confirmed that if she or anyone else ventured down the garden, they were immediately attacked and forced to run indoors, while the little demons hammered on the doors and windows in their fury.

Putting on our best "suits of armour," my friend swigged his bottle of anti-histamine tablets to appease his good lady, who was most concerned regarding his welfare in view of the recent occurence, and so to the attack.

Down the garden, turn right at the champion vegetable marrows, through the jungle-like nettle bed and then the advance party launched its frontal attack at our veils, this was quickly followed up by the commando force hovering in readiness; the attack was on. It was evident we were in for a "pasting" before we touched the hive. At this st age Wilf shouts, "Hold up," and sallies forth with a large bottle of chloroform at the ready. A hefty dose was tipped on to a cotton wool pad and poked into the entrance, followed up by a drop in the top super for luck. At once there was a mighty roar and then silence.

Peace and Quiet . . .

We ventured to peep inside the top deep super, not a sign of a bee was in sight, the three deep, fully-capped supers were removed in turn **quite clear of bees,** though a good bucketful were gently sleeping it off on top of the queen excluder. By the time we had carted the supers away, with the fresh air and the warm sunny evening the bees soon commenced moving around in drunken stupor and later sizzling around in small circles. We promptly assembled the hive without a sting.

The deep frames were, without doubt, the finest I have seen in my few years beekeeping experience. I understand there has been little trouble with this colony since, and wonder if our shock treatment may have improved the tempers of the little terrors.

I have repeated the treatment with another rather sting-happy lot with similar success, and wonder if this crude method has any future?"

It might well be argued that the surest and most efficient method would be the normal procedure of destroying the queen and introducing a lady with a more loving and kind temperament, but first, "cherchez la femme," or "find her!"

Application of the chloroform in the case cited was apparently by soaked pads poked into the entrance, but an easier alternative would be for saturated cotton wool to be placed in an ordinary smoker, and the fumes puffed in through the entrance and under the crown board.

A contributor to the Devon Beekeepers' Association magazine **"BEE KEEPING"**, commenting on Mr Smith's experience, suggests that chloroform might be an alternative to propionic anhydride, so extensively used in the U.S.A. for quickly removing honey surpluses, and for which a special super is placed over the frames to act as a fume chamber, with which is incorporated bellows to blow down the fumes into the combs.

In the same edition, **J. WALKER** of the Beekeeping Dept, Riseholme Farm Institute, Lincoln England, gives the following advice on the use of propionic anhydride for clearing supers, which he states are based on the basic routine for the use of the fume chamber by the U.S. Department of Agriculture, and assumes some acquaintance with the principles involved. As with other aspects of beekeeping, of course, circumstances vary and are effected by air temperatures, strength of colony, honey flow conditions etc., and the writer points out that the notes should be used for guidance and not as inflexible rules.

1. Prepare a small quantity of Propionic Anhydride for use — a bottle calibrated in tablespoons is useful. One measure of concentrate should be shaken up thoroughly with four measures of water. Keep well shaken throughout period of use.
2. Sprinkle 1 to 2 tablespoons of the mixture over the absorbent pad of the fume chamber.
3. Place fume chamber on super to be cleared, having started bees moving downwards by smoking.
4. Give 5 or 6 puffs with fume chamber bellows, repeat after 30 seconds and at intervals thereafter, spaced to keep the bees moving out of the super. They will return at once if the amount of repellent is inadequate. Over sufficient doses may cause a greater depth of clearance than intended, unless it is so strong that the bees are stupefied.
5. Remove the cleared super at once, taking ordinary precautions to avoid robbing.

and it's no joke . . .
Laughing gas is used as a Bee Repellant

Danish friend Henning Christensen, of Gentofte, Denmark, to whom reference has been made in earlier issues of the N.Z. BEEKEEPER enquired recently whether New Zealand beekeepers had used laughing gas in their apiaries, and if results of such usage were known.

Various expressions of opinion and experience have been published in bee literature in various parts of the world, and one equipment house in Germany advertises Laughing Gas Pills for easy administration.

A Danish beekeeper, Mr Jens Froslev of Lyngby claims that he has used laughing gas successfully in moving bees in a hurry when stocks were threatened with an unexpected flooding. To save the colonies from inundation in the autumn, he moved his hives a few yards yards up hill away from the rising water, first administering laughing gas, and although the new site was in close proximity to the previous position, the number of flying bees returning to the old site was negligible. It would appear that the anaesthetic caused them to completely forget their original surroundings.

Opinion expressed in "TIDSSKRIFT FOR BIVAL" in 1951 was the use of nitrous oxide caused the house bees to develope as foragers quicker than normal, whilst beekeeper H. C. Knudsen

of Hvidovre, Denmark says that administration of the gas reduces the bees will to work for the rest of the year. In agreement with this statement is the opinion of Floyd E. Moeller, investigation leader at the University of Wisconsin, who said in a letter to Mr Christensen "... such exposures reduce the length of life of bees by 50%. This is dangerous material for bees, and I would advise against it's use ..."

Similarly, the report from the XIX International Beekeepers' Congress in Prague in 1963 brought condemnation from Walter Broker, Koln-Ehrenfeld, Germany.

Use in N.Z. . . .

Enquiries concerning the general use of nitrous oxide by beekeepers in New Zealand has not been very fruitful, and the only concrete instance of current use is by Mr T. Gavin, of Gavin's Apiaries, Titoki, Whangarei, who has provided the following helpful and interesting information.

Commenting that he first learnt of the use of laughing gas in an article in the "New Zealand Beekeeper" some years ago, Mr Gavin says that he has consistently employed laughing gas with reasonable success.

The gas is generated from nitrogenous fertiliser sold under the trade name "NITRO-PLUS", and is in a granular form free from dust.

It is important not to use too much "NITRO-PLUS", and Mr Gavin first fills his smoker with hay and then adds a spoonful of the granules on top, covered by a further whisp of hay to stop any granules from being blown out of the smoker nozzle.

The gas generated by the heat is used for chasing the bees off the frames, and has been found to be very effective. The method of use is to remove the lid from one hive and give it several puffs of smoke and gas across the tops of the frames. Then open a second hive and do the same. Return to the first hive and give several puffs directed between the frames. Repeat this with the second hive.

If the hives are in close proximity to each other, a third hive may be opened and treated similarly. Continue to give each hive a puff until all of the bees have run down. The idea is to keep the smoke above the bees so that they move down the hive in an orderly fashion. Should they become confused, then too much smoke and gas has been used. If the bees collapse, too much "NITRO-PLUS" has been put into the smoker.

