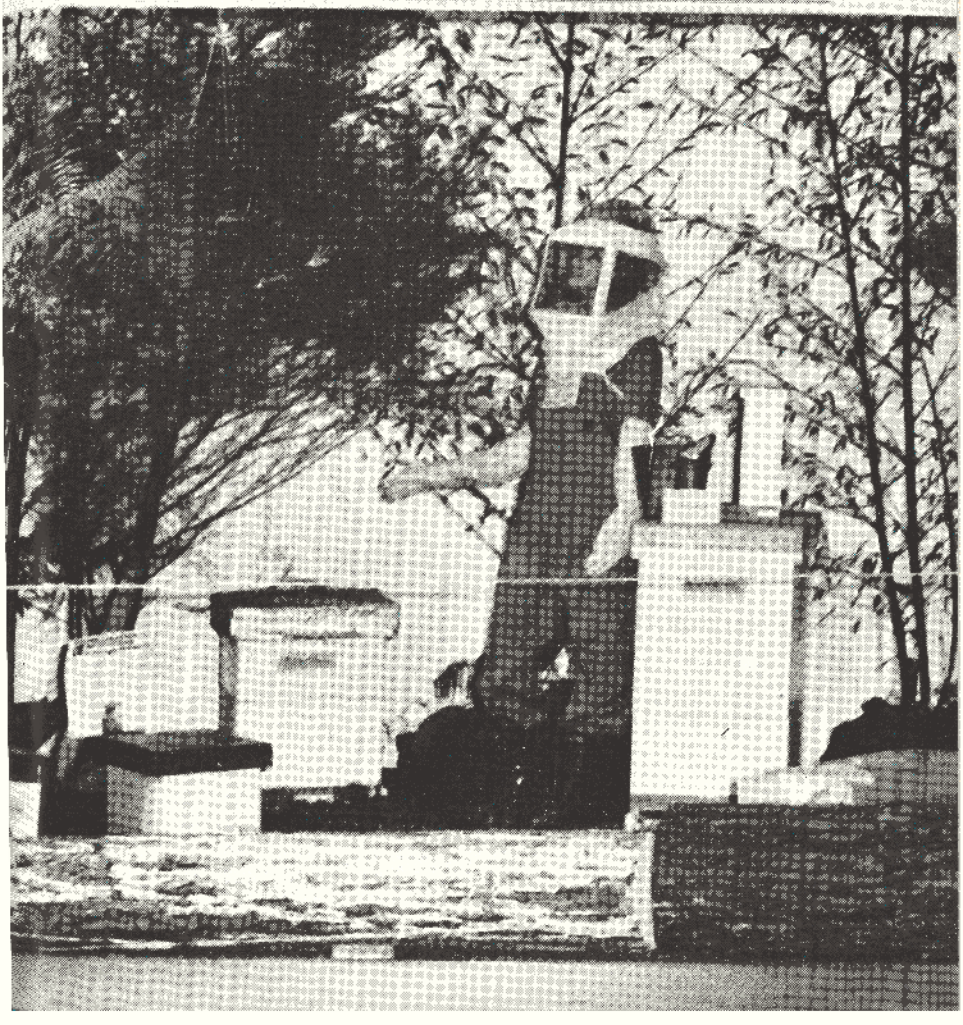
THE NEW ZEALAND BEEKEEPER

FEBRUARY, 1969

NATIONAL BEEKEEPERS ASSN
and
AUCKLAND BEEKEEPERS CLUB (INC)



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THE NEW ZEALAND BEEKEEPER

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February, 1969

CONTENTS

Cultivated Bee Pasture

PLANTING FOR BEES is a subject frequently discussed by bekeepers. It was also mentioned only last year by Mr D. P. Carter, M.P. for Raglan, in his address to the Dominion Conference.

As far back as 1959 the Department of Agriculture supplied lists of nectar and pollen bearing trees suitable for use in their tree planting programmes, to both the Soils Conservation and Rivers Control Council and the State Forest Service. This is perhaps the only way any large scale additions to our bee forage can be obtained.

It is doubtful if it has ever been an economical proposition to cultivate any plant on a field scale solely for bees. Beekeepers of course secure crops of pasture honey from fields sown for seed, hay or stock food. A field crop that may appeal to farmers is horse beans (Vica faba) and tick beans. These beans flower profusely and are excellent honey and pollen plants. The honey varies in colour between light and dark amber with a mild and pleasant flavour. It is quick to granulate with a coarse grain. The beans can be sown in either Spring or Autumn, but recent trials overseas have shown that heavier yields are obtained four years out of five from winter sown beans. They also have the advantage of earlier maturity, greater resistance to drought and are less likely to suffer aphid damage. Horse beans prefer heavy soil.

Farmers on the lighter soil, looking for a break crop, sow beans in the Spring and they can be handled with virtually the same machinery as their cereal crop. Bean plants are also a very useful cover crop.

In 1967, 140,000 acres of field beans were sown in England and Wales, mainly for stock food. In the United Kingdom there is a Government Grant of $10 per acre for field beans harvested as grain or available for harvesting as grain. Seed supplies may raise difficulties in N.Z. but sufficient could eventually be procured by bulking up.

HONEY CROP PROSPECTS

1968/69 SEASON

Following are summaries of reports received from Apiary Instructors regarding the seasonal conditions and honey crop prospects in districts as at mid-January.

NORTHLAND

In the far north the vital early months of September, October and November were wet and cold and hives were mainly weak until December. The manuka crop was negligible. In the southern part of the area conditions were less severe but very changeable. Swarming was a problem.

Even with improved weather from now on beekeepers would do well if near average crops are harvested.

AUCKLAND

With record rainfalls in the months of October, November and early December bees had little opportunity to gather nectar, the result being numerous hive losses through starvation. The weather improved substantially about mid-December and hives strong in bees began to store a surplus. Pasture sources yielded well and trees and shrubs provided a minor flow.

Strong hives should produce good returns but the majority have reached peak strength too late and will produce only small surpluses.

Overall crops will be light but better than last year.

HAMILTON

In the early spring hives were very short of stores and below average strength. Climatic conditions during September, October and most of November were unfavourable. With the help of a large amount of sugar, only enough nectar was gathered during this period to keep colonies alive and allow them to build up to good average strength, although flowering was good on all nectar sources. With very heavy swarming taking place during October and November the crop prospects at that time appeared very poor. Since late November the weather has been reasonably good and bees have worked all sources of flowering bush and have done well on weed sources.

Clover has flowered more profusely than for several years and good yields of honey have been obtained from this source. If the weather remains fine, clover should continue to produce more honey for some time.

Konini, Viper's buglos, Rewa Rewa and Tawari have all yielded well, and with the usual main sources giving good yields, the overall crop will be well above the the average for the district.

TAURANGA

The winter period tended to be wet rather than cold. Bees wintered well in spite of this. Spring was very late and hives remained backward for some time, especially in Rotorua areas where sugar feeding was necessary. Windy and overcast but warm weather was experienced in late December.

Bees are generally in good condition at present. Clover is flowering profusely and with settled warm conditions from now on good crops could be secured in the Rotorua area. In the Bay of Plenty above average crops are assured.

Present indications are that the honey crop for the district will be above average.

HASTINGS

From Napier south to Dannevirke the season is two to three weeks late. Although there is now a very good flowering of clover, very little has been gathere due to unfavourable weather conditions.

North of Napier, conditions appear to be more favourable. An average crop from manuka was secured earlier in the season and at present clover is yielding well.

In Gisborne a wet December curtailed the Tawari flow, and only now with the improvement in the weather, has the season started to pick up.

Nectar sources are still available, but with the showery conditions being experienced over the district, it appears at this stage that the overall crop will be about average.

PALMERSTON NORTH

Continuous feeding was necessary throughout the district up to late November and hive strength in some areas was variable. Favourable weather prevailed from late November and light flows of nectar were procured in all coastal areas and some inland areas in the Wairarapa. In the higher country colonies have been slower to get away and the crops secured to date do not compare with those in the warmer coastal areas.

The climatic conditions since December have been favourable. If these conditions continue through January the overall crop is expected to be about average for the district.

HAWERA

Adverse weather prevailed throughout the spring months entailing continuous feeding until early December. As a result hive strength was erratic throughout most of the district. The exception being some localities where there was a light flow from Barberry and Rewa Rewa.

From early December conditions overall improved due to favourable weather and the majority of hives to date have gathered more honey than at the close of last season.

If the present conditions continue in the next two or three weeks the overall crop will be about average for the district.

NELSON

Due to a very wet November on the West Coast, brood rearing was reduced but colonies have since built up on Kamahi. In Nelson and Marlborough hives have built up well and have good strength.

On the West Coast Kamahi is very late and is still flowering profusely. Nelson —a good flowering of white clover, hawkbit and buttercup. Marlborough—good flowering of clover with Viper's bugloss and lucerne.

The prospect on the West Coast is not very promising, but with continued good weather a surplus could be gathered. Nelson and Marlborough the crop will be average to good.

CHRISTCHURCH

Canterbury experienced a very wet winter with well over the normal rainfall; this advantage was spoiled in the early spring by weeks of high drying winds. These winds affected the early willow flow with only hives right under the trees being able to gather a surplus; also queen mating and colony build-up was adversely affected.

By early December conditions in many areas were very poor, when heavy rain caused a partial recovery of the pastures. Since then broken weather has further enabled pastures to recover to a point not hoped for and a fair crop has been gathered.

Given reasonable weather from now on the overall crop could be average or slightly above average.

OAMARU

Despite the very severe winter, colonies generally came into the spring in good order. Very windy weather prevailed from mid-September to November. Yields from early nectar sources were light and feeding was necessary in most areas. Pollen supplies were plentiful. Queen mating was poor due to the windy conditions, and colonies built up slowly and unevenly.

Most of the above average rainfall was recorded in the autumn and winter; the spring months being fairly dry. However, white clover was flowering profusely by the end of November. A good flow started late in December and continued into January. About 1" of rain fell on 7 January which should prolong the flow in most areas.

An average crop seems assured. Warm, calm weather with intermittent rain throughout January and February could produce an overall crop well above average.

GORE

Spring conditions were the worst for many years. Low temperatures and cold winds caused nectar shortages in most districts. These conditions retarded the spring build up and made it impossible to raise good queens. Colony build up was uneven and in December many colonies were still in a weak condition.

Conditions improved in December. High temperatures were experienced towards the end of the month and in early January when nectar sources yielded freely.

