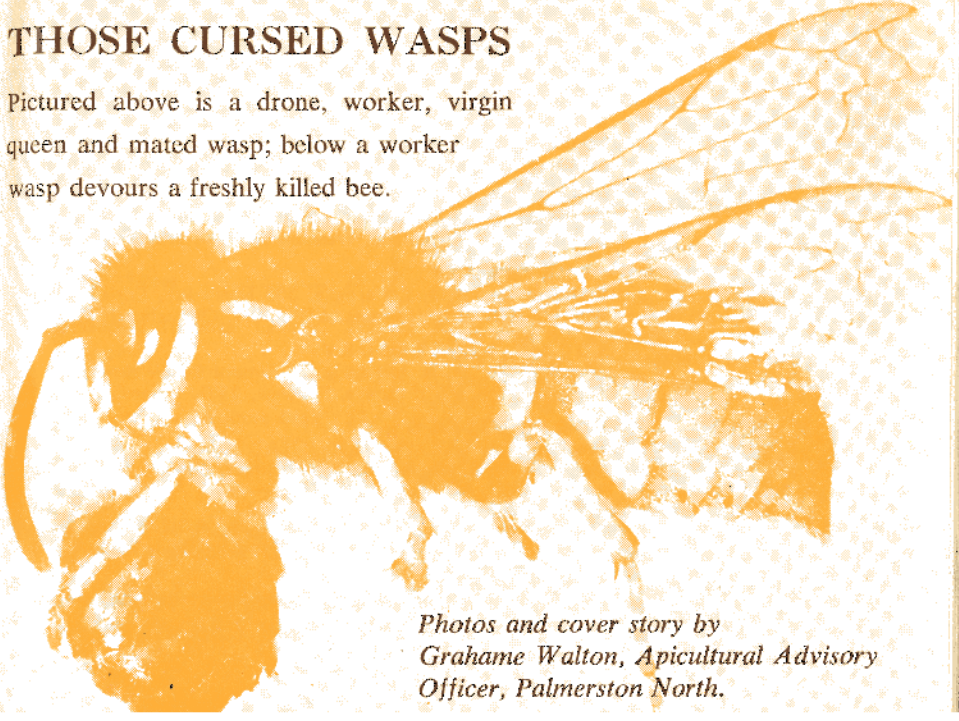
THE NEW ZEALAND

# BEEKEEPER

NOVEMBER, 1971

## THOSE CURSED WASPS

Pictured above is a drone, worker, virgin queen and mated wasp; below a worker wasp devours a freshly killed bee.



*Photos and cover story by Grahame Walton, Apicultural Advisory Officer, Palmerston North.*

# THE NATIONAL BEEKEEPERS' ASSOCIATION of N.Z. Incorporated



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# QUEEN SMUGGLING

Reported elsewhere in this issue is the successful prosecution of two commercial beekeepers for the illegal importation of leaf-cutter bees to New Zealand.

The case is one of tremendous importance to the industry and, although the species were not honey bees but leaf-cutter bees, the fact still remains that parasites present on the larvae could be a very grave risk to beekeepers throughout the country.

The naive and plausible excuse of one defendant that he "only vaguely knew" about the import restrictions on bees is so absurd as to be almost unbelievable that such a defence would be made. Ignorance of the law is no excuse and every beekeeper knows full well the restrictions and obligations of the Apiaries Act of 1927 and the subsequent amendments.

Unfortunately, the legislature deemed that a penalty not exceeding $200 was a fitting punishment for any person who committed an offence against the Act and we are perhaps entitled to debate whether Parliament in its wisdom acted in the interest of the industry and the country as a whole in defining such small monetary punishment.

Commercial beekeeping is a small but vital facet of agriculture, but one can well imagine the farming furore which would arise if there was the slightest suggestion of infringement against the regulations concerning the importation of cattle likely to carry Foot and Mouth disease. Unfortunately, it is difficult to prevent smuggling bees whereas smuggling a bull or cow into the country presents obvious difficulties.

In the case of the prosecution at Christchurch, each defendant was convicted and fined only $50. It is to be hoped that any subsequent successful prosecution will result in the magistrate imposing the maximum penalty the law provides.

# HONEY MARKETING AUTHORITY

## CHAIRMAN RUSSELL POOLE'S NEWS LETTER

At the October meeting of the Authority it was decided to make the following payout for year ended 31/8/1971:

**For honey grading 95 to 100 points — 14.5 cents per lb pro-rata**

**For honey grading 86 to 94 points — 13.25 cents per lb pro-rata**

**For honey grading 85 points and lower — 13.0 cents per lb pro-rata**

This payout shows increases, depending on grade, of from 1.75 to 2.5 cents per lb higher than last year. The payout reflects as accurately as possible the actual realisations received by the Authority for the various grades of honey. Very good premium prices were obtained for top quality White Clover honey and this is reflected in the payout for this grade. 2,784,410 lbs of honey, amounting to three fifths of the Authority's intake, graded 95 points or better qualifying for the top payout. Of the remaining 1,799,340 lbs, 1,202,072 lbs graded 86 to 94 points and 597,088 lbs graded 85 points and lower.

A few records set this year were:—

**Highest intake of honey ever at 2210 Tons**

**Greatest exports in one year at 1996 Tons**

**Greatest export earnings in one year of $650,567 (F.O.B. Value)**

**Advance Payment for 1971-72 Season**

Advances will be:—

**On Application for a Shed Advance 3½ cents per lb**

**On receipt into Store a further 2 cents per lb**

**On receipt of Grade Certificate a further payment of**

**4½ cents for honey grading 86-100 points**

**3½ cents for honey grading 76- 85 points**

**2½ cents for honey grading 75 points and below**

Making total advance payments of

**10 cents for honey grading 86-100 points**

**9 cents for honey grading 76- 85 points**

**8 cents for honey grading 75 points and below**

The following withholding payments will apply and will be deducted from the grading advance:—

**KAMAHI — 1½ cents per lb**

**TAWARI — 1 cents per lb**

**THYME — 2 cents per lb**

**CONTAINERS**

The main export container will be 44 gallon drums and due to savings in cost all new drums purchased will be the closed head type. The questionnaire sent with the previous Newsletter was replied to by 101 suppliers, the majority of whom preferred drums, and of those preferring drums two thirds indicated a willingness to use closed head drums.

Five gallon cans will still be available for those suppliers who cannot handle drums, but as many buyers will only accept honey in drums we urge all

suppliers to use drums if at all possible. The responsibility rests with the beekeeper to order his containers sufficiently in advance of when they are required to enable them to be consigned direct from the manufacturers. An **emergency** stock of containers will be held at Hornby Branch for South Island suppliers but containers drawn from this stock will carry a handling and administration fee of $1.00 per drum and 15 cents per can. Consignments will be despatched "freight forward".