Mr Gavin points out that the fertiliser is readily available, but is only obtainable in 1 cwt. bags which cost 35/- and would provide sufficient laughing gas to 'rob' all of the bees in New Zealand for a whole season!

Does anyone else in New Zealand consistantly use nitrous oxide in their beekeeping activities? Advice and details of any such procedure used would be very much appreciated.

BEEKEEPER'S GEOMETRY

DEFINITIONS

FIELD DAY: A group of elongated figures discussing odd angles on beekeeping.

A SWARM: A group of fixed points revolving around a harrassed beekeeper.

A STRAIGHT LINE: The shortest distance between two honey flows.

STING: A straight line directed into the rounded portion of a beekeeper's base.

AXIOMS

The same explanation for the failure of a honey flow may be produced any number of times.

An uncapping knife propelled on the wrong plain may bisect any given finger.

A beekeeper may be reduced to his lowest terms by a series of honey flow failures.

No matter how far produced in either direction a beekeeper's accounts will never meet.

The length of a tall story is limited to the magnitude of a beekeeper's imagination.

A beekeeper's truck is an oblong platform mounted on circles driven by an eccentric crank.

An extracting caravan has no parts or magnitude, being but a cluttered up room.

If all beehives in the world were laid on end what a hell of a brood nest that would be.

—"Pythagorapis" writing in **The Australasian Beekeper.**

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Don't sell your honey blind! If you want people to buy **your honey** — not just any honey — you must mark it with your brand or name.

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A Scientist answers the Question

HOW DO BEES HEAR?

American news magazine "TIME" reports some intresting developments in the work of one Dr. Harald Esch at the University of Munich, where experiments have been conducted to record and replay the supposed conversations or communications of bees one to the other, and in particular to the noises made on discovery of a source of nectar. Further details of Dr. Esch's work will be awaited with very great intrest, and a request for information has been made to Munich direct.

"EVER SINCE ARISTOTLE, scientists have been fascinated by the complex society of the bee. They have studied its remarkable technology, reported on rigid hieachy; they have pried out the secret code of dances with which bees communicate. Now, quite by accident, they have discovered that the hard-working, gregarious insects actually talk to each other, too.

Zoologist Harald Esch of the University of Munich stumbled on the information while performing an elaborate experiment on bee dances. Prompted by curiosity, he poked a small microphone into the hive while a scout was making her dancing report. "I got the surprise of my life," he says. "Blasting out of the earphones came a loud 'thththrrrr,' followed by a short 'beep.' Then some of the worker bees flew out of the hive. I knew I had hit on something entirely new."

Stirring Up the Workers

A littel more observation showed that the whirring sounds were made by the scout bee just as she went into a tail-wagging dance, but two years of work were needed to translate the meaning of the new code of sound. Dr. Esch finally decided that the length of the sounds reported the distance to the nectar supply. The pitch of the sounds and the intervals between them told its quality and quantity. Made with slight nonflying movements of wings, the sounds seem to stimulate the watching workers to fly toward the new-found food.

When he thought he knew enough about the bees' talking dance, Dr. Esch rigged up an artificial bee and stuck it in a hive to repeat a dance that had been performed by a live scout bee. At the proper moment, a tiny loudspeaker emitted the proper recorded sounds. A ring of workers followed the performane with apparent interest, and Dr Esch hoped that they would fly out of the hive to find the nectar described by the simulated scout.

Murdered Dummy

The workers did no such thing. After listening for a few seconds, one of them rushed over and furiously stabbed the dummy scout with her sting. Smelling the deathly odour of venom, the other bees withdrew. This ritual murder was repeated many times. Something was obviously wrong.

A little more research showed the cause of the stabbings. Dr. Esch had neglected the short, chirping beeps that sometimes followed the scout's drumming sounds. They are apparently made by one of the watching workers, and they mean "message understood." When the scout hears the beep, she is supposed to stop dancing so that the worker can come close to her and smell the odour of the nectar that she has found. Dr.

(⟹ page 16)

How to make beeswax

FURNITURE POLISH

but don't burn down the house!

THE WOMEN'S SECTION of the Australian "Agricultural Gazette" recently detailed a tried and tested recipe for making furniture and floor polish from simple ingredients, using beeswax as the base.

Despite the introducition of silicones in polishing preparations, a good beeswax polish produces a shine which is difficult to better and which imparts a brilliant and hardwearing gloss to wood and linoleum floors, table tops, etc. However, it cannot be recommended for chairs with wood seats due to the fact that polish may be transferred to the seats of trousers and thus ruin their appearance.

The recipe given is old fashioned and well established, but may be new to many of the present generation who have been accustomed to pre-packed preparations.

Beekeepers wishing to present their household with a genuine, home made polish may care to make the experiment as a gift for their spouse, but particular care must be taken to guard against fire hazard, or the attempt to please may result in tragic loss.

Prepare:

1lb beeswax
3oz bicarbonate of potash
9 cups of water
1 quart of turpentine

The beeswax is shredded finely (the domestic grater is excellent if it can be surreptitiously obtained) and is then heated with the water and bicarbonate of potash until the whole is melted. **Remove the mixture from the fire and pour into a large basin, adding turpentine and stirring thoroughly until the mixture has a consistency of cream.**

Since it is essential for the mixture to be stirred for some time, the adventurous will borrow the electric mixer from the kitchen to minimise labour and to assist in the emulsifying process, although no responsibility is accepted for subsequent complaints of food taints.

When the emulsifying is complete, the mixture is poured into bottles, cans, or convenient containers and is ready for use.

The addition of turpentine (either the genuine article or synthetic) to the mixture constitutes a fire hazard which must not be taken lightly, and it is imperative to remove the beeswax and bicarbonate of potash from any possible contact with an open flame or electric element.

Use of an enamelled basin larger in capacity than the total mixture, into which the beeswax, water and potash can be poured before adding the turpentine, provides a perfectly safe process.

Since clear, refined beeswax only would be used and the remaining ingredients are neutral in colour, it may be necessary to add a suitable colouring agent to the molten polish for individual requirements. For light surfaces such as light oak, beech, etc., the polish is ideal in its original form.

Small additions of yellow ochre, alkanet root (obtainable from chemists) or shoe polish may be added to match the home furniture, and it will be found that a very small application is all that is required on the polishing cloth to impart a lasting lustre.