Much needed rain in January brought away good pasture growth. Clover is flowering heavily in all districts and the flax is flowering the heaviest for several years.

Given favourable conditions during late January and February the prospects are for an average to good crop of high quality honey.

HONEY PRODUCTION AND BEEKEEPING ECONOMICS

By V. A. COOK

(This article is based on an address by the author at the 1968 North Otago Field Day held at Kurow)

Introduction

Many beekeepers now faced with increasing economic difficulty have become convinced that the cause of their reduced returns is a general decline in per hive honey production due to factors other than climate and changes in farming practices.

One suggestion is that white clover is not secreting nectar as abundantly as it did in days gone by. It is also suggested that our bees have become inbred and therefore lacking in vitality.

My investigations into the above suggestions have led me to conclude that, firstly, honey production per hive has not declined in the Oamaru Apiary District (South Canterbury, North and Central Otago), over the past 10 seasons. Secondly, beekeepers in the district are faced with a problem of economics rather than production. And thirdly, production per hive could be increased by more efficient management.

Honey Production for the Past 10 Seasons

The following table shows honey production for the past 10 seasons in terms of total district production in relation to hive numbers, from which the average production per hive has been calculated.

Season	Total Production in Tons	No. of Hives	lbs per hive
1957/58	650	21,571	67
1958/59	675	21,251	72
1959/60	565	21,529	59
1960/61	565	22,611	51
1961/62	636	23,710	60
1962/63	1,025	23,215	99
1963/64	665	23,896	62
1964/65	557	25,524	49
1965/66	910	25,859	79
1966/67	436	26,569	37
Averages	668	23,569	63

These figures show that even though hive numbers have increased by 5,000 (24 per cent) during the 10 year period, the average production per hive has not decreased. The per hive yield for two of the past five seasons was well above average, and once it was average. The big 1962/63 crop was produced because the necessary climatic and floral factors conducive to heavy flow conditions prevailed over a wide area. The very poor 1966/67 crop was due entirely to adverse weather, a combination of prolonged drought and cold, overcast conditions. The overall average of 63 lbs per hive is the same as the national average for the same period.

Obviously the per hive production figures shown are not consistent throughout the district. Production, in any season, varies greatly from area to area, and there are variations of production in different beekeeping outfits in the same area. It is interesting, however, that the three areas of the district, South Canterbury, North Otago and Central Otago are distinctive in their patterns of honey production.

South Canterbury, the most intensive beekeeping area, with some 14,000 hives produces the most consistent crops. South Canterbury rarely produces enormous crops but, on the other hand, crop failures in the area are extremely rare. North Otago, the smallest area with 4,000 hives is consistently the poorest of the three due to its dry climate. However, good crops are produced when the right climatic conditions prevail. Central Otago (8,000 hives) is a place rich in diversity, with big variations in topography, climate and farming practices. It is, however, basically dry and not intensively farmed. Summer droughts in Central Otago can be disastrous for the beekeeper—he may not turn his extractor. In contrast, summer rains usually mean really big crops. Central Otago is therefore, an area which produces widely fluctuating crops varying from very big to very poor. The overall average is at least up to that of South Canterbury.

Economic Considerations

There can be no doubt that poor honey seasons in the Oamaru Apiary District have, during the past 10 seasons, been due entirely to adverse weather conditions. The beekeepers' problem is in fact one of economics rather than production. In short, he is faced with the problem of making a better return from each 1 lb of honey he produces.

Beekeepers who supply their honey to packers have received about the same payment per 1 lb of honey for three seasons. Increased production costs during this period have cut the profit margin. To combat decreased profits, beekeepers must either increase honey prices, cut costs or increase production.

Substantial honey price increases are unlikely while the present discord exists among the marketing sections of the industry. Production costs appear likely to increase rather than decrease.

Many beekeepers are therefore aiming to increase production by increasing their hive numbers. The one man unit is becoming bigger and there is a trend for the big outfits to buy up smaller units which come onto the market.

If these trends continue then per hive production can be expected to drop through overstocking and inadequate colony management.

Overstocking

It is difficult to judge when a particular area is overstocked with honeybees. It is well to remember, however, that any area can be overstocked. Apparently Canterbury is approaching this stage now. Griffin (1966) states ". . . the district (Christchurch Apiary District) is stocked to capacity, and overstocked in the three years out of six when dry conditions prevent any growth or return from the light soils."

The Waimate, Levels and Geraldine counties of South Canterbury cannot economically absorb many more hives. Honey bee overstocking in South Canterbury and North Otago is being accelerated by increased cereal production and greater numbers of sheep and cattle.

Management of Hives for Honey Production

The trend to increase hive numbers in order to maintain income level has resulted in several one-man units of 400 hives being increased to 550 to 600 hives.

It is my firm conviction that our present knowledge and techniques do not allow one man to give 600 hives the attention they require in order to produce maximum honey crops. Recently developed mechanical aids are helping but they are not the complete answer in themselves.

Maximum honey production can only be achieved if all the hives in an outfit are healthy; no hive should ever have less than 20 lbs of stores; each hive should have a top quality queen not more than two years old, and none of the hives should be allowed to swarm. These are the fundamentals of management for honey production.

Poisoning of Bees From Karaka Trees

By T. PALMER-JONES
Animal Research Station, Department of Agriculture, Wallaceville
and
L. J. S. LINE
Horticulture Division, Department of Agriculture, Hastings

ABSTRACT

Nectar from the karaka tree (Corynocarpus laevigata J.R. et G. Forst.), which flowers in the spring and is very attractive to honey bees, is highly toxic to adult bees.

The problem can be dealt with by re-siting apiaries or moving them out of range of karakas during the flowering period.

INTRODUCTION

For many years mortalities of adult bees in the spring, in the Hawke's Bay district, had been reported to Wallaceville Animal Research Station but the cause remained unknown. Then a local bee-keeper (Mr Ian Berry) noticed that the flowers of a tree which we subsequently identified as the karaka (**Corynocarpus laevigata J.R. et G. Forst.**) were particularly attractive to bees. Invariably karakas were within bee range of affected apiaries. Observations on 4 apiaries, inland from Blackhead, near Porangahau, showed that bee mortalities occurred when nearby karakas were in flower. When hives were moved out of the area during the flowering period no losses occurred.

Since there were also several other nectar sources at the same time no definite conclusions as to the source of the toxin could be drawn. As it has long been known that the fruit of the karaka tree is poisonous to animals (Aston 1918), it seemed possible that the losses might be due to poisonous nectar or pollen from the trees. Experiments to test the toxicity of karaka nectar to bees are described.

N.Z. J. agric. Res. 5: 433-6

EXPERIMENTAL AND RESULTS

On 10 October 20 hives were moved to a site at Blackhead a quarter of a mile from a large grove of karaka trees. Apart from the karakas, the main source of nectar was the cabbage tree (**Cordyline australis Hook. f.**), which is a widespread provider of spring nectar known to be safe to bees.

Field observations. From 13-19 October dead bees were seen in front of all hives and on the bottom boards of some seriously affected ones. Adult worker bees were affected but queens continued laying normally and brood was unharmed. The only symptoms shown were weakness and inability to fly. Bee mortality ceased just after the trees finished flowering.

Control hives out of range of the karakas showed no mortality.

Mortality in one hive. The collecting tray of a pollen trap was moved forward on 12 October so that dead bees could not be carried out but remaining for counting. Over 4,000 dead and dying bees were collected over a 15-day period.

Mortality in field bees. From 13-18 October, 70 bees were collected from karaka flowers and placed in cages with feeders of sugar syrup. Although most of the caged bees showed the same symptoms as those dying in the apiary, many recovered, presumably because the toxic nectar was no longer available. Mortality after 24 hours was about 25 per cent. For control bees collected from other nectar sources mortality was nil.

Collection of nectar and pollen for toxicity tests. On 18 October all the nectar from the hives was extracted. Bees collect little pollen from karakas, and sufficient for toxicity tests could not be obtained.

Preparation of flower extract and its effect on bees. Dried flowers of the karaka (180 g) collected on 17 October were finely ground and extracted with acetone. The acetone was distilled off **in vacuo** and residual water removed in a vacuum desiccator to leave a dark, gummy substance, together with acicular crystals which were purified by recrystallisation from boiling alcohol. The alcohol was removed under vacuum and the residue taken up in 12.5 ml water containing 33 per cent $\frac{w}{v}$ sugar. After the flower extract was fed to caged bees 20 per cent died within 24 hours and 88 per cent within 48 hours.

Effect of nectar on bees. Feeders, filled from a solution of 600 g of nectar dissolved in 133 ml of water, were attached to 6 cages of bees. Bees soon showed symptoms of weakness but quickly recovered, and mortality in 48 hours was negligible (4 in 300 bees).

Hives were fed weighed amounts of karaka nectar dissolved in water as follows: 2 on 1 November (1,300 g and 450 g); another on 22 December (380 g) a fourth on 1 May 1961 (450 g). Workers, and in one hive drones, fed in November and December showed severe symptoms of weakness; foragers were unable to enter the hive and died outside. The hive fed in May was unaffected.

Effect of nectar on guinea-pigs. On 3 November, guinea-pigs of 360 and 400 g dosed by stomach tube 8.4 g and 7.2 g of karaka nectar in aqueous solution (7 ml and 6 ml respectively) were severely affected within two and a half hours. Hind legs were paralysed, tremors occurred, and handling caused slight convulsions. The animals were not cyanosed. On 21 and 22 December 4 similar guinea-pigs dosed at the same rate showed no symptoms. The nectar used in these tests was the same as that fed to bees.

DISCUSSION

Results show that freshly collected karaka nectar is toxic to bees and guinea-pigs. The evidence suggests that within 9 weeks the concentration of poisonous principle is reduced to a level insufficient to cause clinical symptoms in guinea-pigs. However, more experiments with graded doses of karaka nectar given at varying intervals after collection would be necessary to establish this point unequivocally. Results also indicate that within 26 weeks after collection karaka nectar becomes non-toxic to bees. From the evidence it appears that karaka nectar might constitute a human hazard if the honey were consumed within a few weeks of collection. However, bees gather karaka nectar only in the spring. At that time winter stores of honey are exhausted, the bees are breeding heavily, and they would normally consume any karaka nectar weeks before the main honey flow (December to January). For this reason it is tentatively concluded that karaka nectar would seldom, if ever, constitute a danger to humans.