**PLEASE SUBMIT YOUR ORDER FOR CONTAINERS NOW**

**DEPOTS**

These have been altered as follows:—

Napier and Greymouth will become National Depots and honey from these areas will be delivered to Auckland and Christchurch respectively.

Picton and Nelson will cease to be National Depots and will be replaced by Blenheim as a National Depot, with honey from these areas being delivered to Christchurch unless otherwise directed.

**GENERAL BUSINESS**

Investigations are being made into extending and improving the facilities at the South Island Branches.

Conference Remits relating to the Authority were referred to us by the N.B.A. The matters raised in the remits were considered and replies given to the N.B.A.

It was necessary to have some 40 Tons of honey in 4 gallon tins in the South Island melted out and repacked in drums for export. Tenders were invited from three local packers for this work. Two quoted at 2 cents per lb and one quoted at .75 cents per lb, this lower price being accepted.

Prices were also submitted by two packers for packing into retail packs for the Authority but their quotes were much higher than the cost of packing at the Authority's own plants.

In the course of an around the world business trip on his own behalf, Mr Kevin Ecroyd spent some time calling on Authority customers and potential customers. The firms concerned were very pleased to be called on by an Authority member and we are moving to implement the recommendations made in a five page report he submitted to the Authority. All the proposals will result in increased sales by the Authority, and we are extremely grateful for the time and effort Mr Ecroyd put in on our behalf.

The new agreement with Kimpton Bros. (Red Carnation) Ltd. to commence from January 1, 1972 was signed and sealed.

**MARKET REPORT**

Buying interest has been at a low level, the result of a noticeable falling off in retail sales following the price increases necessitated by the higher world prices combined with some heavier than usual buying during the summer when the shortage of honey appeared to be acute. The situation is now nicely balanced prior to the start of the new crops of the main honey producing countries.

Australia has begun to offer her new crop honey at the same levels as before i.e. £180 c.i.f. for Light Amber and £170 for Medium Amber. Business has been done at these levels, particularly in the darker grade.

Chinese honey continues to be offered in random parcels, but even at a price of £160 c.i.f. for Light Amber, buyers have not always been readily found.

Business has come to a halt in Argentine and, of course, Mexico has been without offers for many months. North America has virtually withdrawn from the international market and looks like requiring everything produced for local consumption.

We anticipate a renewal of demand over the last three months of the year although, as a result of their high stock levels, there is no great pressure on buyers for the time being.

R. F. POOLE
Chairman

# Examination of Bees from Tonga Reveals a new Ascid Mite

By P. G. Clinch, Scientist,
Wallaceville Animal Research Centre,
Department of Agriculture, Wellington.

## SUMMARY

A limited survey to detect disease in hives and swarms in Tonga showed the presence of Acarapis externus **Morgenthaler**, Acarapis dorsalis **Morgenthaler**, Acarapis vagans **Schneider**, and Nosema apis **Zander**.

A hitherto unknown large mite was found on bees from three hives. This mite belongs to the family Ascidae, many of which are predaceous upon immature insects. The mite must be regarded as dangerous to honey bees until cleared by a thorough investigation.

## INTRODUCTION

In April 1971 the Apiculture section of the Wallaceville Animal Research Centre was requested by the Horticulture Division to examine samples of bees from a survey of hives and swarms in Tonga. The survey was of limited scope, being carried out only on the main island, Tongatapu, the numerous small islands nearby being excluded. Samples were taken from all the hives on the island, and from as many swarms as could be located. They were collected in Tonga by Mr R. S. Walsh, Apicultural Advisory Officer, Department of Agriculture, Auckland, with the help of Tongan officials. A special permit was issued to allow the bees, dead and preserved, to be brought into the country. Strict quarantine procedures were observed.

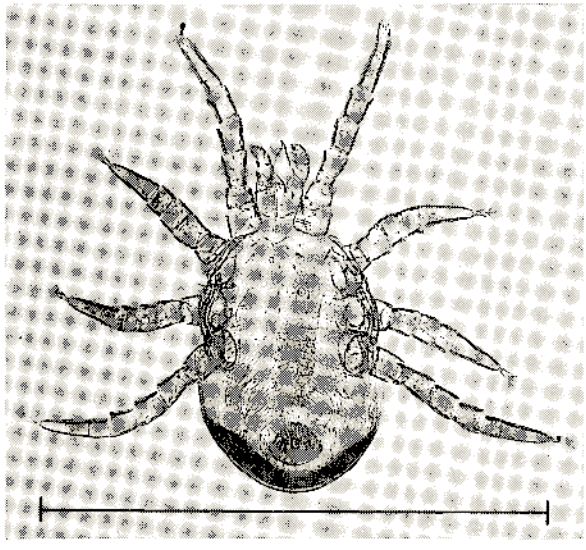

Fig. 1.
A new Ascid mite, greatly enlarged, is shown above a 1 millimetre reference line.

At Wallaceville, 25 bees from each of 69 samples were examined individually for internal acarine mites which cause acarine disease, and external mites. Twenty-five bees from 22 of the 69 samples were also examined for Malpighamoeba mellifica, and Nosema apis. The excessive time required prevented examination of the remaining 47 samples for these diseases.

Fig. 2.
Four of the new mites on a bee (X 25).

## RESULTS

MITES

Internal acarine mites (Acarapis woodi **Rennie**)

**None of these mites was found.**

External acarine mites (Acarapis externus **Morgenthaler**, A. dorsalis **Morgenthaler**, A. vagans **Schneider**).

**All three species of mite, present in New Zealand, were found.**

Unknown mites

**Mites of a species unknown to us were found on bees from three hives (see Figures 1 and 2). They were much larger than external acarine mites, and visible to the naked eye. A total of 87 mites were collected, as many as nine being found on a single bee. As we were unable to identify the species, specimens were sent to an acarologist, Mr D. C. M. Manson, of the Lavin Horticultural Research Laboratory. Mr Manson subsequently forwarded the mites to Dr E. W. Baker, of the Systematic Entomology Laboratory, United States Department of Agriculture, Washington. Dr Baker, a world authority on mites, reported that they belong to an undescribed genus of the family Ascidae, many of which are predaceous upon immature insects.**

PROTOZOA

Malpighamoeba mellifica **Prell**

**None of the bees examined was infected with this disease.**

Nosema apis **Zander**

**This disease, found in some samples, is present in New Zealand.**

## DISCUSSION

The life history of the hitherto unknown mite can be determined only by intensive study. At present we do not know if it attacks honey bees or their brood. Because mites which cause death and injury to sealed and unsealed brood have been found in South-East Asia (Delfinado 1963), the mites in Tonga must be regarded as dangerous to honey bees until cleared by a thorough investigation. They might also have undesirable effects on New Zealand plants and insects. There is the possibility that other species of mites may be present, but remain undetected.


## ACKNOWLEDGEMENTS

In addition to those mentioned in the text, the following members of the Wallaceville staff were involved in the work: Mr M. J. Smith, who assisted with the examinations; Messrs A. W. Barkus and J. Bellamy, who prepared the illustrations; and Mr T. Palmer-Jones who supervised and gave advice throughout.