As a final suggestion to all aspiring producers of polish — please check that your fire insurance is up to date and the current premium fully paid.

Esch's artificial scout went right on dancing after the beep wa ssounded. This made the workers so suspicious that one of them stabbed her. When Dr. Esch learned to stop the dummy's dance after the first beep, the artificial bee was not stabbed.

Vast new vistas of research have now opened up, says Dr. Esch. Since bees have no ears, do they hear with their antennae or organs under their abdomens? And do all species talk the same language? "The entire field," says the zoologist, "is pregnant with new discoveries." — Acknowledgements and thanks to "TIME," U.S.A.

ODD ITEMS OF INTEREST

DR. JAMES SIMPSON, of Rothampstead Experimental Station, Hertfordshire, England, writing in the magazine "Nature", points out that the exudation from the queen bee has a far greater influence in the colony than does her actual presence, and that it is not, in fact, the presence of the queen that acts as the controlling factor.

Referring to the "queen's perfume", Dr. Simpson declares that her scent is far more compelling an influence than anything ever compounded by French scent manufacturers, and to prove his point he conducted some very interesting experiments.

Imprisoning a queen in a wire cage with double walls and placing her in close proximity with a worried, queenless, colony resulted in spontaneous excitement and joy, yet the identical circumstances repeated with a queen in a transparent plastic container had completely negative results. The bees were able to see the queen and hear her, yet they ignored her completly.

In an endeavour to prove which part of the queen is responsible for the royal perfume. Dr. Simpson cut a queen into three pieces—abdomen, thorax and head—and placed each portion in separate cages. The separated parts had little effect on the workers, but when the portions were crushed, the bees excitedly gathered round the queen's head, indicating that hr powerful perfume comes from this part of her anatomy.

Dr. Simpson's use of the description "royal perfume" instead of the customary "queen substance" is interesting and practical, and there is a great deal to be said for simplicity of expression.

The same apt description is given by the Apiary Instructor for Hawkes Bay, where Mr S. Line has prepared an admirable story for elementary school children.

Getting down to a child's level, he has written a vivid description of the domestic life and responsibilities of the honey bee, during the course of which he refers to the work of the attendants "passing round little pinches of the Queen's Perfume, which she herself makes. These pinches of Royal Perfume help to keep the whole hive working smoothly, for although it is quite dark and they cannot see the Queen, they know she is all right when they receive these pinches of her perfume."

* * *

NOT ONLY figure concious beekeepers in Britain will have to watch their weights very carefully after July 1965, for it will be obligatory for every beekeeper and packer to meticulously see that the weight of their pack conforms to a specific standard. Whereas it has been previously "a jar" or container of honey for an agreed price, the law will demand in future that the only retail containers will hold 1lb., 12oz., 8oz., 4 oz. or 2oz. packs.

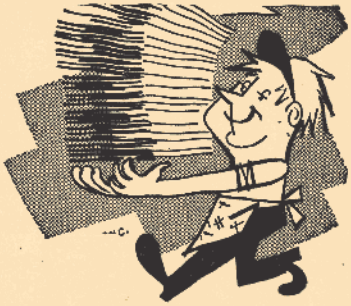
The new Order is no reflection on beekeepers as craftsmen or in any way suggests that they have been guilty of short weighting.

* * *

"THE MELBOURNE HERALD" reported recently that a farmer south of Perth was mowing hay and unconcernedly making the rounds of the paddock when an unexpectel surprise befell him.

The upright exhaust pipe from the tractor fouled a swarm of bees hanging from the bough of a tree, with the result that a goodly portion fell into the open end of the cocky's high rubber boots that he happened to be wearing. This is one way of taking a swarm that is never recommended, and the unfortunate fellow was hurried off to hospital where some 200 stings were removed from his legs.

BRANCH NOTES



WEST COAST

IT IS with regret that this Branch records the passing of one of its foundation members in Mr. Walter Baty. Mr Baty had been associated with beekeeping on the coast for many years, and the latter part of his life he rarely missed a branch meeting. He will be sadly missed

Field Day was held on November 14 at Mr Ralph Glosson's residence in Blackball. The weather treated us kindly and a good attendance turned out. It was pleasing to see a number of schoolboy enthusiasts present from the Hokitika area.

The Canterbury contingent was rather small this year with Mr Dick Robins and family of Tai Tapu and Mr Barry Cooper of Eckroyds present. Apologies were received from many others.

Mr Paul Marshal, the new apiary instructor stationed at Nelson, attended and many beekeepers met him for the first time.

The Branch President, Mr Glosson, opened the day by welcoming visitors. Then, for the benefit of the hobbyist beekeepers, gav a demonstration of the working procedure of his honey-house, followed by a talk on equipment preservation.

Next came a queen dearing demonstration by John Glosson, and a talk by Tom Holland on a chart he is compiling on nectar and pollen sources which affect us here on the Coast. The day was concluded by a panel answering a variety of questions put to them.

Weather data just released in the nocal newspaper informs us that the coldest day in 1964 was November 12. It also marked the last snowfall for the year. No wonder queen mating was causing concern at the time. Rainfall was a little above average, and sunshine hours well down. With this cold weather most beekeepers were to be found feeding hivs which should have been gathering the start of the Komahi flow. Nevertheless, the weather slowly improved and around Christmas-New Year the temperature rose around the 70-80 degrees. One beekeeper found some hives were taking advantage of th vry high tmperature and were gathering white clover (which is in abundance this year) almost exclusively.

The prospects for the Rata this seasson seem rather good. Most of the foothills between the coast and the main ranges are putting on an excellent show. Providing the weather treats us kindly for the next few weeks, we should see many tired but smiling faces among the beekeeping fraternity on the Coast.

—Reported by C. G. Richardson.

WAIKATO

When last I wrote we had had rain fairly frequently from June, and was hoping that it would pick up. Little did we expect what we got. We might just as well have been wet coast, as it rained all the time — nearly — from the N.W., causing much wetting as the feed was poured in, and many were the hives that had starved to death before they could be fed.

Reports of losses of 100 or more hives have been heard. Then as opposition to the rain the wind had a go, and all November it blew at near gale force from 10 a.m. till evening.

Queen breeding was a nightmare as mating days were very rare, and a lot of supercedure resulted.

Barbary was ruined by rain, buttercup flowered late and yielded very little until December. Clover has been

practically non existant in a lot of places in the Waikato, with a good flowering in Rotorua-Taupo areas. Blackberry seems to have yielded very well, and with the finishing of this source the flow dwindled considerably.