The poison in karaka nectar is toxic to the bees collecting it. In contrast, honey dew from **Coriaria arborea** Linday is non-toxic to bees but in the honey is permanently toxic to guinea-pigs and humans (Palmer-Jones et **al.** 1947). Unlike poisonous nectar from the overseas plants California buckeye (**Aesculus californica** Nutt) and locoweeds (genus **Astragalus**), which affects brood and adult bees (Grout 1949), karaka nectar is poisonous to adult bees only. The death of bees affected by karaka nectar is not sudden, as in acute cyanide poisoning, but follows progressive weakening.

Though nectar from experimental hives and an extract from the karaka flowers caused similar symptoms in bees, the chemical nature of the poison has not been determined. In the extraction procedures used with the flowers the glucoside karakin, which has been shown not to be cyanogenetic (Carter 1951), would have been removed, and it is possible that this substance may be the factor involved.

The karaka is found throughout the North Island, in the northern part of the South Island, and in the Chatham Islands. Many cases of spring weakening of hives due to its poisonous nectar may occur in bush areas.

Destruction of karaka trees would not be warranted. Hence the only practical way of dealing with the problem of karaka poisoning is to re-site apiaries or move them out of bee range of karakas during the flowering period.

ACKNOWLEDGMENTS

We are grateful for the co-operation of Messrs P. Berry and W. Ashcroft, apiarists, Hastings.

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FERMENTATION IN HONEY

By C. G. Rope, Honey Grader

Fermentation of honey is caused by the prolific growth and action of sugar-tolerant yeasts within the honey. Yeasts are primitive, microscopic plants, amongst the smallest in the world in fact. Each yeast normally consists of only a single biological cell which propagates itself by budding or cell-division. Sometimes, during periods of rapid budding, chains of cells are formed. When the environment about them becomes unfavourable for normal growth, spores are formed which remain dormant until the return of a climate which will support their development once more. Yeasts can be airborne and they are to be found in all unpasteurised honey.

Relatively few yeasts exist initially in honey which has been associated with hygienic surroundings but vast numbers may be found in honey from an unhygienic environment in the apiary or honey house.

Sometimes honey which normally does not ferment, in the specific gravity range between 1.422 and 1.430, has shown evidence of fermentation within a year of extraction! This points to the condition of the apiaries and the state of the premises from whence the honey came.

Yeast plants feed on sugar and water and the salts dissolved in water. The waste products of their metabolism are alcohol and carbon dioxide gas and it is these which give fermented honey its sour flavour. It is the carbon dioxide which makes honey froth and expand to the point where it will burst out of its container. The fermentation flavour cannot be eliminated from honey although, following pasteurisation, it can be diminished by blending.

In the early stages of fermentation, honey has a sourish flavour. However, the taste of fermentation is not to be confused with the taste of sour taints to which honey is also subject. Sour taints are usually derived from substances like stale, wet combs and mouldy pollen not to mention honey which has been contaminated by unhygienic plant, honey house floors or used honey containers. Some beekeepers do not trouble to have their extraced combs cleaned up by the bees at the close of each extracting season and there are honey houses having a "brewery" odour often detected some distance away. When combs are stored wet with honey over winter and not returned to the hives until the next honey flow, the residue of honey is stored by the bees along with the millions of yeast plants it harbours, eventually to become incorporated within the crop. During winter the yeast-laden sour honey has permeated the pollen, cocoons and wax and the combs will impart an "off" flavour to fresh honey stored in them. Beekeepers managing their hives by the two-queen-system and those uniting hives will be wise to remove all unconsumed feed honey remaining in broodchambers which will become supers for the crop.

Climates Affecting Yeasts

Honey-yeasts are incapable of growth at storage temperature below 50°F. They flourish however, within the critical temperature range between 53 and 60°F but higher temperatures will also support their growth.

Liquid honey having less than 17.0% moisture will not ferment within 12 months but when it granulates, there is an increase in the percentage of water in the non-crystalline portion of the honey so granulated honey containing more than 15% of moisture is not immune from fermentation. The percentage of granulated honeys in which fermentation is evident within 12 months at room temperatures at Auckland has been ascertained as follows:

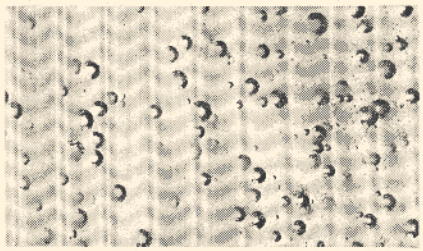
AVERAGE OF 6 YEARS 1952-57

Under 15.0% moisture content		No fermentation within 12 months
From 15.1% to 16.0% moisture content ..	2.8%	were fermenting ,, ,, ,,
,, 16.1% to 17.0% ,, ,, ..	9.3%	,, ,, ,, ,,
,, 17.1% to 18.0% ,, ,, ..	40.4%	,, ,, ,, ,,
,, 18.1% to 19.0% ,, ,, ..	63.0%	,, ,, ,, ,,
Over 19.0% ,, ,, ..	71.1%	,, ,, ,, ,,
Entire Range: Under 15% to Over 19% moisture content	24.7%	,, ,, ,, ,,

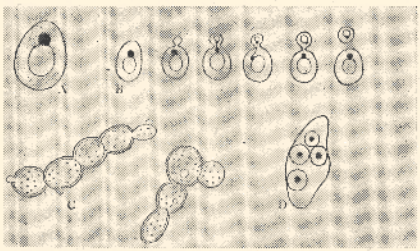
Seed Honey is a common source of yeast contamination of honey. Seed honey should not be carried over from the previous season but should be freshly made from the current season's crop.

Pasteurisation

Honey-yeasts are destroyed when granulated honey is reliquified in a day-long process at the conclusion of which the temperature of 120°F is reached and maintained for several hours. This will cause a slight but not unacceptable degree of darkening. In 1939 Dr G. F. Townsend of Canada published the following pasteurisation table; discretion is needed in its application with respect to colour loss. When honey is flash heated to 160°F and subsequently cooled rapidly no darkening is evident.



Photograph of tiny air bubbles incorporated in the honey by faulty handling. Air bubbles may contain sugar tolerant yeasts responsible for fermentation in honey.



Yeast.

A. A single cell, showing cell wall, protoplasm, nucleus and vacuole (X500).

B. The process of budding.

C. Chains of cells (nuclei omitted) formed by rapid budding.

D. Formation of spores (this occurs when changing conditions make active life impossible).

Diagram — E. J. Holmes & R. D. Gibbs.

Conditions which will Destroy Honey-Yeasts

128°F	for	7	hours	50	minutes
or 130°F	,,	2	,,	50	,,
or 135°F	,,	1		—	
or 140°F	,,	—		22	minutes
or 145°F	,,	—		7	,, 30 seconds
or 150°F	,,	—		2	,, 48 seconds
or 155°F	,,	—		1	,, —
or 160°F	,,	—		—	,, 24 seconds

AN AUSTRALIAN VISITS N.Z.

Mr Fred S. Benecke, Senior Livestock Officer in Apiculture recently made a brief visit to N.Z. to learn something about our methods of preparing hives for clover honey production.

Mr Benecke is a graduate of Wagga Agricultural College and he is well known for his contributions to various beekeeping journals. His headquarters in Australia is at Tamworth and his territory covers an area larger than England. Advising Apiarists on all aspects of beekeeping with special emphasis on mechanisation plus the study of honey producing trees and plants keeps Fred very fully occupied.

Mr Benecke came first to Auckland where he was shown over the Honey Marketing Authority's plant and introduced to our grading system. He visited local beekeepers and attended a meeting of the Auckland Central Branch of the N.B.A. where he spoke briefly on beekeeping methods in Australia.

Mr Benecke went next to Hamilton where he was met by the local Apiary Instructor Mr A. Bennett. He visited the honey houses of leading beekeepers between Hamilton and Taupo. His interest in the assortment of equipment he observed was manifest by the numbers of photographs he took. Apiaries were also visited and the condition of the hives, particularly their bee strength, evidently surprised Fred. Most of the hives were operated on the two Queen system and were ready for the clover flow which was expected to begin within the next week or two. Mr Benecke visited the Superintendent Beekeeping at Wellington before continuing on to the South Island.

His introduction to the "Mainland" began with a visit to the Timaru N.B.A. Branch meeting. Here he met another visitor to New Zealand Mr W. F. Huston, a Californian beekeeper who operates an incredible number of hives mostly for pollination.

The following day in company with Mr Harry Cloake and the Apiary Instructor Mr V. Cook, apiaries of Cloake's Honey Ltd were inspected. This was of great interest to Fred as he was able to compare several two queen systems in operation while he assisted with the work of uniting and supering. This was gaining first-hand knowledge of preparing hives for the main clover flow.

Mr Benecke had come to N.Z. to find out all he could about getting maximum crops from clover as in his own country the vast expanses of clover available on the Darling Downs opened up additional possibilities for beekeepers in the vicinity. Determined to miss nothing that would increase his knowledge Fred was on hand the next morning at the crack of dawn ready to assist Mr Cloake's men shift bees from Timaru to the MacKenzie Country. This area he found to be similar to the N.S.W. tableland clover areas but a good deal higher.

During the weekend Mr Benecke was able to relax a little when he visited Mr K. Ecroyd, Managing Director of Alliance Bee Supplies Co.

On the following Monday in company with Mr J. Smith the Apiary Instructor for Canterbury he visited leading beekeeping establishments. That evening he addressed the local branch of the N.B.A. on Australian beekeeping and left for home the following day.

We wish Fred the best of luck in the future and trust he will be able to successfully apply the knowledge gained in this country for the benefit of our fellow beekeepers in Australia.

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Insulation Heating and Refrigeration

Reported by Vince Cook

Mr P. J. Maindonald, Consulting Engineer, Christchurch, addressed a Beekceping Symposium on the above subject at Timaru in 1966. At the conclusion of the address Mr Maindonald gave valuable information to individual beekeepers concerning the proper construction of hot rooms and cool rooms. However, the address itself was phrased in general terms which gave important basic information and stimulated further interest.

Recent enquiries from beekeepers seeking advice regarding the construction of large hot-rooms, cool rooms and insulated bee-houses indicates a need for the publication of information on this subject.

I have set out below my summary of Mr Maindonald's lecture, and I have appended the titles of two very useful publications for anyone who may require further information.

Mr Maindonald dealt first with the general considerations to be taken into account with regard to controlling the environment in buildings. These he listed under five headings as follows:

1. **The Weather**

Weather conditions can have a big effect. The mean temperature and relative humidity for an area where a building is to be sited should influence its type of construction. It has to be remembered, however, that great fluctuations may occur. As an example the mean relative humidity at Christchurch at 9 a.m. is 75%. During a hot nor-wester it drops to 25 to 30%.