## REFERENCE


Delfinado, M.D. 1963: Mites of the Honeybee in South-East Asia. J. apic. Res. 2: 113 - 4.


# The Case Against Importing Honey Bees Into New Zealand


By

T. Palmer-Jones,

Wallaceville Animal Research Centre,

Department of Agriculture,

Wellington.



## SUMMARY

New Zealand honey bees are free from Acarapis woodi Rennie, Streptococcus pluton White, and tropical external mites. In addition, our bees are apparently without major undesirable genetic characteristics.

For the sake of the local beekeeping industry, and to preserve and extend the export of queen bees, it is strongly recommended that the present ban on imports of honey bees from overseas be continued.


## INTRODUCTION

Unfortunately, some New Zealand beekeepers still underestimate the risk to their industry of introducing hitherto unknown honey bee diseases and pests, or undesirable genetic characteristics, via bees brought in from overseas. This is shown by the occasional interception of smuggled queens, and the passing of remits by branches of the National Beekeepers' Association urging that overseas strains of bee should be introduced for use in breeding schemes. For efficient operation these schemes would require resources beyond our capacity.

## DISEASES AND PESTS

For many years the importation of honey bees into New Zealand has been strictly controlled, mainly to prevent the entry of acarine disease. Since 1956 no honey bees have been allowed entry. The history of the New Zealand regulations against imports of honey bees, and the reasons for the present total ban on imports of bees, have been discussed by Palmer-Jones (1965).

The following diseases and pests of honey bees, at present unknown in New Zealand, could be introduced from overseas by such imports.

Acarine Disease (Acarapis woodi Rennie). This disease, caused by a mite infesting the tracheae of the bee, may cause serious mortality. A great deal of time and effort is expended in the U.K. and Europe on its diagnosis and control. The disease has not been reported in the U.S., Canada and Australia.

European foulbrood (Streptococcus pluton White). This serious brood disease is very widely distributed, New Zealand being one of the few countries where it has not been found (Palmer-Jones 1964). The causative organism could be brought here on the bodies of bees. Precautions are not feasible.

Viruses. Bee paralysis, caused by a virus, has been diagnosed in New Zealand. Several strains of virus may be responsible and their identification, both overseas and locally, will be a long-term project. Strains unknown locally could be brought in by imported bees with serious consequences. Precautions are not feasible.

Undiscovered Diseases and Pests. There is always a risk of introducing hitherto undiscovered diseases and pests into a country. This is shown by the recent discovery in South-East Asia of two species of mite, Tropilaelaps clareae and Varroa jacobsoni in honey bee colonies (Delfinado 1963). These mites, which are large enough to be seen by the naked eye, attack brood which suffers severe loss. The habitat of the mites appears to be South-East Asia (Hong Kong, Malaya, Java and the Philippines), where they are becoming a serious pest of honey bees (Delfinado 1963). These mites would have been distributed by movement of hives long before their presence was recognised.

## UNDESIRABLE GENETIC CHARACTERISTICS

Apart from bringing in disease, imported bees could carry undesirable genetic characteristics, latent until brought out by admixture with local strains. Early imports into New Zealand of the Caucasian bee furnish an example. This bee was regarded overseas as gentle, with a weak swarming impulse. Yet it crossed with our strains to produce very savage bees which swarmed readily. Finally, beekeepers were forced to cope with the situation by bringing sufficient hives to the affected areas to breed out the crosses.

The danger of importing undesirable strains of honey bee has been highlighted by the release, in Brazil, of the African honey bee, Apis mellifera adansonii Latr. This bee, which is extremely aggressive, swarms frequently, and is very difficult to manage, has made normal beekeeping impossible in those areas to which it has spread. Since its accidental release from an experimental apiary in 1956 it has covered an area of South America approximately the size of the continental United States, which it is expected to reach in about 12 years. Because of its aggressiveness many growers and the public would not tolerate its use in commercial pollination programmes, and it will cause an unfavourable reaction generally against the beekeeper. Colony manipulation will be difficult and, because of the bee's swarming tendency, it will be difficult to maintain pure local strains of bee (McGregor 1970). The production of spring packages and queens in the Southern and Western States of the U.S. will be seriously affected by the advent of this bee (Reid 1971).

## VALUE OF SURVEYS

Many beekeepers and laymen have an exaggerated faith in the value of results of a survey for honey bee diseases based upon examination of bee samples collected at a particular time from an area. It has been suggested that queen bees could be safely imported from an area overseas cleared by such a survey. However, such is far from the case. Because of the tedious, time-consuming nature of the work involved, numbers of bees sampled in any one survey will be relatively small. Since diseases fluctuate within a colony, the bees in a sample may appear free from a disease such as Nosema apis, or an internal or external mite infestation, one day and yet show a heavy infection, or infestation, a few weeks later. Therefore, to detect disease with any degree of certainty samples must be taken, at intervals, over a long period. Such prolonged sampling cannot be regarded as practical because of the great amount of time, and hence expense, involved. The very limited Tongan survey (Clinch 1971), confined to a single series of samples, required the equivalent of 25 working days by a scientist and 17 days by a technician at Wallaceville.

In my opinion either the new species of mite discovered in Tonga is widespread, or we were very fortunate to collect bees which it happened to infest. There is no proof that further sampling might not unearth still another species of mite. If the results of this very limited survey had proved negative it would have merely meant that a few samples of bees, collected on the main island of Tonga, were free from adult bee diseases and mites foreign to New Zealand.

## SUGGESTED PRECAUTIONS

Beekeepers have suggested that imported queens could be considered free from acarine disease if dissection of their attendant bees proved negative. However, as queens themselves contract the disease, this measure would contribute little to safety. It has also been proposed that imported queens should be hived in cages, as a safeguard against acarine and other diseases, and only released if no symptoms of disease appeared after several months' quarantine. Such a system would not be practical because of the expensive safeguards required, and the liability of bees escaping through accident or vandalism. This possibility has been well shown by the escape of the African bee in Brazil (McGregor 1970).

Recently, diagnosis of acarine disease has been complicated by the discovery that, although mites may be absent from the prothoracic tracheae, they may be found in the airsacs of the head or abdomen (Langridge 1970). Complete reliance can no longer be placed upon the relatively easy examination of the prothoracic tracheae as a means of diagnosis. This means acarine disease is now much more difficult and time-consuming to diagnose than was originally thought.

## DISCUSSION

At present our beekeeping industry is fortunately free from several of the most serious bee diseases, and produces bees of a good genetic strain. In addition, we can assure prospective overseas buyers of our queens that imports of bees into New Zealand have been totally banned for many years. During this period a constant watch has been kept, with negative results, for the appearance of hitherto unknown bee diseases, or undesirable genetic characteristics.