With December came North Easterly conditions, and they still exist, with rain on the ranges and Rotorua area, consequently the yield from Tawari was affected considerably.

If we get some fine weather again crops could be average, but at present it seems as if slightly below average will be the order. There is still plenty of flower, and with thistle still to come, all we need is some warm settled weather.

Reported by C. Bird.

★ ★ ★

NELSON

Our next branch meeting is scheduled for February 9 — too late to report proceedings in this issue — but we are looking forward to a talk to members by the Manager of the Honey Marketing Authority, Mr Colin Gosse, who will be en route for a visit to the West Coast.

Another interesting visitor to the district recently has been T. Palmer-Jones* who has been conducting a survey in the field of the pollination services rendered to orchardists by our bees. Covers have been placed over some trees in blossom so that comparative tests may be made and bee counts to blossoms with the aid of traps.

The crop is likely to be disappointing this year, for despite the fact that many nectar secreting blooms have been in evidence, the amount of nectar secreted has been poor — due no doubt, to non-seasonal weather conditions.

—Reported by Mrs I. M. Cropp.

*Editors Note. Whilst we have not so far received advice of this practical work by Mr T. Palmer-Jones and his colleagues from Wallaceville, it is very much hoped that a report will be made available for publication at an early date.

NEW GENERAL SECRETARY

The General Executive of the National Beekeepers' Association has appointed Mr Keith Moody as General Secretary of the Association effective from December 1, 1964, in place of Mr R. A. Fraser, who resigned.

Mr Moody is a Public Accountant in practise in Upper Hutt, and was until recently General Secretary of N.Z. Jaycees Inc.

Secretarial communications, renewal of subscription payments etc., should now be sent to the following address:

Mr K. E. Moody,
P.O. Box 127,
UPPER HUTT

Telephones: Business 3506 (Upper Hutt Exchange), Wellington 43-741, Residence 3738.

EXPORT INCENTIVE SCHEME

Following representations from the National Beekeepers' Association the Hon. Minister of Overseas Trade advised on November 26 1964 the following:

"An Order-in-Council is being prepared to exempt comb honey section honey, and certain other animal products and by-products, from the products at present excluded from the taxation incentive. It is expected the exemption will come into effect within the near future."

As we go to press, no Order has yet been gazetted, neither is any information available from the Departments concerned. The wheels grind slowly. Comb honey producers must be patient and wait developments.

Electronic Device Indicates

PREPARATIONS FOR SWARMING

By E. F. Woods, inventor of "THE APIDICTOR"

IN 1851, LANGSTROTH introduced the movable frame hive and so permitted the beekeeper to interfere with his bees to an unlimited extent. This interference may be necessary, or it can come about as a result of the over-enthusiasm of the amateur. In the case of the former he must prevent swarms or lose his honey for the season.

The problem is to obtain warning of the bees' intention to swarm, so that for over 100 years the predominant system has entailed the manual examination of colonies every nine or ten days, starting in late spring. The labour cost is enormous. But a hidden loss is even more costly to the bee-keeper. Each examination of a colony disturbs the bees and forces a slowing down of all activity, including **egg-laying,** for a period of some hours; sometimes days. These eggs would have produced harvesters six weeks later, and under certain conditions the loss of fliers could amount to a considerable part of the harvesting force.

Although all colonies are examined, only about three per cent normally show queen cells, so that approximately 90 per cent of the labour involved is unnecessary and harvesters are lost that need not have been.

Action in "abnormality" is needed, but the crucial problem is **warning of this need for action.**

This problem has exercised me since I started bee-keeping, and although earlier experiments in electronics had been made, I could not resume research until after the war, and it was not until 1946 that I really got started again.

I had already identified the well-known queenless moan — technically a warble—with swarming, and in an article in the British Bee Journal in 1949, I stated that I believed I was on the track of swarm prediction by sound, but it was not until June, 1951 (a 100 years almost to a day after Langstroth's introduction of the movable frame hive) that the first successful test occurred. Because I had to work empirically, using crude telegraph filters, the Apidictor Mk. 0 occupied a whole garage bench and weighed over a hundredweight. Nevertheless this arrangement gave me a measured steady rise in the warble in one stock, and at a guessed crucial moment, I opened this hive to find queen cells. In the other fifteen, which to that date had maintained a dignified silence, there were none.

At a lecture I gave some time later, a member of the audience asked if he might join in the work, and we worked together; he more on the practical and I on the sound itself, particularly its origin.

This sound can be caused by any bee whose wings are not fully rigid.

In an article I wrote in the **New Scientist,** I described the work which showed that the sound made by all bees was determined in pitch by the frequency with which they could vibrate their wings. The wings of all bees over about ten days of age are rigid, and can vibrate at 180 beats per second when static, in the hive, and at about 250 per second in flight. (This accounts for the fact that it is impossible to get the warble from a dequeened swarm.)

The nurse bees are divided broadly speaking into two groups, one that feeds the queen, and the other which tends the larvae up to 36 hours of age. These young bees of four-and-a-half to six days of age produce royal jelly, and when the colony is not contemplating swarming, can dispose of all they can secrete. When, however, the colony is preparing to swarm, one of the first operations of the bees is to reduce the queen's egg-laying by limiting feeding. Her ovaries shrink and her air sacs are able to expand in readines for flight. This preparation starts a long time before queen cells appear, and during this period the nurse bees are being progressively deprived of an outlet for their royal jelly, which they are producing involuntarily. Their

response is their disturbance reaction, which is a more violent movement of their wings and therefore a lounder sound. As their wings are not rigid, in fact, a nurse bee cannot fly, the vibration is that of a flexible pendulum rod, higher in pitch and more variable than would be obtained from the same rod in a rigid state.

This starving of the queen is not a sudden process, and the number of nurse bees thrown out of work increases steadily. Thus the sound follows suit and is present in increasing volume, corresponding to the number of nurse bees with spare royal jelly. The queen's egg laying dies down and therefore four-and-a-half days after the start of the process, the number of 36-hour-old larvae decreases, and the nurses feeding them begin to testify.

A complicated experiment showed that the increase in the sound was due not to individual bees making more noise, but to more bees joining in. It therefore follows that if the sound can be selected out and measured, the result will be an indication of the number of nurse bees out of work, and therefore of the start and progress of deficiency. I say queen deficiency, as the nurses can be thrown out of work due to other causes. the chief being supersedure.