2. This section Mr Maindonald called **'Creatures'**, and he explained that environmental control can be greatly upset by creatures—both animal and human—entering and leaving a building.

3. **Desirable process conditions**

Here the careful planning of buildings was emphasised. It is essential to produce the desired process conditions.

4. **Reasonable working atmosphere**

While the required process conditions must be met, a reasonable working atmosphere is essential. This depends upon the type of work to be undertaken. Workers engaged in heavy physical jobs can work in colder temperatures than those pursuing a more sedentary occupation. The effect of temperature is fairly obvious.

Humidity is also a factor to be considered. While 50% humidity is optimum this depends upon temperature and air movement.

Ventilation should be adequate. There should be about 10cu. ft of fresh air entering a building per minute for each occupant.

5. **Type of Construction of building**

This aspect was discussed at length. Careful planning was again emphasised and the need for careful evaluation of capital and operating costs was also stressed.

The outside shell of a building must be weather proof and vermin-proof. Other factors to be considered vary according to the use to which the building will be put. Many factors are involved.

The degree of permanence envisaged should affect the type of construction. A building which is to be used for, say only ten years, does not warrant the capital outlay of a similar building which is to be permanent.

Planning of layout of plant should be considered as part of the planning for the whole building. Mr Maindonald explained that in many cases plant was merely moved in to a newly erected building and set out according to the size and shape of the building. Such lack of planning can result in wasted space and inefficient working conditions. It may be found that two or even three persons are required to do a job that was originally planned for one person.

Moisture-barriers and insulation materials.

It was explained that if the temperature of a room is 70°F. with a relative humidity of 60%, when the temperature drops to 55°F the relative humidity

increases to 100%. Under these circumstances condensation occurs; the room atmosphere is said to have reached its dew-point. A further drop in temperature increases condensation. The dew-point for an atmosphere at 70°F. R/H 80% is reached when the temperature drops to 64°F.

The dew-point must be considered when selecting insulating materials because the water vapour in a warm atmosphere exerts a pressure which is greater than the vapour pressure from the air outside. The water vapour therefore tends to push out through the construction materials.

In a composite wall comprising say an inner lining of pinex, a 4" air space, a layer of timber and then the outside wall of the building, as the water vapour penetrates the different layers of insulation it will pass into progressively colder areas. At some point within the wall the dew-point is likely to be reached and condensation may occur. Such condensation causes considerable damage. For example, if condensation occurs on the inside of a roof covering it may eventually cause rotting of the purlins.

To prevent this condensation a moisture barrier should be built into the construction. Paper reinforced aluminium foil, polythene film, and to a lesser extent, good quality gloss paint, are all good moisture barriers. A moisture barrier must be placed as close as possible to the warm side of a wall.

Mr Maindonald went on to discuss the relative efficiency of various insulating materials. He first explained that a 2" layer of any material is generally reckoned to be the economical maximum amount to be used in a construction except for special rooms with temperatures very different from normal atmospheric temperatures.

The index for denoting relative value of insulating materials is called the "U" factor, which represents insulating value in terms of B.T.U's/hour/°f./sq.ft of material.

The lower the figure the more efficient the material.

Comparable "U" values for common insulating materials are:

Expanded plastic	2"	0.122
Fibre glass	2"	0.125
Cork	2"	0.143
Wood wool or chips	2"	0.300
Pinex	1"	0.357
Pinex 2 x ½" sheets with 4" cavity		0.300
Brick	4½"	1.110
Concrete	6"	1.430
Glass	3/16"	3.000

These values are modified to some extent when used in a composite construction.

Aluminium foil is also an effective insulating material but it must be placed on the warm side of a wall to avoid moisture problems. Since its efficiency as an insulating material depends upon its ability to reflect heat it must be placed adjacent to an air space.

When discussing insulation of cool-rooms, Mr Maindonald said that as a rough guide to insulation needs, it is reckoned that each 10°F. difference required between outside and inside temperatures needs the equivalent of 1" of cork.

The moisture problem in cool-rooms is largely overcome by the refrigeration units; the cooling coil is the coldest point in the room so condensation takes place on the coil. The resultant water drips into a tray and drains away outside the building.

Mr Maindonald concluded his address by briefly discussing economic considerations involved in the provision of heat. In general, the cheaper fuels such as oil and coal involve heavy capital outlay on boilers, piping, radiators and so on. The use of electricity requires a smaller capital outlay but greater running costs.

Publications for further reading:

1. 'Insulation and heating of buildings' by Lyndon Bastings. D.S.I.R. Information Series, No. 18 (1964) Government Printer, Wellington.
2. 'Insulation in farm buildings' by J. E. Turnbull. Publication 96, Ontario Department of Agriculture, Parliament Buildings, Toronto.

Finding himself unable to take care of these four points, the beekeeper with 600 hives may decide to carry a few duds, and do the job extensively rather than intensively. The result of this approach is to increase capital outlay and to reduce per hive production.

The Importance of Food and Queens

Two major criticisms can be levelled at beekeeping in the Oamaru Apiary District. Firstly, too many hives are under-fed, particularly during November and December before the main honey flow. Secondly, there is a general inadequate provision of young quality queens. The reasons appear to be mainly economic.

In the case of food supply many beekeepers cannot afford to buy the required amount of sugar, or alternatively store away feed honey. It should be remembered that a strong hive consumes about a full comb of feed each week during the November/December period. It follows therefore that if hives run really short of stores at this time they require three full combs of honey or two gallons of thick syrup, and feeding must be continued until the bees are self-supporting.

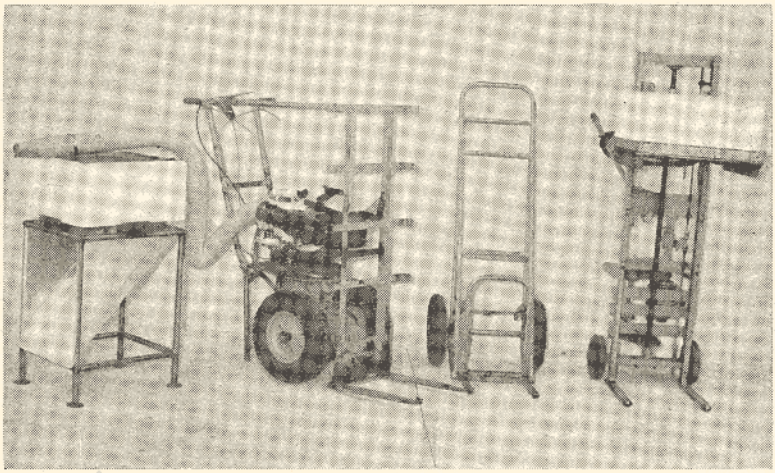
Too many hives are not requeened regularly. This mainly applies to outfits where the beekeeper does not raise his own queens. He may not be able to afford to buy queens, or what is much more serious, he is likely to find that queens are not available. Queens are in short supply mainly because they cannot be economically produced at current prices.

I am sure that if every hive in the district was requeened at least every two seasons and if every hive had, at all times, not less than 20 lbs of stores, then the per hive production figures would increase significantly.

Conclusions

1. Up to the present time, average honey production per hive has not decreased in the Oamaru Apiary District.
2. The trend for beekeeping units to increase hive numbers as a means of increasing production can be expected to cause a drop in per hive production, and an increase in capital outlay.
3. Inadequate feeding and requeening of hives is keeping per hive production below the maximum.

Reference GRIFFIN, L.A.M. 1966. Griff's graph. N.Z. Beekeeper. 28 (1): 2-4.



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DUDLEY WARD

KINTAIL APIARIES 47 GUY STREET, DANNEVIRKE

COMMENTARY

from the Editor's Desk and Mail

"One cause of schizophrenia could be the substance in a bee sting", claims Dr Julo del Castillo, a New Jersey psychiatrist writing in the Journal of the Medical Society of New Jersey. He said most of his schizophrenic patients had had frequent bee stings. He wondered if cortizone was implicated.

The prime subject in his study was a beekeeper who had been schizophrenic for fifteen years and whose depression, tension and anxiety got worse in spite of treatment. He told the man to keep away from bees, particularly sick bees which he often removed from bee farms and cared for in "hospital hives". The patient improved within a week, and in ten months he had no symptoms.

Dr del Castillo's linking bee venom and cortizone ties in with the old folklore that a bee sting is good to relieve arthritic pains. This theory could solve a medical puzzle: persons who get arthritis do not become schizophrenics and vice versa. It looked as if one type of patient could have too much of the venom-like substance and the other too little."

Medical News, August 2, 1968

★ ★ ★

Any organisation has four kinds of bones:

The Wishbones	—	Who wish someone else would do all the work.
The Jawbones	—	who do all the talking and precious little else.
The Knucklebones	—	who knock everything that anyone else tries to do.
The Backbones	—	who get under the load and do all the work.

Illinois State Beekeeper.

★ ★ ★

The perfect example of falacious argument.
£5 on a horse paying a £5 dividend equals £25
$2 equals £1, therefore
$10 on the horse paying $10 dividend equals $100
$100 equals £50, therefore more profit under decimal currency!

AKTV 2, Auckland. 1966

THE REPORT OF A CONSULTANT appointed to review the beekeeping industry makes interesting reading, extracts of which are as follows:

He found the principal overall problem of the industry, according to those interviewed, is the continuing low price received for honey in relation to mounting costs of beekeeping operations. This is more properly identified with the basic problems of honey marketing, the continuing high demand for skilled labor associated with common honeybee management practices. However, in certain geographic areas the critical problem of greater urgency is the widespread killing of honeybees by insecticide poisoning. In these areas application of insecticides to certain crops was killing bees at such an alarming rate in 1966 and 1967 and causing such financial losses to beekeepers as to threaten their existence and to jeopardize the crops which are totally dependent upon bees for pollination.

Another major problem common to all areas is the shrinking size of the bee pasture due to urban expansion, more intensive type of farming and the widespread and sometimes indiscriminate application of herbicides.

Therefore, briefly stated, the continuing decline in honeybee numbers may be attributed to the reported low rate of return on invested capital with the low price of honey, high labor demand, heavy loss of bees due to insecticides and dwindling size of bee pastures as contributing factors.

He found it difficult to properly analyze the financial picture of commercial beekeeping because he was handicapped by a lack of current published financial data. The low market potential for specialized equipment for the beekeeping industry has discouraged any extensive product development. Therefore, with a few exceptions, large producers are handling combs by hand four or more times in the extracting process.