If current policy is reversed, and queen bees are brought into New Zealand from overseas we run a grave risk of introducing new bee diseases or undesirable genetic characteristics. Apart from the serious effect an introduced disease such as acarine, or undesirable strains of bee, could have on local beekeeping, their appearance, or even the dropping of our present ban on imports of bees, would almost certainly end the trade in queen bees to Canada. When, as seems virtually certain, the African bee reaches the U.S. a great demand could arise there for our queens. This trade would be jeopardised if we relaxed our present ban on imports of bees.

In my opinion the policy best suited to the present and future needs of our beekeeping industry is one of totally banning imports of honey bees from overseas. We should hold to this at all costs.

## REFERENCES


**Clinch, P. G. 1971: Examination of Bees from Tonga Reveals a New Ascid Mite.**
N.Z. Beekeeper 31 (4): **4-6.**

**Delfinado, M. D. 1963: Mites of the Honeybee in South-East Asia.**
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**Langridge, D. F. 1970: Report on Visit to Germany, Switzerland and Italy.**
Australasian Beekeeper 72 (2): **45 - 48.**

**McGregor, S. E. 1970: The African Bee and American Beekeeping.**
Am. Bee J. 110: **460 - 61.**

**Palmer-Jones, T. 1964: Diseases of Honey Bees in New Zealand.**
N.Z. Ent. 3 (3): **41 - 44.**

**Palmer-Jones, T. 1965: Importation of Honey Bees in Immature Stages.**
N.Z. Beekeeper 27 (3): **16 - 19.**

**Reid, M. 1971: Canadian Beekeepers have Problems Too!**
N.Z. Beekeeper 33 (3): **37 - 40.**

# NEW EXECUTIVE MEETS

**A full meeting of Executive was held at Wellington on September 7 and 8, the prime purpose of which was to consider suggestions for submissions to the Caucus Committee on the future of the industry.**

**CADETSHIP**

Mr Ivan Dickinson reported that excellent co-operation had been received from Federation Farmers and it now seemed that the cadet scheme would become a reality. A cadetship officer would be appointed by the NBA to whom potential employers of cadets could apply for names of applicants.

**DELEGATES' VOTES**

In view of the confusion arising at the last Conference on delegates votes, the Association's legal advisors would be consulted for clarification and greater simplicity.

**BEES IN AIRCRAFT**

Correspondence with NAC was discussed and noted that package bees would no longer be carried in Friendships following representations from pilots.

**REMITS**

Remits referred by Conference to the incoming Executive were dealt with individually, and to save space are detailed herein by their number on the order paper published in the last issue. They were:

3) WAIKATO Refer to HMA.

6) WAIKATO Refer to HMA.

7) WAIKATO Refer to HMA.

8) WEST COAST Refer to HMA.

10) CANTERBURY Refer to HMA.

11) WEST COAST Refer to HMA.

12) NORTH OTAGO Refer to HMA.

15) WEST COAST Resolved that adhesive rule amendments be provided as soon as possible to branches and members covering the changes requested.

20) The Superintendent of Beekeeping, in attendance at a later stage of the meeting stated that there would not be any lesser amount of petrol allowance for part time inspectors this year than had been the case previously.

21) OTAGO and

22) BAY OF PLENTY. Mr Greig, the retiring Director of Horticulture suggested that the Association should write to the Animal Health Division of the Department of Agriculture stating what was being done with wasp baits and asking what were the procedures for destroying wasp nests.

23) CANTERBURY Agreed to refer to the Minister of Customs and at the same time to raise the question of duty charged.

25) WAIKATO Agreed that NBA carry the cost of tree planting.

26) HAWKES BAY Hawkes Bay be asked to provide specific data on previous history to enable executive to make detailed investigation and further action.

27) Agreed to refer to Agriculture Chemicals Board through NBA representative Tom Pearson.

28) S. CANTERBURY Matter already under consideraation by Post Office.

29) SOUTHLAND. Application to be made to Minister of Customs.

30) WAIKATO. Representations to be made to Minister of Forests.

31) AUCKLAND Superintendent of Beekeeping undertook to contact Health Department and report back to executive.

**OVERDUE SUBS**

Resolved to emphasise to members that if their 1971 subscriptions or prior by the 31st January, 1972 that their membership automatically ceased, and that any future remittances would be credited against the oldest outstanding subscription. Their financial membership depends on their being current with payment and if not current, they have no voting rights at Branch meetings or at Conference.

**HONEYMEAD**

Further reminders are to be made to the Minister of Justice to implement a change in legislation to permit commercial production.

**DIP of APICULTURE**

Urgent representations are to be made to the State Services Commission for proper recognition of this meritorious award, and to be recognised by greater remuneration.

**GUIDE TO BRANCHES**

The General Secretary is to make available the relevant obligations of branch secretaries for publication in The New Zealand Beekeeper.

**HMA**

The Authority is to be asked to publish a simpler set of annual accounts.

**CAUCUS COMMITTEE**

Despite divergent views on the question of submissions to the Caucus Committee, after a great deal of discussion and counter arguments, executive unanimously agreed upon an industry policy which, in their view, would best serve the interests of the industry as a whole. The submissions at this stage are sub judice but will be available for publication in due course.

# GUIDE LINES TO BRANCH SECRETARIES

The General Secretary of the National Beekeepers' Association is to prepare a set of guide lines for branch secretaries to eliminate a great deal of needless work, and to ensure that beekeepers and branch delegates attending Conference are entitled to vote.

As a preliminary measure, branch secretaries are directed to the following rules which most directly affect the management of their branch.

Rule 4 of the Rule Book on page 2 details who is eligible for membership.

Rule 8 defines the necessity for any member to advise the General Secretary of his change of address. This is on page 3.

Rule 12 details procedure for resignations and Rule 14 directs where a new branch may be formed.

Rule 15 subsection (c) lays down procedure for nominating members to the National executive and on page 8 Rule 23 and 24 relates to the responsibilities of branch secretaries to inform the General Secretary of resolutions passed at meetings and the provision of stationery and office requisites.

Rule 25 deals with the Annual General Meeting of the Association and in particular attention is drawn to sub-sections (b) and (c).

Rule 27 defines how delegates may represent their branch and the procedure to be followed to ensure recognition.

Rule 28 on the mode of voting at all General Meetings of the Association should be studied carefully and in particular subsections (a) (b) (c) and (e). Similarly, Rule 30 is most important.

# ILLEGAL IMPORTATIONS OF LEAF CUTTER BEES

## admitted by two Canterbury Apiarists

A case of outstanding importance to the beekeeping industry was heard in the Christchurch Magistrate's Court on August 17 before Mr P. L. Molineaux S.M. when two experienced apiarists were charged with the illegal importation of leaf cutter bees (**megachile rotundata**) from Canada.

Jasper Knox Bray of Leeston and Gavin White of Hororata, pleaded guilty through counsel to being in possession of leaf-cutter bees knowing them to have been introduced into New Zealand without a permit.