This warbling sound is made by about two to three per cent of the bees and these are the young bees. The sound is completely inaudible to the unaided ear, even at its loudest, so that the first problem was to make a fllter which could select it out, reject all others and then amplified it to any desired extent. It could then be presented to the ear, or measured on an instrument.

Until about six years ago, there was no commercial solution to the Apidictor as the coils needed in the fllter were too massive and expensive. The early models also contained valves, not really practicable. Two new developments in science made a portable model possible, the transistor and the miniature Ferroxcube coil. It was also necessary that an Apidictor must be small, light and economical in battery life. To suit those bee-keepers who may be hard of hearing or who have not a reasonable musical ear, it must have a visual indicator.

To decide whether a colony is preparing to swarm, simply place the microphone in position and obtain both visual and audio indications. No experience is necessary to operate the device.

The latest model, Mk. 5, fulfils these requirement and together with its leather carrying case it only weighs three pounds.

For some years I attempted to interpret the positive sound and found that a very considerable degree of skill was needed. Latterly I have decided that a negative approach is the better, as it takes very little skill on the part of the operator and with using the visual indicator the operation is simplicity itself.

The hiss was very puzzling for a long time and even now I am not sure I have the complete answer. In the earliest days, I thought that it was a sign of well-being, and gave this as my opinion, but I found that it could be elicited from a queenless colony.

It was after working with Dr Peter Haskell on crickets at Imperial College for two winters that I came to the idea that it might be an integral part of the defence reaction. This hypothesis squared with most of the facts, and enables the hiss to be used in the Apidictor. The bees give a warning before attacking the marauder and this warning consists of a spontaneous flirt of the wings as the stimulus reaches them. Thus the stimulus of the smoker is a long drawn-out hiss, which preceeds the flight before stinging. To use the hiss in the Apidictor an instantaneous reaction must be obtained, and this is effected by a short sharp thump on the side of the hive, with the fleshy part of the palm of the hand.

LOSING LOYALTY

In the pre-swarm period the bees are slowly losing their loyalty to the old colony, and it is a well-known fact that the bees in a swarm are usually good tempered and it is fairly difficult to get stung. When, however, bees are superseding their old queen, the situation is quite different. They are not about to leave the hive, and their future is at stake and they must defend the colony. Their defence behaviour shows this very clearly. Although it is not so well known, a colony in the process of superseding becomes quite vicious. I suggest that supersedure takes place more than the beekeeper is aware. It is not such an obvious act as swarming and, usually, the only outward and visible sign is the mating flight of the superseding queen, which can easily be mistaken for a play flight. I would further suggest that the sudden but not permanent access of vicious behaviour of a normally gentle colony may always be a sign that the queen is being superseded.

The hiss, like all the other sounds of the honey bee, is made by the breathing apparatus. This sound is selected by one of the filters of the Apidictor and is necessary in colony diagnosis.

In operation the visual circuit in the Apidictor is in parallel with the audio so that the fluorescent coil visible dims and lights up as the sound in the colony rises and falls. With a colony that is breeding normally the light indicator will extinguish and return in approximately one-tenth of a second. In the latter part of the season the hiss

is quite deliberate and the indications follow suit. If the bees have something to defend, that is, if the queen is alive and healthy, the hiss will be present. In winter this sound is very feeble, partly because there are fewer bees to make it and also because at the lower temperatures of winter the bees reaction is weaker. Even at—16°C. during the severe winter of 1963 in England it was audible.

In operation the Apidictor comprises a microphone feeding into a pre-amplifier. Following on the amplifier is a set of three filters.

One filter allows the normal hive sound to be heard and this should be steady. Any rise in volume may be an indication of fighting or that the colony is being robbed.

A second position on the Apidictor selects the warble which can be heard through the headphones or is shown on the visual indicator. If the sound with the volume control at maximum, i.e., on green, is virtually inaudible and the light is steady then **the colony is breeding normally and is neither preparing to swarm nor supersede.** This is overwhelming justification for the use of our Apidictor in the apiary because it makes unnecessary 90 per cent of the work involved with examination of stocks.

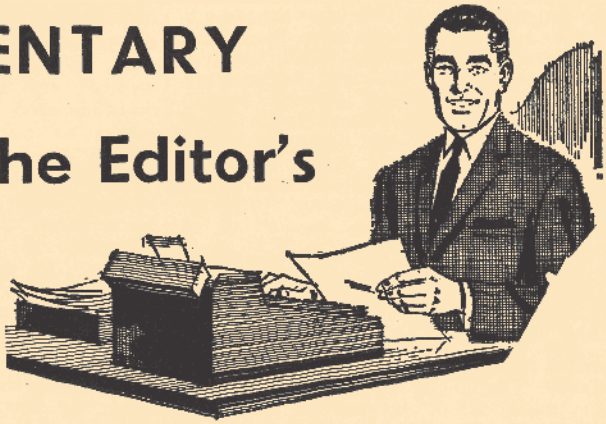
If at maximum volume the warble appears in the headphones, or by the flickering of the light, then it is a sign of queen deficiency. The volume control must now be turned down when both sound and flicker may still be on green, in which case there is no likelihood of queen cells. Nevertheless the possibility exists and a second test should be made in about three days. Should the warble be due to causes of a transient nature, such as queen movement, sudden failure of intake, or weather, etc., the second test will show no indication of the warble and a return to normal. If, however, the warble is increasing because of the colony's progress towards swarming or supersedure, the volume control will be required to be rotated farther to extinguish the sound and may be on yellow. At this point queen cells are almost certain to be present. If the indicator is on red then they will not only be present but occupied with larvae.

From the third position on the Apidictor the hiss can be picked out when the hive has been jarred as already mentioned. Should the hiss be louder and more vicious than normal then it is a sign that the colony is superseding its queen. If the hiss is weak, variable and, in time, vanishing, a swarm is impending. Action must be taken and its urgency depends upon the colour indication on the volume control.

At this point I would stress again that, if on test there is negligible sound on the Apidictor at the second position with the volume control at maximum then the particular colony need not be examined for at least 14 days. This fact will allow almost all manual colony examination in the apiary to be omitted.

Apart from its main use the Apidictor can be used in queen introduction, winter testing, etc., but here the operator requires some skill which is quite easily acquired and deduced from the aforegoing analysis of the sounds.

COMMENTARY from the Editor's Desk and Mail



THE EDITOR has been in prison since publication of the last edition, —not, let it be said, for the perpetration of any heinous offence against propriety—but for the sole purpose of telling some of the prisoners of the wonders of bees and their ways, and to show them the two excellent colour films on hive life available from The Japanese Embassy and from the Caltex Oil organisation.