The trend is for beekeepers to increase the size of operations and to mechanize if they intend to stay in this business.

This report, incidentally, which rings true for many of our own problems, was prepared by Mr Earl D. Anderson, a private consulting engineer, hired by the U.S. Department of Agriculture.

He interviewed 85 representative beekeepers and industry leaders in 16 states throughout the country. The 50 beekeeping operations he visited varied in size from 50 to 20,000 colonies; only two had less than 300 colonies; 10 between 300 and 1,000; 21 had from 1,000 to 2500; 9 from 2500 to 5,000; and 8 had more than 5,000 colonies.

His only previous experience in beekeeping was assisting his father who produced section comb honey. However, this is not his first attempt to analyze an agricultural field. He has done similar studies for the Department on swine and poultry raising.

As a summary of his conclusions he made the following recommendations:

1. Join with other beekeepers in developing one or more centralized record keeping and cost analysis services. Cost records are essential for operating any business profitably today.
2. Work toward full support of industry marketing agencies to boost honey consumption.
3. Step up communications with farmers, government regulatory and research officials and the press through your state and national federations as a means of maintaining bee pasture and cutting loss from insecticide poisoning.
4. Establish broader and more regular communication between research workers and beekeepers to keep research projects relevant.
5. Expand research at once, aimed at drastically cutting the steps in manipulation and other bee yard management practices as a principal means of cutting operating costs in those areas which are difficult to mechanize.

We are indebted to GLEANINGS as the source for this information.

NEW RESEARCH CENTRE Honey bees are so important to the nation's economy that the U.S. Department of Agriculture has built a new research centre at Tucson, Arizona. In the United States each year, honey bees pollinate more than 50 different agricultural crops valued at 2 to 3 million dollars, and they produce honey and beeswax worth 55 million dollars.

The Bee Research Laboratory is on a 5.3 acre tract provided by the University of Arizona and located about 5 miles from the main campus in Tucson. The site allows for close cooperation between the Laboratory personnel and the University staff. The laboratory was completed in Nov. 1966. It has about 59 full-time Federal employees. Included are 20 senior scientists of which 16 are directly involved in bee research. Graduate and undergraduate students serve as part-time assistants.

Team research is conducted by apriculturists, insect physiologists, biochemists, microbiologists, plant breeders, plant physiologists, and engineers. Three Agricultural Research Service divisions are represented: Entomology Research Division, Agricultural Enginnering Research Division, and Crops Research Division.

The main laboratory and office building covers more than 1/3 acre. There is a large greenhouse and headhouse, smaller isolation greenhouses, a shop area, a large storage building, two auxiliary office-laboratory buildings, and two small service buildings. The Bee Research Laboratory is equipped with the most advanced technical equipment and instruments for studying complex bee-plant relationships.

The Bee Research Laboratory at Tucson, administered by the Agricultural Research Service, houses facilities for the investigation of several areas of bee behaviour and biology. Scientists are trying to make bees more helpful than they are now in growing this nation's food, feed, and fibre crops.

The studies at the Bee Research Laboratory fall mainly into 6 categories: Pollination, pesticides, physiology-nutrition, behaviour, microbiology-cytology, and mechanization and hive improvement.

Pollination is of the greatest importance. Researchers are enlarging the scope of work on the role bees play in pollinating crops. Evaluation on how both old and new crops respond to the pollinating activity of bees, and checking ways to make bees more effective pollinators through study of bee behaviour, selectivity, and physiology.

Basic research is being done on plant nectar, pollen, aroma, colour and flower structure. These factors influence the number of visits a bee makes to a plant. The purpose is to try to make selected plant varieties more attractive to bees.

Pesticides is of equal importance to the pollination studies which the staff is giving to minimizing pesticide damage to bee colonies and injury to individual bees. Bees are so important to agriculture that we cannot afford to destroy them. The researchers are studying the effects of lethal and sub-lethal doses of insecticides on bees. They are examining pesticide effects on bee behaviour and biology in terms of life spans, changes in physical responses to stimuli, and colony strength.

Physiology-Nutrition: The research staff is gaining fundamental understanding of the organic and good-using processes of larval and adult honey bees. The scientists hope to formulate and use synthetic diets in hives for production of stronger colonies and in laboratories for mass rearing of bees.

Bee Behaviour: Work is being done to determine what causes bees to respond to food, chemicals, light, sound, temperature and variations in hive construction.

Microbiology-Cytology: Researchers are conducting investigations on microorganisms found in bees and bee colonies, and trying to find out more on the makeup of these agents, their environment, and their role in bee biology. Tests are being taken on the metabolic processes of cells, glands, tissues, and organs.

Mechanization and hive improvement: Agricultural engineers are experimenting with new materials for hives, new hive designs and methods for supplying bees for pollination. They are experimenting with novel methods for automating all operations of the bee industry.

Mr A. W. M. Greig, Director
Horticulture Division Wellington
Spoke About

THE MAINTENANCE OF HIGH QUALITY HONEY

When he addressed Beekeepers

at Hamilton.

Introduction

The purpose of the Horticulture Division and its apiary section is to assist beekeepers to increase the production of high quality honey and to ensure that exports of honey from New Zealand retain their name for high quality and that honey offered to the consumer in this country continues to be regarded as a delectable and wholesome food.

Whatever has happened over the past seven years in regard to tutu and toxic honey I am personally convinced that all Government officers have endeavoured to handle this problem with the dual purpose of safeguarding human health and at the same time promoting the welfare of the beekeeping industry. It was from the latter point of view that until May 1962 very little information on toxic honey was released publicly and the whole subject was regarded as "hush hush" by both the Department and your Association.

Since that time I have been personally involved in four major meetings on the subject of tutu and toxic honey.

On 22 June 1962 when Mr J. L. Barber was President of the NBA he participated in a review in the company of Messrs R. A. Fraser, Secretary and W. J. Haines of Kaitaia. On 9 July 1962 there were discussions with the North Auckland beekeepers at Whangarei and subsequently that month the NBA annual conference at Tauranga was informed. Two years later 15/16 October 1964 there was a reassessment of the problem of tutu and toxic honey when the industry was represented by Mr H. Cloake, President; Mr R. A. Fraser, Secretary and Mr J. W. Fraser, Chairman of the HMA and there were representatives from DSIR and the Medical School at Otago as well as from Health and Agriculture. Being overseas on 9 September 1965 I did not participate at a NBA meeting held in Hamilton on that date.

This afternoon I do not propose to go over what has occurred in recent years but only to go back to the time, April 1945, when it was accepted that this problem continued to exist and then to give my answers to the seven specific questions which have been put to me. After I have given my review I suggest we go over the same questions one at a time. At this stage for instance Mr D. A. Briscoe, Apiary Instructor, Tauranga, will illustrate the actual prohibited areas by large scale maps and further clarification by discussion if necessary will be possible. I trust that this procedure will be acceptable to the Chair and to the meeting.

Background—history of human illnesses up to 1927

It has been reported that in the early days of beekeeping in New Zealand people in various districts had become ill after eating locally produced honey.

For several years prior to 1925 people were reported to have been sick after

eating comb honey taken from trees and hollow logs. Eighteen cases were reported from parts of the Whakatane and Opotiki counties between 1922-26. At that time comparatively small areas in these counties were sown in permanent pasture. The rolling hill country was covered with fern, manuka scrub, tutu and other secondary growth and there were five beekeepers in the area with approximately 700 hives who were suppliers to New Zealand Co-op Honey Producers' Association. Three of these beekeepers became ill after eating comb honey from the area and officials of the Association questioned the desirability of accepting honey from the affected area and requested the Department of Agriculture to trace the source of the harmful honey.

These occurrences may have led to section 11 (2) of the Apiaries Act 1927 "Wherever there is reason to believe that in a particular area . . . honey is likely to contain poison an Inspector may direct that such honey be withdrawn from sale and treated or destroyed."

Under this section of the Act the department gave notice to beekeepers in the area and the commercial beekeepers concerned, through their own personal experiences and the departmental action disposed of their bees in 1929 and moved to Ohaupo, Tokoroa and the Hauraki Plains.

The few remaining hives were destroyed. No further cases of illness were reported over the next 15 years.

By 1944 much of the scrub and secondary growth, in the Bay of Plenty district had been replaced by clover pasture and consideration was being given to re-establishing apiaries in the region. However on 25 April 1945 before any beekeepers had actually moved into the district there was a further severe occurrence of honey poisoning. Twenty seven people were affected and 12 admitted to hospital as a result of eating honey that day produced at an apiary in the Pongakawa Valley.

This occurrence led to the gazetting of the Apiaries Regulations 1948 which established a prohibited area within which bees may not be kept without a prior written permit. These regulations were issued under section 16 (dd) of the Act prohibiting or regulating the keeping of bees in a specified portion of New Zealand if there is reason to believe that honey produced there is likely to contain poison and prohibiting or regulating the disposal or use of honey so produced. The original area was extended between the years 1948-57 to an area now approx. 1000 sq. miles.

The actual prohibited area in 1968

Can best be seen from a map but in a few words it is in an area within the Tauranga, Rotorua, Whakatane and Opotiki counties and the boroughs of Whakatane and Kawerau in the South Auckland and Gisborne land districts.

Policy on the use of the prohibited area

The use of this area for beekeeing purposes is governed by sections 6 and 7 of the Apiaries regulations 1952 "No person shall keep bees in the area without a prior permit; the place shall be registered as an apiary; all honey stored by bees in the apiary and not required by the bees for feeding purposes shall be destroyed in the presence of an Inspector".

The present policy is

(i) to grant permits to individual beekeepers for the pollination of crops within the area—such permits expire on or before May 1970 and may be renewed. There are eight current permits, for eight apiaries and 52 hives.

(ii) to site test hives within the area and draw honey samples from them at monthly intervals from November to April for forwarding for toxicity testing. There are 10 test hive sites with two hives at each.

(iii) to conduct an experiment in the use of the area during the spring months for queen rearing purposes.

(iv) to re-open the prohibited area for specific beekeeping purposes such as queen rearing and bee feed—the period and purpose for which the area is to be opened and how such beekeeping practices are to be administered to be guided by an advisory committee which it is hoped will be established under the Apiaries Regulations 1952.