Each defendant was convicted and fined $50 with $15 costs.

Mr G. K. Panckhurst, prosecuting for the Department of Agriculture, said that the defendant Bray was a director of the company which employed White, and had in the winter of 1970 given financial assistance to White to travel to Canada to study bee-keeping methods there. While in Canada White had worked with a well known Canadian authority on leaf-cutter bees.

Leaf-cutter bees, explained Mr Panckhurst, were small and fly like, unlike the honey-bees were ideal for pollinating lucerne, and their commercial use greatly increase seed yields of that crop. However, they were known to play host to many different parasites.

**The Department of Scientific and Industrial Research was importing small numbers of these bees for research, under the strictest controls, and because of the dangers of introducing insect parasites permission to import would not be given to individuals even if a request was made.**

Mr Panckhurst said that in late 1970 White received the tape cassettes of bee-larvae but has denied having them posted from Canada by arrangement, saying that their arrival was a complete surprise. While he was aware that the correct procedure would have been to report their arrival to the Department of Agriculture, he placed the larvae in an incubator for hatching.

The bees were placed on a farm at Te Pirita and because of drought conditions were later moved to Hororata and again to a third farm at Dunsandel.

While at the third farm they were noticed by officers of the Department of Agriculture, and when White was interviewed he surrendered about 1,000 bee larvae to the Department.

**Parasites were present on these larvae when examined by the D.S.I.R., said Mr Panckhurst. These parasites are new identifications for New Zealand and it is not known what the long-term effect would be if they were at large within the country.**

In the case of Jasper Bray, Mr Panckhurst said that he had been aware of the arrival of the leaf-cutter from the time White has received them, but had really become involved when he had arranged for, and taken to, the bees to the third farm. He had later removed the bees when it was known that the Department of Agriculture was asking about their presence.

Mr P. G. Hill who appeared for both defendants, said that Bray knew "only vaguely" about import restrictions on bees, and had not as suggested by Mr Panckhurst behaved in any way surreptitiously.

The Magistrate said that, in his opinion, Bray had behaved very surreptitiously and he would not accept Mr Hill's argument.

In summing up the magistrate stated the offences were serious because they involved the public interest. "There is a possibility of introducing something that may be disastrous to the agriculture industry" said Mr Molineaux. This was a case of "dabbling" with an undesirable product which could well be harmful.

# Better Methods of Wasp Control

**Better methods for control of the German wasp in New Zealand are being sought by the Entomology Division of the D S I R.**

Scientists of the division are trying to develop a control system based on poisoned food baits that worker wasps would take back to the nest and feed to the brood.

Such a system would open the way to control of wasps in the many situations where it is difficult or impossible to find and destroy their nests.

At Nelson, Mr D. C. F. Perrott is studying the foraging habits and food preferences of wasps with a view to finding the most attractive bait and the most effective way of setting it out in the field.

At Palmerston North, Dr R. F. N. Hutchins is trying to isolate the particular substances that make some kinds of fish specially attractive to wasps.

Experiments with wasp baits are also being conductetd by Mr G. M. Walton, apicultural advisory officer of the Department of Agriculture at Palmerston North.

The German wasp, Vespula germanica, is an economically important pest mainly because of the serious losses it causes in the beekeeping industry by harassing bees and robbing hives — often destroying bee colonies altogether.

Wasps are a nuisance or danger to others besides beekeepers. They pester picnickers and invade kitchens in their quest for food, and are a hazard to outdoor workers, trampers or shooters who may unwittingly disturb their nests.

Mr Perrott, who has more than once observed the fury of a disturbed wasp colony, thinks it surprising that there have not been fatalities caused in this way.

In northern Europe, a German wasp colony goes through the complete cycle from establishment to final collapse in a single season. Only the young fertilised queens survive through the winter to found new nests in the spring.

In New Zealand's milder climate, some nests continue through the winter, and grow from season to season. Consequently, very large nests are sometimes found here.

Where wasp nests are readily located, they may be destroyed by conventional methods. Where they are inaccessible or hard to find, some other means of destruction is required — and the foraging and social nature of wasp colonies makes poisoned baits the most likely to succeed.

A bait intended for wasp control must have certain properties:—

:: It must attract wasps when brood is developing in the nest. At such times, the wasps are seeking protein foods.

:: It must be sufficiently attractive for wasps to collect it in addition to other food in the vicinity, and when taken to the nest it must be acceptable to the brood.

:: It must contain a non-repellent, slow-acting poison.

:: It must be unattractive or harmless to bees.

In California and Canada, certain sweet-smelling synthetic esters are effective attractants for wasp species closely related to Vespa germanica.

Mr Walton and Mr Perrott have both tried a range of these substances, but so far none has had the same attraction for the German wasp here as for its North American relatives.

Mr Walton will conduct further tests of synthetic attractants in combination with a new non-repellent insecticide.

The D I S R workers, however, are now concentrating mainly on natural attractants, particularly those which are present in fish.

Fish attracts wasps strongly, and is a protein food they will collect for the brood. But fresh fish is inconvenient for use as baits because it goes bad quickly in the open, and must be frequently replaced.

Objectives, therefore, are to find out which fish wasps like best, extract the particular substance that makes it attractive, and incorporate this in baits that will not deteriorate too quickly.

This may not be as simple as it sounds. Trials last season showed that various kinds of fish, specially trout and snapper, are avidly taken by wasps. But when Mr Perrott tested materials extracted from trout by Dr Hutchins, wasps turned up their noses at both the extracts and the fish residues.

Maybe the solvents used in extraction left trace odours distasteful to wasps. More likely, the attractant was lost by evaporation during concentration of the extracts. Dr Hutchins will try different solvents and different methods in preparing materials for testing in the coming wasp season.

When a suitable bait has been developed, it will be effective in controlling wasps only if applied in a concertetd, sustained effort.

"Casual placement of single bait stations is unlikely to produce useful results", says Mr Perrott, "because what will be needed is a continuous heavy flow of contaminated food to the developing brood."

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## *SNIPPET*

American bee publications all carry reminders to readers that they must not on any account bring back or have sent queen bees from the Soviet Union when attending the International Congress in Moscow.

Well meaning apiarists in the USSR have offered gifts of Caucasian queens to American beekeepers against acarine disease will be rigidly enforced.

The only importations at present permitted are in immature stages, and queens from Canada, from whence it would be impractical to preclude them. Reminders are given of the extreme results of African stock being introduced into Brazil and the need for great care in keeping "foreign" queens out irrespective of their lineage or record.

# Obituary

The passing of **WILLIAM BAYLEY BRAY**, at Christchurch on 24th September, 1971 at the age of 84 years, has ended the life of a strong personality whose foresight and vision will long be remembered by all associated with him. He was a humanitarian at heart — though sometimes misunderstood.