The audience of 150 took an active interest in the demonstration, and showed a lively quest for further knowledge by asking intelligent questions. It is understood that some hives were kept within the prison confines a few years ago; perhaps it might be possible to re-kindle the interest.

* * *

THE AUSTRALIAN Honey Board has granted a four months Bee Research Fellowship in Australia to Dr. M. H. Haydak, an entomologist at the University of Minnesota, U.S.A.

Born in the Ukraine, Dr. Mykola Haydak studied at the University of Kiev and elsewhere in Czechoslovakai, specialising for 2½ years at the State bee culture institute, where he was in charge for five months.

During the summers of 1930-31, Dr. Haydak studied problems of bee nutrition at the U.S. Bee Culture Laboratory, and in June 1933 received his Ph.D. at Wisconsin, since when he has been engaged on research and teaching at the University of Minnesota.

Dr. Haydak is the author of over 150 publications, and has been actively engaged in work on the role of honey in nutritional anaemia and vitamin content of honey, and honey in human nutrition.

Dr. Haydak's presence and work with Australian beekeepers may well mark a milestone in apicultural science with our associates across the Tasman.

* * *

IT WAS PLEASING to receive a letter from the Editor of the Devon journal BEEKEEPING, in which mention was made of recent purchase of New Zealand honey and of the high quality of the product. The Rev. H. L. Hustwayte says that the density of New Zealand honey is better than the English counterpart . . . "although I cannot think why . . ." that the product is very well packed and arrives in first class condition.

Whilst on the subject of our honey sales in Gt. Britain, beekeepers might do well to remember the scheme in operation by the Honey Marketing Authority for sending presents of honey to overseas addresses.

For the sum of one pound, the HMA undertakes to deliver a 5lb tin to any address in the UK, and the system employed is certainly one to be commended for its efficiency. The donor receives a receipt which clearly shows the name and address to which the parcel has been sent, and if any error has occurred, the mistake can be rectified before it is too late. The HMA send over their instructions by air mail to a London depot and bulk store, from which sealed tins are despatched securely and attractively boxed.

The scheme is an ideal one for the solution to the problem of buying small gifts for birthdays and Christmas, and gives immense pleasure to those who are at the receiving end. And even if the honey is not from your own bees, it is still good propaganda which ultimately benefits all commercial producers, for having experienced and acquired the delectable flavour of New Zealand honey, the convert will go to their grocer's shop and ask for more—by name.

* * *

IT IS WITH very great regret that the death is recorded of Jack Deyell in Medina, Ohio, U.S.A., at the age of 82 years.

Mr Deyell was associated with the A. I. Root Company for over 50 years, and he was for thirty years of his service associated with the editorial staff of GLEANINGS IN BEE CULTURE, becoming the fourth editor of GLEANINGS and attaining world wide repute for his "Talks to Beekeepers". He retired in 1962.

Jack Deyell was born in Fenelon Falls, Ontario, Canada, and moved to Medina in his late teens, remaining in residence there for the rest of his life. For a time he was manager of the vast Root Company apiaries which then numbered several thousand colonies, thus ideally fitting him for his position of Editor of GLEANINGS. Jack will be sadly missed by those closely associated with him in his everyday life, and by readers of bee literature all over the world.

* * *

IN A REPORT by J. Woyke in the JOURNAL OF APICULTURAL RESEARCH, 3: 17-23, 1964, on the causes of repeated mating flights in queen honeybees, it is stated that research in Poland has provided evidence of a queen mating as many as 17 times, sometimes taking one, two, three or more mating flights to obtain the desired result.

It would be fairly general understanding amongst beekeepers that the queen emerges on her mating flight resulting in successful insemination, but it appears from the evidence that weather conditions may be an all important factor amongst others, and that the amount of sperm accumulated on a flight may be insufficient and necessitate subsequent flights. It was found that queens which had five million sperm in their spermatheca from their first flight did not take a second flight, whereas those which had between three and four million sperm accumulated from their first flight, went out and mated again.

If weather conditions are not suitable and drones are not flying in sufficient numbers, it seems that queens will fly and mate on sufficient occasions to obtain their full "quota" from several sources.

* * *

THE AMATEUR BEEKEEPERS' Association of New South Wales issues a monthly bulletin to members, and the compiler certainly has a wonderful sense of humour in addition to a knowledge of bees and beekeeping.

Some snippets from recent contributions are as follows:

"THE WIFE OF ONE OF OUR MEMBERS HAS COMMENTED ON THE CHANGE IN HER HUSBAND SINCE TAKING UP BEEKEEPING. SHE SAYS HE IS A BETTER WORKER, SHE LIKES BEING ADDRESSED AS HONEY, AGREES THAT THEIR SONS ARE DRONES, BUT IS A BIT DUBIOUS ABOUT HER KITCHEN STOOL BEING REFERRED TO AS A BOTTOM BOARD."

"MEDICAL AUTHORITIES STATE THAT HONEY AND ALCOHOL ARE THE TWO FOODS CAPABLE OF ABSORPTION INTO THE HUMAN SYSTEM WITHOUT GOING THROUGH NORMAL DIGESTIVE PROCESSES. A WONDERFUL CHOICE FOR A GUTLESS INDIVIDUAL."

* * *

Anchoring a captive queen to a nylon thread is a pretty delicate operation to be successful, but it seems that delicate handling is not the prerogative of this day and age of beekeepers. The Aborigine lassoes a worker bee with a cobweb and attaches a small white feather to the other end, and is thus able to watch the bee's flight back to its wild hive, to gain a supply of honey for the store cupboard and satisfy a sweet tooth at the same time.

* * *

FROM "HEALTH BULLETIN", published in Emmaus, Pa., U.S.A., comes news of a new insecticide policing equipment put to work by the United States government which is so sensitive that it can detect amounts of insecticide that would be invisible to the naked eye.

The machine is finding insecticides in all foods and has brought to an abrupt end the day when we could blindly assume that "only some" of our food contained poisons. The problems that the insecticide detector will create for farmers, health officials and food processors are likely to be enormous, as present tolerances call for no poisons at all in many foods which the machine has found contaminated.

FARM RESEARCH has called the new equipment, the electron capture detector, "fantastically sensitive and specific," because it can pick up as little as .01 ppm (1/100th parts per million) of certain insecticides in foods.