Pilot usage for queen bee breeding purposes

A pilot co-operative trial of 40 hives on not more than two sites was approved by Government for the spring of 1968, all hives to be removed from the prohibited zone not later than 31 October 1968. This trial was arranged accordingly by the Apiary Instructor, Tauranga, in association with Messrs Bates Apiaries, Matamata. Prior to the removal of the hives honey samples were drawn for testing purposes.

Legislation

The legislation governing "the problem" is under three aspects—

(i) the keeping of bees

(ii) the tutu plant

(iii) the honey.

(i) The production or apicultural aspects of beekeeping are specified in the Apiaries Act 1927 — administered by Inspectors (either Apiary Instructors or beekeepers as part-time Inspectors) and the administration of this Act is under the Horticulture Division of the Department of Agriculture and thus one of my responsibilities as Director.

(ii) Contrary to what some people may think, the tutu plant Coriaria arborea is not listed in the Noxious Weeds Act 1950 as a noxious weed. If it were added to the schedule it would be the responsibility of local authorities to decide whether to declare it a noxious weed within any specified area.

(iii) Honey whilst in a hive or in the beekeepers' honey house to the point where it is in the tank is covered by the Apiaries Act, but honey as a food is governed by the Health Act 1956 and the Food and Drugs Act 1947.

Liaison with National Beekeepers' Association

It has been the established policy of the Horticulture Division to consult or inform the executive of the NBA on subjects such as this but because it used to be considered that this topic could harm the beekeeping industry or the country it has been customary to take this subject "in committee" and avoid publicity or publication in "The Beekeeper". In general today the necessity for the above procedure has lessened but it is still considered that undue publicity could affect the sale of honey, and it is important that if this subject is reviewed in the press then it must be adequately covered. Good lialison with the NBA can be demonstrated by a joint meeting held on 15/16 October 1964 and tabled as a report — "A re-assessment of the problem of tutu and toxic honey" and by the current proposal to establish an advisory committee in regard to the zone in which commercial beekeeping is prohibited.

Procedures now adopted for testing of suspect honey

Today there are three procedures for the testing of suspect honey.

These are —

(a) Dosing of extracts to guinea pigs
(b) Intracerebral injection of mice
(c) Chemical detection.

By the first method the suspect honey is dissolved in water and extracted by ethyl acetate. From this extract which would contain the suspect toxins, tutin and hyenanchin if present, the ethyl acetate solvent is evaporated off to leave a sugar free concentrate to which water is then added and the solution dosed to a guinea pig by stomach tube. If the guinea pig dies, the honey sample is accepted as toxic.

By the second method the suspect honey is dissolved in water and extracted by ethyl acetate as done by the first method. The aqueous extract is injected into the brain of mice. If the toxins tutin and hyenanchin are present in sufficient quantities the mice suffer convulsions and die. The time taken to die varies from 50 seconds, when the toxicity is high, to over an hour when toxicity is marginal.

The third method is a chemical one—the thin layer chromatographic or TLC method evolved at Ruakura for the detection of toxins in honey. This method consists also initially in dissolving honey in water and extraction with ethyl acetate but this is followed by other chemical steps whereby tutin and hyenanchin if present show up as spots which can be compared with standard spots for these substances seen on the same plate.

Health Department rulings as to toxic characterisation

Under the Health Act 1956 an outbreak of human illness which a doctor considers to be due to food poisoning, is notifiable to the Department of Health. The Medical Officer of Health for the district is then required under part III of this Act to endeavour to trace the origin of the suspect food.

A sample, if obtainable, would be sent for examination to the Dominion or Government Analyst, Chemistry Division, DSIR. In an emergency the facilities of other branches of DSIR or of other departments may be called upon, directly or through food specimens being divided by arrangement with a Government Analyst. Occasionally the laboratories of the main public hospitals and universities are called upon in food poisoning investigations.

The Health Department cannot commit its officers to follow any rigid procedure in regard to any food, including honey suspected of causing food poisoning.

The history of the human illnesses associated with the consumption of suspect honey would dictate the courses of action MOHs might follow. They have a responsibility for the health of the public in their districts.

Under section 12 of the Food and Drugs Act 1947 officers of the Health Department have wide powers in regard to obtaining samples for analysis — 12 (e) seizure of stocks etc. 12 (c) includes the words "seize any food . . . wherever found . . . which is or appears to be . . . injurious to health".

In the light of past experiences and current knowledge honey would not be regarded as the cause of such food poisoning unless the mouse and TLC tests for tutin or hyenanchin have been applied and both found positive. Work is still proceeding to determine whether the degree of toxicity can be defined and whether some tolerance or an acceptable risk can be laid down.

Action likely to be taken if toxicity is established

Since the Pongakawa incident in 1944 it is now clear that the only known significant cases of human illness which could be positively attributed to toxic honey were in 1959 through a boy eating honey from a hive within the prohibited zone and in 1964 through a group of forestry workers finding a wild hive within the prohibited zone and eating this honey. Wherever there continues to be an association of passion vine hoppers, tutu and bees under certain climatic conditions there is the possibility or probability of some toxic honey being produced but as long as the most dangerous area in the Bay of Plenty remains closed for the commercial production of honey the likelihood of toxic honey being offered for sale in retail packs and endangering human health through food poisoning is remote. Vigilance will however have to be maintained and persons constantly reminded to avoid consumption of 'wild' honey.

Firsthand evidence of human illnesses observed by doctors who ascribed the illness to food poisoning probably caused by honey would initiate investigations.

Two separate tests for tutin and hyenanchin in honey would have to confirm toxicity in honey and this might have to be above a pre-determined level (determined by the mouse method).

Before action by seizure would be contemplated under section 12 of the Food and Drugs Act 1947 most careful consideration would need to be given to all the evidence incriminating the honey.

I am assured that the Department of Health will endeavour to preserve the interests of honey producers where these do not appear to conflict with the interests of consumers in general.

In view of past experience more certain proof will be required in future before a conclusion is reached that honey has been the cause of human illness.

The last question posed is therefore hypothetical.

Agricultural Display at the 1968 Garden Week Show

Under the auspices of the Horticulture Trades Association and the Auckland Horticultural Council, a magnificent exhibition of flowers, plants and floral arrangements was on display at the Epsom Showgrounds from Saturday, 19 October, to Monday 28th. The Japanese and Tongan representatives also participated. To fill a spare area of 30 x 10 ft the Auckland Bee Club was invited to set up a beekeeping display. Assisted by members of the Auckland Branch of the N.B.A., a most arresting exhibit was soon prepared.

The floor of the alloted area was covered with moss, shavings and grass clods giving a most lifelike appearance to the "apiary". A number of native shrubs including manuka and ferns were "planted" about the area and hanging plants were suspended strategically. A backdrop of bamboo completed the most natural setting that could be imagined. Thanks are due to Messrs Merton Bros for this part of the display.

There was a demonstration hive in a cage of glass, hardboard and gauze measuring 4' x 4' x 6'. Frequent hive manipulations were conducted in the cage to the delight of numerous school children and teachers who came to witness the live bee show. Mrs E. Fell was a tower of strength to the organisers, working with the displays, demonstrating with the bees and replying to innumerable questions from 9.30 in the morning until well into the afternoon. Neil Bates of the Department of Agriculture also gave assistance as did Mr D. J. Bayer. The evening session was in the hands of Mr John Brookfield.

Standing by a hive looking most realistic was the model of a lady beekeeper dressed as every sensible beekeeper should be. With the exception of extractors, wax melters and other honey house equipment, the material on display covered just about everything. There were hives, nucleus, supers, frames, lids, bottoms, sections, queen rearing equipment, pollen traps, queen banks, swarm boxes, drone traps, excluders, super clearers, beeswax, honey, dry pollen etc.

There was also a range of beekeeping literature and pamphlets on honey freely available to all who were interested. An exhibit of this kind could do nothing but good for both the sale of honey and the beekeeping industry generally. A similar and even more comprehensive exhibit was repeated at the November A. & P. Show at Epsom. To the organisers and willing workers are due the congratulations and thanks from all fellow beekeepers both commercial and hobbyist.

COST FACTOR IN HONEY PRODUCTION

WALLACE NELSON EXPLAINS —

When I addressed the beekeepers in Auckland on the system of honey production I practiced, I did not anticipate it would be considered worthy of publication in the N.Z. Beekeeper. An address extending over a period of two hours followed by almost an hour of questions from the audience is almost impossible to condense into an abbreviated report without loosing much of its essential substance. In this connection I must congratulate the reporter on his excellent effort.

Since the delivery of my address, and its subsequent publication, I have received more enquiries for elucidation of details than I can cope with. Hereunder I will endeavour to offer some advice.

(a) Under no circumstances should the system I have outlined be practiced if there is the slightest suspicion of disease in the apiary. Beekeepers of limited experience should bear in mind that the spores of American Brood Disease are invariably present in the hive long before the disease becomes evident to the beekeeper in the brood. An apiary should be free of any evidence of disease for at least two seasons before any transferring of brood from one hive to another is practiced. Ignoring this vital advice may prove very costly to the beekeeper, as I well know from personal experience.

(b) There has been much interest displayed in recent years of operating two queens in the hives in the spring. Division boards are used to split the hives and thus separate the queens. At the start of the main flow the boards are removed and the hive is united and therefore strengthened with the brood and bees from the divided hive. The objective is precisely the same as I endeavoured to accomplish by a different method. The weakness of applying the two queen system is that adverse spring weather conditions may defeat the efforts of the most skilled queen breeder to raise the required number of queens to ensure success of the operation. Mr Bird, who is well recognised as a first class beekeeper, made some comment on this very point in the November issue of the Journal.

(c) As the strength, and duration of the honey flow greatly varies from one area to another the beekeeper will find it necessary under heavy flow conditions to replace the full box of honey he removes with an empty box in his first visit. Note this empty box must be placed directly over the excluder and therefore under the partially filled boxes already on the hive.

(d) In the colder regions of the South Island it would be impossible to reduce the hives to the nuclei strength I have practiced and expect winter survival of the nuclei. It is however, surprising how great is the survival rate of weak hives with young yearly raised autumn queens as compared to hives of the same strength with older queens.

(e) Finally let me say that the basic factor essential to successful honey production is a good district and young queens from selected stock. Unfortunately a good district can become totally unprofitable because of changed conditions entirely beyond the control of the beekeeper. Honey obviously cannot be produced, even under the most scientific management when nectar becomes non existant. I could write on this aspect at considerable length but it was outside the sphere of my address.

Letters to the Editor

377 Kaikorai Valley Rd,
Dunedin.

Sir,

Please find enclosed a cutting "Beekeepers given Shoddy Treatment", taken from the 'Otago Daily Times' on a recent date. I trust you will be able to reprint it in the New Zealand Beekeeper with this letter.