Born in Christchurch in 1888, he was educated at Christ College, where he was awarded a scholarship. He joined the staff of the Bank of Australasia in 1904 and there received training which was to be of great value in succeeding years.

Always a keen student of nature he chose beekeeping as his main life interest, and was engaged by the Department of Agriculture as the first South Island Apiary Instructor in 1908, his territory being the whole of the South Island. His transport was largely by bicycle.

He was an associate of the late Isaac Hopkins, the recognised founder of the New Zealand beekeeping industry, and assisted in the preparation of the first Apiaries Act, which made compulsory to use of movable frame hives, and gave power to inspect hives and destroy any affected by the dreaded bacillus larvae.

About 1912 he founded a commercial beekeeping enterprise at Duvauchelle's Bay and later Barry's Bay, Banks Peninsula, in association with the late Alf Barrett.

In 1927-29 the partnership established headquarters at Leeston, and founded one of the first large scale honey processing and packing plants in New Zealand. It continues to this day.

He took a keen interest in the National affairs of the honey industry and occupied the positions of Editor of the official Beekeeping Journal, Secretary to the National Beekeepers Association and Provincial President during the 1920s. He was elected a Life Member of the N.B.A. in 1959. For more than half a century his letters appeared regularly in the correspondence columns of the "Lyttleton Times" and the "Press" and wrote several booklets on "Honey" and "Politics".

His humanitarian principles went much further than charity or temporary aid. He had long felt that an outmoded monetary system was the root cause of the unemployment, poverty and misery amongst plenty of the 1930s. He became an ardent advocate of Social Credit and devoted much time and energy to this cause. Much of his writing in later years was thus directed.

He stood as an Independent candidate for Ashburton in the last General Election. Few could counter his line of thought. Maybe he lived 50 years before his time. His dominant aversion in later years was the possible pollution of food sources by chemicals and their absorption by humans to the detriment of health. In the cause of research for the benefit of others, he bequeathed his body to the Otago Medical School. He is survived by two sons, Mr Jasper K. Bray of Leeston and Mr Selwyn Bray, Rangiora.

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GEORGE EDMUND GUMBRELL, one of the beekeeping industry's most colourful and active characters, died in hospital at Timaru on October 5 at the age of 67.

One time Chairman of the Honey Marketing Authority and Executive member of the National Beekeepers' Association, George held strong views on selling on the overseas market, and whilst many did not agree with his views, all would concede that he fervently believed his policy to be right and best for the industry, and that he pursued his defence of the United Kingdom's selling agents with vigor and integrity.

Born in the Middlesex town of Uxbridge on the outskirts of London, George came to New Zealand in 1929 and farmed on a small scale at Mayfield prior to starting beekeeping in 1944. A few years ago he sold his commercial beekeeping interest through failing health, and continued in partial retirement to breed Ryeland sheep at Geraldine, becoming recognised as a judge of the breed in both Australia and New Zealand.

He was an active member of Federated Farmers and served on the provincial executive of South Canterbury Federated Farmers.

In recognition of his services to the beekeeping industry, he was made a Life Member of the National Beekeepers' Association at the Christchurch Conference in July 1967.

George is survived by his wife, son and two daughters.

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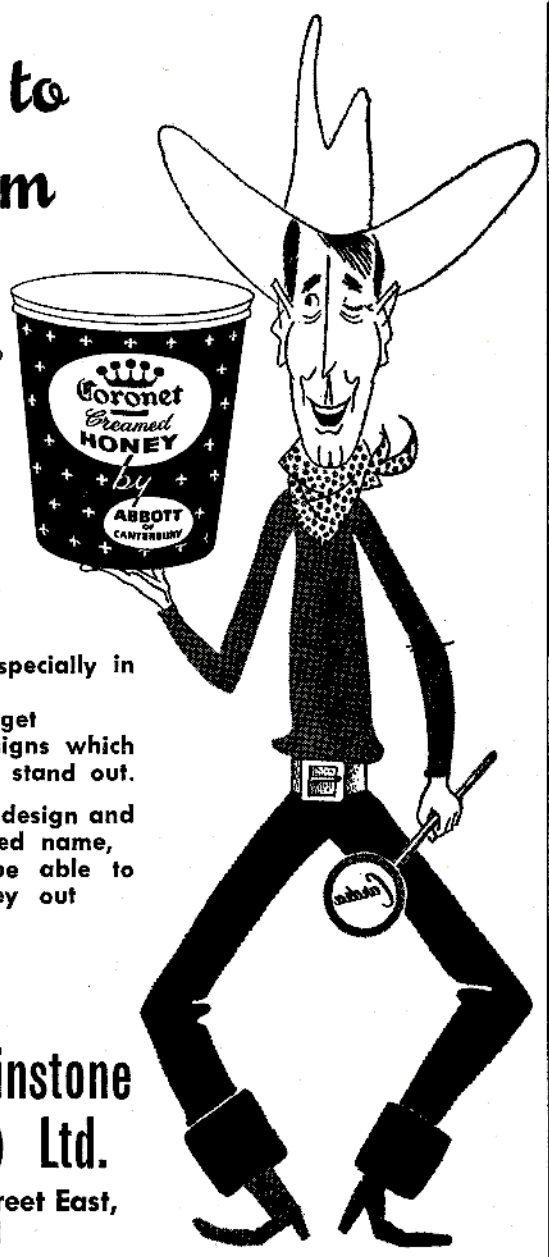


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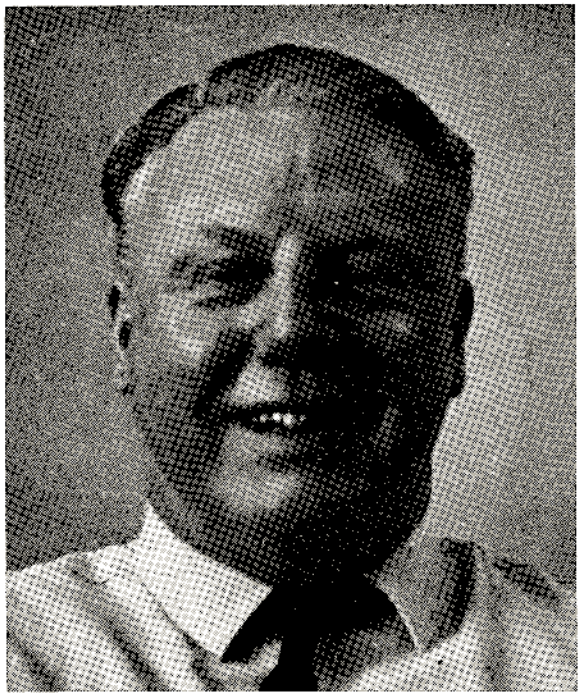


# THAT "HAPPY FELLAH" BOB WALSH to RETIRE

New Zealand beekeepers and the Department of Agriculture will sadly miss the friendly smiling face of the Auckland Apiculturist R. S. (Bob) Walsh after December 5, 1971, and it seems a great pity and a tremendous waste of life long skill and ability that retirement is dependent on an age factor. He has forgotten more than most of us will ever know.