The electron capture detector is a late version of an earlier machine, invented about 10 years ago, called the gas chromatograph. In the new modification, radioactive rays are passed through a chamber of nitrogen gas, giving it a negative electrical charge. One large group of highly potent insecticides commonly used for agricultural products, the chlorinated hydrocarbons, has what chemists call an "affinity" for this negatively charged nitrogen. Each pesticide has it in varying degrees. (Some of the chlorinated hydrocarbons are aldrin, chlordane, DDT, DDD, Dieldrin, endrin, heptachlor, lindane, parathion and trithion.) As a particular insecticide picks up nitrogen, the nature of the poison and the amount is recorded on a graph.

The Food and Drug Administration has put the electron capture detector to work only in the past six months. It was this machine which found the low levels—previously undetectable—of heptachlor in Washington area milk and endrin in Mississippi fish. Before the electron machine, the smallest amount of insecticide that could be discovered was about .1 ppm. Now FDA can pick up .05 ppm of some of the chlorinated hydrocarbons, and even .01 ppm of those which have a greater affinity for nitrogen.

From an associated source, a description is given of a process for exposing insects to flashes of light lasting less than one-thousandth of a second as a means of controlling insect pests by natural means.

The U.S. Department of Agriculture reports that the photoflash technique upsets the normal life cycle of insects causing them to develop into adults "ahead of schedule". Such insects would probably be "out of step" with nature and would thus perish.

The layman is tempted to wonder whether the insects would become used to the light treatment in the same way that they have become resistant to some insecticides. Time proves all things.

* * *

ONE OF OUR NEWEST subscribers to THE NEW ZEALAND BEEKEEPER is Mr. W. G. Rodda, of Hermiston, Oregon, U.S.A., a farmer who writes that he was born in Christchurch in 1877 and was then taken by his parents to England. Eventually settling in Hermiston in 1901,

Mr. Rodda has five children with their own homes and says that both he and his wife enjoy good health . . . "but I have high blood pressure and have to blow up a little . . ."

Mr. Rodda writes a clear and lucid hand, and with such sense of humour is entitled to an occasional blowing of the top. May he continue to enjoy life with his wife and family and be a subscriber with us for many years to come.

* * *

WILL ANY FORTUNATE New Zealand Beekeeper be present at the International Congress in Rumania between August 26-31 this year. Fear of being lost in an unfamiliar linguo need be no deterrent, for extensive arrangements have been made by the host country to ensure full comprehension of the discussions, lectures, and demonstrations in all major languages.

A fee of 20 dollars (approximately £7-10-0) is payable as Congress registration fee, but the Rumanian Government is giving special exchange facilities to visitors from overseas to the extent of a 200% bonus. The current rate of exchange is listed as one U.S. dollar to six Rumanian leis, but for visitors the rate has been fixed at 18 leis instead of 6.

Recreational entertainment has also been arranged with inland and river trips, and anyone visiting Europe in August should certainly avail themselves of this opportunity to gain knowledge and information from beekeepers from many parts of the world.

* * *

WHEN THE CHIEF OFFICER of the Hastings Fire Brigade was returning in his car from a fire at Kohupatiki recently, he noticed that a truck in front was billowing a considerable quantity of smoke from the passenger side of the driving cab.

Naturally assuming that his professional services were required to subdue an undetected blaze, the fire chief sounded his siren to bring the driver to a hurried halt.

It must be recorded that surprise and consternation were mutual, for the Officer found no accidental fire that required attention, and the van driver and his passenger were worrying as to which precise offence against the Highway Code they had unwittingly committed as the siren sounded.

All is well that ends well, for all that was involved was that an apiarist and his assistant, both of whom shall remain anonymous, were returning from a hive moving operation, and the assistant had his smoker sufficiently close to the open window to react to draught and produce copious supplies of smoke.

The New Years' Honours List brought out a spate of stories about crests and coats of arms approved by the College of Heralds, one of the most interesting to beekeepers being a reference to the armorial bearings of the former chairman of Rolls Royce, Lord Hives.

His Lordship insisted on the inclusion of three beehives supported by two industrial figures, of which one was a mechanic and the other a draughtsman. A tag in Latin reads **"SO YOU BEES DO NOT MAKE MONEY ONLY FOR YOURSELVES."** It is not recorded whether his Lordship's humour was appreciated by his workers and drones.

AN ODE TO THE FOOD HYGIENE REGULATIONS
By a Beekeeper's Wife.

The honey house must be brought up to date,
At least that's what the Regulations state;
So the paint I'd bought to use in the hall
Is now marched off for the honey house wall.

The ceiling is painted a beautiful blue,
And a cupboard is built, all sparkling new,
Where bottles and jars are kept out of sight.
The floor is polished and the windows bright.

A dressing room must be provided, my dear,
And lots more things about which you will hear—
Like a brand new basin with hot and cold taps,
And rooms marked "HIS", "HERS" to hang up wraps.

Across the ward, and hid under the trees
A wee house is built, which is sure to please—
With powder room, basin, and mirror, too,
And a tiny pink room with a pink W.U.

You can't burst a bag, or cough, or sneeze,
And just dare not even develop a wheeze.
The yard must be washed and kept very clean.
No germs in the air or dust to be seen.

The little dog runs up, keen to explore,
Sees ugly black words on the entrance door.
What had he done to deserve such a fate?
Just wait till the inspector calls, just wait!

It all looks so nice, but it cost quite a drop.
Please! Who foots the bill, if we don't get a crop?

F.E.M.

* * *

NEW HONEY PRICE ORDER

Following representations by the Executive of the National Beekeepers' Association to the Trade Practices and Prices Division, Department of Industries and Commerce, a new Price Order was gazetted on Thursday, December 10, 1964. The new prices are as follows:—

Container Size	Max. Price Packer to Wholesaler	Max. Price Wholesaler (including Packer) to Retailer	Price to Consumer
½ lb. Cartons	13/– doz.	14/3	1/5 each
½ lb. Plastic	15/11 „	17/6	1/9 „
12 oz. Glass Jars	23/6 „	25/10	2/7 „
1 lb. Cartons	23/1 „	25/5	2/6½ „
1 lb. Plastic	25/9 „	28/4	2/10 „
1 lb. Glass Jars	27/9 „	30/6	3/0½ „
1¼ lb. Glass Jars	31/10 „	35/–	3/6 „
1½ lb. Glass Jars	38/3 „	42/1	4/2½ „
2 lb. Cartons	45/1 „	49/7	4/11½ „
2 lb. Glass Jars	49/8 „	54/7	5/5½ „
2 lb. Tins	49/8 „	54/7	5/5½ „
2½ lb. Glass Jars	61/9 „	67/11	6/9½ „
2¾ lb. Glass Jars	68/2 „	75/–	7/6 „
5 lb. Tins	113/3 „	124/7	12/5½ „
10 lb. Tins	211/5 „	232/6	23/3 „

BUY

BATES HONEY FILLER

A Bates Honey Filler wanted in good condition, preferably a motorised model.