The Otago branch of the N.B.A. have pressed for Compensation to be paid for hives destroyed because of B.L. for many years.

When the conference was held in Dunedin Conference passed a remit seeking this relief.

The matter at that time was taken up by Mr B. P. MacDonell who with his colleague Sir Basil Arthur and others have taken the matter up in Parliament when ever the opportunity arose.

The enclosed statement was made in the debate on the estimates of the agriculture dept. were being considered.

It appears that the recent conference was swayed in their decision by the statements of Mr Carter M.P. Unfortunately the decision made is now going to be used against us.

With the cost of material and overheads ever rising the replacement value of hives destroyed must ever be increasing. With honey being shipped from one end of the country to the other no beekeeper can feel secure that he is in a disease free area. Disease now showing up where least expected.

Mr MacDonell is to be congratulated on his forward looking policy.

It is strange that it is left to the Labour party to champion the cause of an Industry that although small is one of the key industries of our country. If the beekeeping industry should fail in any part of the country most primary production would suffer.

Is it fair that a few beekeepers should carry all the burden. Surely if it is good enough for the Government to police their regulations with Apiary inspectors (instructors), surely it should pay compensation as they do with other livestock that is condemned after compulsory inspection.

I trust that the next conference will reverse the decision of this years, and show the Government that we are far from satisfied with the present position.

Sgd: C. W. Foote,
President, Otago Branch

BEEKEEPERS GIVEN SHODDY TREATMENT

South Island beekeepers had received shoddy treatment from the Government, the member of Parliament for Dunedin Central, Mr B. P. MacDonell, said recently.

The beekeepers wanted compensation for the destruction of their hives by the Department of Agriculture as a disease prevention measure, but the Government had decided not to pay.

Officers of the department could go on to a beekeeper's property and destroy hives without compensation. This procedure should be treated in the same way as the procedure for the destruction of dairy cows with bovine tuberculosis, for which $1 million was paid in compensation last year, said Mr MacDonell.

New Zealand's honey production was down by 40 percent this year and the department said this was because of climatic conditions.

"I don't believe this is the whole story. I believe there are other reasons for this drop," Mr MacDonell said.

One of these was that the keepers were being discouraged because of the absence of compensation payments.

New Zealand was exporting honey to Canada — the fifth biggest honey producer in the world—and competing successfully. If the industry got a little more encouragement from the Government these exports could be increased, he said.

The Minister of Agriculture, the Hon. B. E. Talboys, said the question of compensation had been raised from time to time, but it was some years before any representations had been made to him by the industry for compensation.

"I deal with the industry, not individual farmers and if they decide it is a good thing not to have compensation I can only leave the matter there," he said.

WALLACEVILLE WARNS

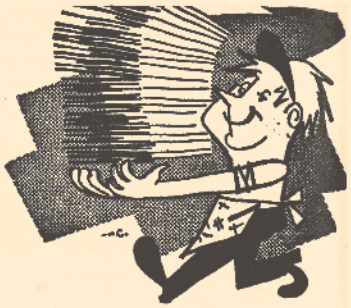
By P. G. Clinch

In the July issue of the New Zealand Beekeeper we reported on an initial test in which we used dichlorvos Pest Strips to protect stored combs from attack by wax moth. We showed that when three times the normal application rate was used with an exposure period of two months, sufficient of the insecticide was absorbed by the wax to render the combs toxic to bees for at least three weeks.

We have now completed a further test in which frames were exposed to vapour using two rates of application—normal and half normal. After four months the frames were removed and placed in four-frame nucleus hives in the laboratory, where cages which allowed bees to run over the surface of the combs were attached. It was found that the treated combs, at both dosage rates, were highly toxic to bees and remained toxic for one month after removal.

In view of our findings we warn you not to use dichlorvos Pest Strips where they could contaminate combs or honey.

BRANCH NOTES



CANTERBURY

Our Annual Field Day is fixed for Saturday the 10th March at the Taitapu Domain, a full programme has been arranged and all beekeepers, members and non-members, and their families are most cordially invited to attend.

After getting away to a bad start the season has picked up somewhat and fair to average crops of honey are generally expected. The 5 hives at the Domestic Branch Apiary will average 150 lbs, plus some sections and comb honey.

Reported by Alan R. Eagle

★ ★ ★

WEST COAST

Our annual Field Day was held on October 19th, at the home apiary of Glasson Apiaries Ltd, Blackball. Although we had been experiencing cold wet weather for weeks prior to the field day we were fortunate in having a fine day for it. The attendance of local beekeepers was disappointing but we were pleased to see a number of beekeepers from Canterbury present.

We have just experienced the worst spring for bee-keeping for many years. During October and November it was cold, wet, and windy, and it rained almost every day. However we had three weeks of ideal weather during December, and colonies have built up considerably in strength. There has been a good flowering of Kamahi, but so far very little rata has shown up, although clover is flowering exceptionally well.

Reported by R. V. Glasson

★ ★ ★

WAIKATO

Following a very poor spring clover started to yield well inland early in December, before being checked by a series of frosts. The buttercup flow was the best for years with barberry about average. In fact most sources yielded well but Tawari was disappointing, considering the fine weather, heavy bloom and long flowering period.

There was a heavy yield from Astelia, the flavour of which will spoil the Tawari crop unless this honey is removed from the hives beforehand. A lot of extracting has been done to clear the hives and it would appear that most beekeepers will get good crops of mainly light honey. Clover is still flowering well and a good crop of thistles has yet to flower. Given good weather we should get a crop we will long remember.

Reported by C. Bird

★ ★ ★

OTAGO

Our next Field Day will be at Mr R. Abernethys property at Owaka on Sat., February 22.

W. R. Sanson, Secretary.

★ ★ ★

NORTHLAND

At the time of writing it is difficult to predict with any certainty just what the honey crop will be, as the flow fluctuated considerably throughout the district. It is evident that the manuka crop will be light and butter cup will be good. Wind and rain have been a feature of the season and has created mating difficulties for queen breeders. There has never been a worse season for swarming.

Mr Harold Holdaway, our Secretary for 25 years and a foundation member of the branch received his life membership certificate during a surprise visit from branch members.

H.M.A. VOTING QUALIFICATIONS

Mr. Don Barrow, President and Mr. K. Moody, General Secretary of the National Beekeepers' Association recently discussed with Mr. D. J. Carter MP, Parliamentary Under-Secretary to the Minister of Agriculture, a proposal that the Honey Marketing Regulations should be amended to change the present system of determining producers' votes for the Honey Marketing Authority elections.

This is the proposal which was put at Annual Conference last year and accepted in principle. Conference also decided it should be referred to branches for further consideration.

ONE VOTE FOR EVERY 100 HIVES UP TO 1000 HIVES i.e. MAXIMUM 10 VOTES.

PLUS ONE VOTE FOR EVERY TON OF HONEY SUPPLIED TO THE HMA.

PLUS ONE VOTE FOR EVERY TWO TONS OF HONEY SUPPLIED TO A PACKER (WHETHER THE PACKER IS ALSO A PRODUCER OR NOT), OR UPON WHICH THE PRODUCER HAS PAID TO THE AUTHORITY THE APPROXIMATE AMOUNT OF LEVY.

VOTES OVERALL NOT TO EXCEED A TOTAL OF 30 VOTES.

Details of the scheme have been given wide publicity in the industry. Put briefly, it will mean that a producer supplying honey to the Authority will have the same voting rights as at present in respect of honey supplied, and additional votes for hive holdings; and that a producer supplying a private packer will have half the number of votes which he is at present entitled but additional votes also according to his hive holdings. As in the past a person who is only a packer will not be entitled to any votes.

Executive is satisfied that the proposed change will enable votes to be allocated on a more equitable basis having regard to the varying degrees to which producers are interested in, or affected by, the actions of the Authority. It believes that producers who actively support the Authority by supplying honey to it should have a stronger voice in determining the policy of the Authority than those who sell their honey to a packer. On the other hand, it is thought that every producer with 100 hives or more should have some voting rights as, irrespective of how he disposes of his honey, he could be directly or indirectly affected by policy decisions of the Authority.

Mr Carter was told the steps taken to determine the measure of support for the proposal. He has clearly indicated however, that before he gives consideration to recommending the Government to amend the regulations, he would have to be satisfied beyond all doubt that a substantial majority of the industry, **with a full understanding of the effect of this important and radical change in voting rights,** was in agreement that this is a better method than the present one of allocating votes.

Although this matter has been considered at Branch Meetings, and details of the proposed amendments sent to all beekeepers there has been practically no objections from producers to the principle involved. Some producer packers have objected to the proposals.

Mr. Carter is not satisfied that producers have fully appreciated the proposals, and has asked that producers be given a further opportunity to express their views on the proposals.

If individual producers or groups of producers consider they have grounds on which to object, this is their opportunity to do so before the regulations are amended. You are therefore requested to send your comments on these proposals within 14 days of receipt of the February issue of th N.Z. Beekeeper. Correspondence should be sent to the National Secretary, P.O. Box 40-127, Upper Hutt.

ARTICLE — AUCKLAND STAR

11 January 1969

HONEY SUCCESS IN FIJI TEST

SUVA—A ton of honey has been taken from test hives by Morrison Enterprises Limited which is producing honey at Naisaralagi, Fiji.

The company hopes to produce another 20 tons during the coming year from 250 hives.

The managing director, Mr Alan Morrison, said he had been experimenting for a year and he felt that the way had been paved for a major honey industry in Fiji.

He added that the first few tons harvested would be distributed in Fiji, but he hoped eventually to export hundreds of tons of honey to London.

QUEEN RIGHT QUEEN CELL STARTING AND FINISHING COLONY

After establishing this colony a continuous supply of Queen cells can be obtained throughout the season while ever favourable seasonal conditions exist. A bar of 15 ripe cells can be removed every 3½ days.

Obtain a hive body to hold 12 or 14 frames — divide into three compartments.

First part to hold 7 or 8 frames. Then a vertical Queen excluder followed by the centre part to hold one frame 1¾" wide, then another vertical queen excluder. The remaining part will hold 4 or 5 combs.

Provide three flat lids, one for each section. A front entrance is provided for both the side compartments. No entrance for the centre one.

Fit a feeder to the rear of large section. A pepper-pot type is suitable and only four frame-nail holes is sufficient.

Prepare the hive with the queen on the single comb and stock each side with combs of sealed brood and bees with honey and pollen in the wall combs. Allow three or four days to lapse if any small unsealed larvae is present.