Bob's first introduction to beekeeping was at the age of 20 when he took a position with Pearson Bros: of Claudelands on the understanding that he was to be a 'cadet'. For the next 13 years he worked with commercial beekeepers in different parts of New Zealand and during the latter period of this time he worked with a firm of merchants buying and packing honey.

In early 1939 he was approached by the then senior Apiary Instructor Mr E. A. Earp and asked whether he would be prepared to go to the West Coast of the South Island relieving the apiary instructor for the district who had been incapacitated by an accident. Surprisingly, instructions were given to report not to Westport but to Christchurch and this appointment took effect from February 1939. Following the outbreak of war Bob became one of the permanent staff of the Department and was transferred to Auckland in 1942.

The Government Honey Grader at that time was Mr W. J. Fix, and when he became ill in 1950 Bob was appointed temporary Honey Grader in his place. Mr Fix did not recover sufficiently to enable him to return to his duties, and Bob remained as Honey Grader for the next 10 years when he too succumbed to ill-health and was absent for 3 months thought to be due to an excess of sugar intake into his system.

On his recovery to resume duty Bob became Apiary Instructor in 1960, and in 1962 was promoted by the Department to the position of Apiculturist, now designated as Apicultural Advisory Officer.

Reflecting on his work as Honey Grader, Bob recalls that grading at that time was divided into 18 categories of tasting, which was indeed severe on the human frame and it was not surprising that such a sugar intake resulted in ill health for the taster. Under Bob's auspices a better result was obtained both for the Authority and the beekeeper by reducing the categories to 6 divisions instead of 18.

Bob's work has not been restricted to New Zealand and he was sent by the Department to investigate the honey producing potential of the island of Niue, where a flourishing industry now exists, producing 75 tons this year. A similar investigation was carried out in Tonga, where prospects for good crops are also promising.

Another monumental work which took a vast amount of research and will be a standard reference for years to come was Bob's "Nectar and Pollen Sources of New Zealand" which should be in the hands of every beekeeper, afforestation manager, conservationist, and 'man of the trees'.

He has also been official examiner for the N.Z. Institute of Horticulture Diploma in Apiculture and set the papers.

Bob Walsh has been a stalwart supporter of amateur and commercial beekeeping organisations, attending meetings and field days for miles around, in addition to unstinted efforts to help beekeepers with sound and practical writings in the New Zealand Beekeeper and the Journal of Agriculture, and his retirement though thoroughly deserved, will result in a gap that will be hard to fill. His many friends in the industry as well as departmental colleagues will wish him well for many happy years and it is hoped that we shall be enabled to avail ourselves of his fountain of knowledge.

# Change to Pfund Colour Scale Contemplated

By Colin Rope

Government Honey Grader

Honey farmers whose honey has been graded by the Department of Agriculture will be familiar with the 100 to 0 scale used for measuring the colour of honey in New Zealand. White honey which shows the faintest influence of amber grades at 100 points whereas the darkest imaginable honey grades at 0 points for colour. The 100 divisions in our present scale each measure about 1.22 millimeters in width. New Zealand is the only country in the world using it. We have become the "odd man out" in this regard and it is understandable that confusion and difficulties have arisen in communication with overseas buyers who are fully conversant with another scale, the Pfund scale, which is in general use overseas.

The Pfund scale is divided into divisions, each 1 millimeter in width, and these are numbered in the opposite direction to the scale we have been using in New Zealand up to the present. For example:—

(1) White honey which colours 95 to 91 on our present scale is the same as honey which colours 24 to 29 millimeters on the Pfund scale.

(2) Dark amber honey which colours 25 to 0 on our present scale is the same as honey which colours 110 to 140 millimeters on the Pfund scale.

The millimeter scale is fitted by the manufacturers to all of the Pfund instruments sold throughout the world for colouring thick liquids like honey and sugar, etc. In terms of better under- In terms of better understanding with our customers overseas, a change would seem to be a step in the right direction which could indirectly benefit the industry as a whole.

# CANADIAN RATINGS of NEW ZEALAND QUEENS

By P. Pankiw, Research Station, Beaverlodge, Alberta

*(Reprinted from "CANADIAN BEEKEEPING")*

The increased wintering of honey bee colonies in the favourable wintering areas in southern British Columbia has created an increased demand for queens in March and April, both for making divisions or for heading package bee colonies. As the queen breeding areas in California and the Southeastern states are not always able to supply this demand because of their own commitments to the package bee industry, queens may have to be obtained elsewhere. One such alternative is New Zealand. However, as queen or honey bee importation from countries other than the U.S.A. has been restricted for several decades, testing of these queens was required before wholesale distribution of germ plasm was made across Canada.

In 1968 under special permission of the Health of Animals Branch 30 queens were imported. In 1969 another 40 queens were imported. In 1970 a further 50 queens imported by Mr A. Graham of Coaldale, Alberta were tested. Special precautions are being taken by the Health of Animals Branch to ensure that acarine disease is not present, even though acarine has not been reported from New Zealand. Observations were made on gentleness, susceptibility to diseases particularly European foul-brood, colony build-up, honey production and wintering.

Generally, New Zealand strains are gentler than good California stock with which comparisons were made. This gentleness is important in checking colonies on queen rightness, brood patterns, disease and stores, as less protection is required and less time is spent per colony in examination. They also appear to be less prone to robbing and this character made selection of colonies for wintering much easier. They are proving useful for greenhouse pollination, 4-H work, field and classroom demonstrations because of this trait.

New Zealand queens are more susceptible to European foulbrood, and require greater care in disease prevention measures. This is important as disease colonies produce less honey even though the disease may be controlled with antibiotics.

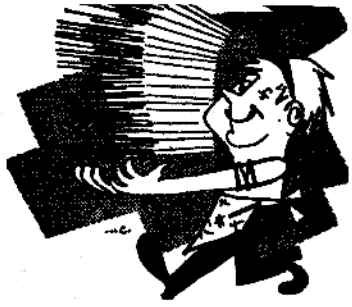
Over the past 3 years, the New Zealand colonies have built up a little slower in the spring but by mid June both groups were rearing brood at about one-third of a pound a day. As these were the bees that were bringing in the nectar in July and August, the honey production of New Zealand colonies was similar to that of the California colonies.

New Zealand colonies were also wintered in the Fraser Valley of B.C. It appears that they do not build-up as quickly in February, March and April as the California colonies with the result that the amount of surplus bees for divisions and making up package bee colonies was lower. These tests are being continued.

As more and more New Zealand queens are being imported, beekeepers should be aware of the qualities of these strains. There is no doubt that this germ plasm will be useful, particularly because of gentleness and honey production, and can be incorporated in our present strains from the U.S.A. However, emphasis will have to be placed on disease prevention because of their greater susceptibility to European foul-brood.