Please advise full particularly of condition and price to "BATES FILLER," Box 5056, CHRISTCHURCH.

CLOVER HONEY

Large quantity wanted in 60 lb. tins. Prompt payment.

SHEPHERD & HILL, Apiarists,
RANGIORA, Nth. Canterbury.

SOUTH ISLAND — GOING CONCERN

Cash for up to 400 hives.

Condition immaterial. Open to share or wage proposal to clear vendor's affairs.

Genuine replies please, with particulars and price in first instance to

"STARTING," c/o. "N.Z. BEEKEEPER,"
Box 3561, Auckland.

FOR SALE

MORE MONEY MORE MONEY

from your bees! Ten different ways!
SOME NEW!! ALL GOOD!!
Prepare for Coming Season!
FREE Circular.
4217 S, 116 Street, SEATTLE, Wash., U.S.A.

WAX PRESS

Strongly built, hydraulicly operated wax press complete with 1 H.P. 3-phase motor, suitable for larger beekeeper.

S. J. TWEEDDALE
TAIHAPE.

WHITE CLOVER AREA

For sale in Southland, White Clover area. 500 colonies, Honey House and equipment.

Modern House and cottage on 3 acres land. 5 miles from Township on Tar-sealed Road.

Further enquiries to "BEEKEEPER,"
c/o. N.Z. Beekeeper, AUCKLAND.

CANTERBURY BEEKEEPING BUSINESS

300 Hives and accessories, substantial Honey House and modern home on two acres of land. Would consider selling bees separately.

Replies to P.O. Box 230, ASHBURTON,
S. Canterbury.

FOR SALE

FOLDING WIRE GAUZE BEE VEILS

—— £1/5/-, Post Free ——

Satsifaction guaranteed.

Mail your order now to:

S. DARBY

8 Tobin Street, Pukekohe, Auckland

HIVE MATS HIVE MATS
HIVE MATS HIVE MATS

FABRIC HIVE MATS (16in. x 20in.), manufactured from phormium tenax (native flax fibre), are available ex MANUFACTURER in bales of 150 mats at £4/15/- per bale, f.o.r. Foxton.

Orders for not les sthan one bale, accompanied by cash and stating railhead to which delivery is required, should be sent direct to:—

N.Z. WOOLPACK AND TEXTILES LTD.
P.O. Box 44, Foxton

(PLEASE NOTE: Orders should NOT in future be forward through the General Secretary, N.B.A.)

BATE'S QUEENS

Requeen this Autumn with high producing Italian stock and prepare for that big season next year.

1 - 5	10/-	20 & over	8/6
6 - 10	9/6	Tested add	4/-
11 - 20	9/-	Neucs	£2.0.0

Note: This is your last chance to get queens at these prices.

BATES APIARIES

R.D. 2 Matamata

The National Beekeepers' Association

(For the advancement of the Beekeeping Industry in New Zealand)

'Better Beekeeping—Better Marketing'

SUBSCRIPTIONS

Up to	£	s.	d.	Up to	£	s.	d.
60 colonies		10	0	330 colonies	2	15	0
	minimum			360 colonies	3	0	0
90 colonies		15	0	390 colonies	3	5	0
120 colonies	1	0	0	420 colonies	3	10	0
150 colonies	1	5	0	450 colonies	3	15	0
180 colonies	1	10	0	480 colonies	4	0	0
210 colonies	1	15	0	510 colonies	4	5	0
240 colonies	2	0	0	540 colonies	4	10	0
270 colonies	2	5	0	570 colonies	4	15	0
300 colonies	2	10	0	6 colonies and over (maximum)	5	0	0

An associate members shall pay 5/- per annum.

JOIN YOUR NEAREST BRANCH AND DERIVE FULL BENEFITS

APIARY INSURANCE

(Public Risk Indemnity)
Free Cover for Association Members

All financial members of the Association are automatically indemnified against Public Risk claims up to £5000 in any occurrence of injury or death to persons or livestock directly attributable to the action of the members' bees and arising from his or her negligence as the beekeeper. The cover is underwritten by the New Zealand Insurance Company Ltd. and the premium met by the Association from consolidated funds.

THE N.Z. BEEKEEPER

This Journal is issued free to all beekeepers in New Zealand having 30 or more registered hives, and to others who are members of the National Beekeepers' Association.

Literary contributions and advertisements must be in the hands of the Editor, Mr. L. W. Goss, P.O. Box 3561, Auckland, not later than the 25th of the month preceeding publication.

Nom-de-plume letters must be signed by the writer and address given, not necessarily for publication, but as proof of good faith. Letters accepted for publication do not necessarily express the views of the Editor.

ADVERTISEMENT RATES

Quarter Page	£1	16	0	Per Inch		10	0
Half Page	£3	6	0	Minimum charge, 5/-			
Full Page	£6	0	0	for each insertion.			

Front Page Story

NON-PAYING PASSENGERS

THE IRRITATING PICTURE featured on the front cover this month was provided by Apiculturist R. S. Walsh of the Department of Agriculture, Auckland.

Three small apiaries in the Waimauka district were found to be infested with mites, and it was observed that the mites attached themselves in a regular pattern of perfect formation beneath the wings and completely round the body of the host bees. Indeed, in some instances the mites were stacked two and three tiers deep on the backs of the bees, forcing them to keep their wings raised well above their bodies.

An investigation was made by Dr Cottier of the Department of Scientific and Industrial Research, who concluded that the mites were mainly scavengers or predators on weak and ailing bees and larvae. This finding, however, was not in accord with fact that the hives from which the bees were taken were all most strong and vigorous, and another opinion expressed was that the mites used the bees solely as a mode of transportation. When not on the bees, the mites could be found in large quantities in the refuse of pollen etc., on the bottom board.

Specimens sent to Australia were identified as Hypoaspis (Laelaptidae), and it was reported that several colonies in the Riverhead State Forest had been found to be infested with the same mite. There have also been reports of infestation in Waiuku, Mangere and Whangarei.

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