Schedule of Operating — Example: the first Monday P.M. Grafted cells into large side, one comb from excluder Place queen onto empty comb.

Friday A.M. Grafted cells into smaller side. Queen onto empty comb.

next Monday P.M. Grafted cells into large side, one comb away from first lot, or move capped cells towards outside and place new cells in same place — change queen onto empty comb.

Friday A.M. Distribute ripe cells, graft into large side — empty comb for queen.

Monday P.M. Distribute cells from small side — graft — change comb.

Friday A.M. Repeat and continue cycle.

NOTE:

Regular addition of combs of sealed brood are needed to maintain hive population and the supply of young nurse bees. As the combs emerge remove and replace with sealed brood — a little unsealed around the edges does not matter. Should it be necessary to interrupt this cycle, it is easy to restart again by the addition of new brood and place queen onto new comb.

Dept. of Agriculture N.S.W.

(The working of this cell starting and finishing colony was demonstrated by Mr. N. Cutts at the Inverell field day on 13th September, 1968.

ALLERGY AND THE BEEKEEPER

By Dr. A. W. FRANKLAND

Condensed by S. R. CHAMBERS, from **Lecture, Central Association of Beekeepers**

An allergic reaction is a specific reaction depending upon previous sensitisation. It is as it were, immunity gone wrong. In immunity the host develops protection against potentially harmful substances, but in allergy the antibodies that are produced cause symptoms. These symptoms result from the interaction of the allergic substance or allergen, with its specific antibody. As a result of this union histamine is formed locally.

We have in our tissues a lot of histamine which can be liberated in such an allergic reaction. When there is a generalised histamine release, then the whole body itches, the mucous membranes lining the nose and throat swell and the patient may sneeze, and if the lining of the tubes of the lung are involved with spasm of their smooth muscle, then asthma develops. This may be called an immediate allergic reaction and reaches its height in 15 minutes from onset. A delayed allergic reaction causes local inflammation without infection in about 48 hours. A third reaction, the "immediate delayed" offers even more complications.

It should be stressed that what is important, allergically, is the bee rather than the sting. It is bee protein that patients become allergic to rather than the sting. There is enough bee protein in one sting to kill someone who becomes allergic to bees.

One of the difficulties in clinical medicine is to know what the natural history of any complaint is likely to be. Most beekeepers do not become sensitive to bees, but a few do. A bee has a considerable amount of pollen on its body but this pollen is not introduced into man when the bee stings, and even if it were, it is unlikely that man would be sensitive to a heavy, sticky pollen that does not normally become airborne. The cause of any reaction from a bee sting has nothing to do with pollen.

When a patient becomes more and more sensitive with each sting until finally the sting kills the patient, it is quite unnecessary to suppose, as we often read, that the sting must have gone directly into a vein. The previous sting almost certainly nearly killed the patient, the next one does. Some, with each sting, become more and more allergic. There is another group of patients who can have over 50 different episodes of generalised allergic reactions over a number of years yet the pattern does not basically change. Finally there is a third group who spontaneously seem to become less sensitive over the years.

It is lucky for beekeepers who become sensitive to stings that death is a very unlikely event, and that most deaths from stings occur from wasp stings.

Care must be taken when removing a bee sting in that more venom is not pressed into the skin. The sting itself, if left in the skin, is locally irritating like any foreign body, and it may give rise to local inflammation and infection. A local application of ice-cold water and rest to the affected part is simple first aid treatment. The irritating hot weal that forms may be due to the production of histamine. It is reasonable therefore to take an anti-histamine tablet by mouth following a bee sting, and if the irritation should be troublesome. The patient who has become very sensitive to bee stings and who may be unconscious within a few minutes of a sting, unfortunately obtains no benefit at all from any anti-histamine tablet. When someone has become very sensitive to bee stings, the easiest treatment is, perhaps, to put a 10 mg. Neo-epinine tablet under the tongue where it is very quickly absorbed. This form of treatment has been superseded by the pressurised atomiser containing adrenaline 1/100. This is available under the trade name of Drenamist (Nicholas Laboratories). Immediate and adequate absorption of adrenaline through the mucous membranes of larynx and lung can be obtained with these simple and handy atomisers.

Desensitisation may be attempted and is possible. The results, however, are variable, and should only be undertaken in someone who has had a general reaction to a sting and in whom any further stings are considered potentially lethal.

An entirely different kind of allergy which very rarely develops in a bee-keeper, is a skin contact sensitivity when handling the wax. Mention of beeswax reminds us that the wax moth **Galleria mellonella** like any other insect, can cause asthma.

Insect sensitivity is very common because all biting insects cause allergic symptoms in everyone. A few beekeepers become allergic to stings. Increased sensitivity and subsequent stings may cause death.Such a calamity is unnecessary with modern allergic management.

"QUOTES"...

In fact, a bee's sting measures one-twelfth of an inch in length and its temperature is that of its surroundings. The extra four inches and 500 degrees are due to the imagination of the recipient.

"Bee Craft" England. 1962

★ ★ ★

"We now eat in two weeks as much sugar as our ancestors not so long ago ate in a year, nearly two pounds per week for every man, woman and child in the United States."

From "Executive Health" and "Gleanings" 1966

★ ★ ★

"A man who knows all about bees, and does not believe that anything more can be gained by reading bee journals, etc., will soon be far behind the age.

C. P. Dadant in "Hive and Honey Bee"

★ ★ ★

"Yet as what is written in the bee journals and books, ours included, is not always perfectly correct. Every beekeeper should try to sift the grain from the chaff."

Isaac Hopkins, Hamilton. 1914

★ ★ ★

The honey extracted from combs which have not been used for brood is of better quality, both in colour and flavour, than that from combs darkened by brood rearing.

"Apiculture" Western Australia 1966

★ ★ ★

Selection of Breeding Stock

"Two points must be remembered. First, queens and drones cannot pass on qualities which do not exist in their hereditary make-up and, second, the process of selection must continue always."

"Apiculture" Western Australia 1966

WANTED TO BUY in North Island—HIVES Maximum of 200. Write care of Editor, L. J. Bradfield.

FOR SALE

Hives for sale with winter stores. Supers, waxes, honey tanks, extractors, capping reducers, knife and boiler, electric embedders, queen excluders etc.
Ring 696-542 or write—

J. E. BELCHER
28 Waikare Avenue,
LOWER HUTT

QUEENS quiet but vigorous, selected $1.50 each. 4 frame nuclei $6.00. Limited supply. Delivery October to April. Terms cash with order.

A. R. EAGLE
22 Hillsborough Terrace,
CHRISTCHURCH.

One 2-frame reversible Honey Extractor $20.

C. Reichel
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FOLDING WIRE GAUZE BEE VEILS
——— $3.25, Post Free ———

S. DARBY
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One American Type uncapper, complete with wire mesh cappings belt and frame conveyor. Will uncap 13 frames per minute. This machine will be available at the end of extracting season, and can be inspected in operation at our premises near Timaru. Price $600.00.
Davidson

DAVIDSONS APIARIES LTD

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ITALIAN QUEENS

1969-70

UNTESTED	1 to 5	$1.25 each
	6 to 10	$1.20 each
	11 to 19	$1.15 each
	20 and over	$1.00 each
SELECT UNTESTED	10c extra per queen	
TESTED		$3.00 each
SELECT TESTED		$3.50 each

DELIVERY: November to April

TERMS: Cash with order
Telegrams 30 centrs extra.

Orders of 20 or over AIRMAILED free on request.

Airmail Orders under 20
40c extra.

The development of these Queens extends over a period of 20 years, resulting in the creation of a hard working, high producing and non-swarming strain of gentle temperament.

Bred from disease-free hives under natural conditions.

Apply to—

F. D. WHITE

Commercial Queen Breeder,
P.O. Box 4032
KAMO, NORTHLAND

FOR SALE

500 HIVES 500 HIVES
500 HIVES 500 HIVES

500 Hives of Bees in South Auckland area. Excellent condition. Part purchase considered. For further details apply—

"HIVES"
C/o N.Z. Beekeeper.

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 $9.50 per bale, f.o.r. Foxton.
Orders for not less than 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

BUY

CASH OFFERED any time for a beekeeping outfit showing reasonable returns. Alternatively an uneconomic sized business with scope for extending would be considered. Replies in first instance to:

BEEKEEPING 69/1
c/- General Secretary,
P.O. Box 40-127,
UPPER HUTT.

SITUATIONS VACANT

Young single or married man required for queen rearing and commercial honey production. An attractive wage and bonus will be paid to a suitable applicant.

M. DEADMAN

TIRAU

The

National Beekeepers' Association

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

'Better Beekeeping—Better Marketing'

SUBSCRIPTIONS

Up to 90 colonies	$1.50	Up to 360 colonies	$6.00
120 colonies	$2.00	390 colonies	$6.50
150 colonies	$2.50	420 colonies	$7.00
180 colonies	$3.00	450 colonies	$7.50
210 colonies	$3.50	480 colonies	$8.00
240 colonies	$4.00	510 colonies	$8.50
270 colonies	$4.50	540 colonies	$9.00
300 colonies	$5.00	570 colonies	$9.50
330 colonies	$5.50	600 colonies	$10.00

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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 $10,000 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 preceding publication.
Nome-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	$4.50	Per Inch	$1.25
Half Page	$8.25	Min. Charge	65c.
Full Page	$15.00	for each insertion.	

front page story

WHAT EVERY GOOD WOMAN SHOULD WEAR.

This model in the Apiary Exhibit at the Garden Week Show serves to remind us that beekeeping is not solely the occupation of Man. The names of prominent lady beekeepers of the past come readily to mind. There was Mrs Hillary, mother of Sir Edmund, who helped her husband in his work, particularly in the breeding of queens. Mrs Hillary was an entertaining and knowledgeable lecturer as well.

The Misses Palridge and North of Matamata, kept bees commercially for many years. Their honey vinegar was well known to connoisseurs who relished its fine flavour.

Then there was Miss D. M. Dagliesh, Secretary of the Hawkes Bay Branch of the N.B.A. who later married Mr A. W. Mawhinney of Te Kawa, and the never to be forgotten Miss Shepherd of Canterbury. Miss Shepherd would never miss a conference if she could help it and she spoke her mind without fear or favour.

There were others too, and those who helped their husbands or families, and still do for that matter, in this fascinating calling of beekeeping.

BOUGHTWOOD PRINTING HOUSE, North Shore