The criterion of the number of queens imported from New Zealand will depend on price and the maintenance of quality. For those beekeepers who would like to try these queens in their own locality, Mr Graham is the Canadian representative of the New Zealand Queen Breeder's Association.

# BRANCH NOTES



## SOUTH CANTERBURY

"What makes a good apiary site" was the subject for discussion at a Spring meeting of the branch, and the question was answered by three well qualified speakers in the form of Harry Cloake of Timaru, Fred Bartrum of Pleasant Point, and Apiary Instructor Vince Cook of Oamaru.

Harry Cloake spoke first, and gave the following points in order of preference.

1 **Accessibility** — This with regard to the number of gates, creeks, sheep yards etc.

2 **Flat Ground** — To enable mechanised aids to be used and also easier working.

3 **AREA FREE FROM DRAUGHTS** — e.g. Not directly against trees without ground cover.

4 **Shelter** — This was considered to be only a minor point, provided that the site was not in the direct path of really strong winds.

5 **The final point** was the ability to be fenced — e.g. having the site alongside an existing fence makes fencing around the bees easier, and less expensive.

Fred Bartrum started his talk with some basic advice, this being to use common sense, and weigh up the advantages against the disadvantages and then make your decision. He listed his priorities as —

1 **Accessibility.**

2 **A warm dry spot** (as do wild hives).

3 **Consider prevailing winds,** especially easterlies on the coast and Nor-West inland.

4 **Keep clear** of any farmhouse, buildings etc.

5 **Permanent Position** — Saving in work, shifting and refencing etc.

6 Finally, he did not like hives placed in a circular formation because some hives must face southwards, but the layout could be used when the bees have a high flight path, for example, when near a road or farm track.

Vince Cook gave his ideas in order of preference:—

1 **Keep away** from people and buildings; and this applies to cleaning up sticky combs as well. Getting people stung destroys farmer-beekeeper relationships!

2 **Accessibility** — (Beware too, of gates that disintegrate on opening).

3 **Fencing** — necessary where there are cattle.

4 **Water supply** — necessary at all times but especially in summer.

5 **Avoid drifting of bees** — very hard to select a breeder in apiaries where drifting occurs. To avoid drift, place hives in a circle, or in groups of four etc.

6 **Freedom from draughts** — a draught across the hive entrance will sometimes cause complete cessation of bee activity even though the outside temperatures are perfect.

7 **Some shelter** desirable, but effects differ with type of shelter, e.g. height of trees, density, whether there is cover down to ground level, or whether they are trees trimmed up a few feet from the ground. In the latter case the hives would be better placed out some yards into the paddock to lessen the effect of draught.

8 **Cold air** flows down a hillside in similar manner to that of water, and over a distance of 145 feet, there can be a drop in temperature of 54 deg. F. (12 deg. C.).

9 **Finally,** Vince Cook mentioned flooding, especially in a new area, and suggested using local knowledge to avoid this problem.

Although the three opinions differ in some respects, the important facts are all there, and should enable beekeepers to form a basic formula for use when looking for apiary sites.

Reported by R. McKenzie

### NELSON

Queen raising was the subject of the Branch meeting held in September and we were lucky enough to have Cliff Greig demonstrate his method. Cliff said we should be able to raise from 60 to 140 cells per colony using this method.

The hive chosen for cell raising need not be the same one as that from which the larvae are grafted, but should be a good cell raising colony, and, one which has good wax makers. Cliff recommended an Italian crossed bee, saying that in his opinion these bees make better cell builders than pure bred bees and should seal 85% of the cells grafted.

The swarm box was large enough to take five frames of comb with a fine screen mesh for the bottom, for ventilation to avoid overheating. Into this box go four frames, first a frame of honey, second a frame of part pollen part honey, third a frame of brood into which the queen cells will be pushed (this frame should be left with plenty of space on either side so that the bees have space to cluster in order to raise the cells). The fourth frame has honey and about a pint of water poured into the empty cells on one side.

To prepare the hive selected the queen should be put in the bottom box of a good strong hive with two boxes of bees, and a queen excluder placed over her. Five well covered frames of bees should be taken from the second box from the brood frames with young nurse bees. All the young bees should be shaken down into the

swarm box which is then covered by a gauze lid and clean sacks put over the whole box.

When it comes to grafting we were advised not to use a hive which tends to be robbed and to look for nice even coloured drones. Grafting should be done between 9.0 a.m. and 3.0 p.m., and should not take more than half an hour. The comb to be used for grafting should not be in the sun for more than a minute at the outside, as the young grubs will dry up. The frame of fresh pollen and honey should have been placed in a window or some other warm place, and the grubs should be 36 hours old. At this point we had a practical demonstration of how this should be done, taking turns to graft the grubs into the prepared queen cell cups from a frame of brood brought by Jack Varley. While we were doing this some young bees were emerging from the frame of sealed brood we were using. The process proved more difficult than it seemed from watching Cliff who obviously had the knack, and we had to use a high powered lantern to get enough light to see into the cells. As these cells were grafted we pressed them firmly onto the frame of brood, and this frame was put in the third position in the swarm box.

The box is left for 24 hours after which it should be carried carefully to the hive and without using too much smoke the frame of cells and all the bees should be returned to the second box (above the excluder). When taking the cell out of the swarm box to return to the hive the other frames should be removed first to avoid damaging the cells. Cliff stressed that it was vital that the cells **should not be jarred or bumped in any way at any stage** and should be kept warm at all times.

The next procedure is introducing the queen cells into the mating nucs. The nucs should have plenty of brood, checking the number of completed cells on the 6th day. This number of nucs should be made up or made queenless, i.e. 3 days **before** introducing the queen cell, to make sure the cell will be accepted. At the end of the next three days any cells raised should be destroyed (the population should be kept down to avoid swarming and make manipulation easier). The sealed queen cell ready to hatch should be pressed onto the top of the comb just below the top of the frame. At the end of another 21 days the queen should be mated and laying, and she should be allowed to lay for three or four days to sustain the population of the nuc.

**Sample diary**

| | | |
|---|---|---|
| Cells grafted | 10th Sept. | 5th Oct. |
| Due to hatch | 21st Sept. | 16th Oct. |
| Placed in Nuc. | 29th Sept. | 15th Oct. |
| Mated and Laying | 12th Oct. | 6th Nov. |
| Nuc. ready for next cell | 15th Oct. | 9th Nov. |

The demonstration proved to be of such interest that it took up most of the evening and we conducted very little other business.

We shall tackle our next stab at queen raising with more practical knowledge.

The following Saturday we had a field day at the home of Jerry Newport, where Jack took apart three hives and we were given a demonstration of manipulation. Two of these hives were swarms Jerry picked up last year, and they were all doing very well, away to a fine start for the season. There were new and prospective members at the field day it was of some help to them.

Reported by Margaret Woodhead

## NORTH OTAGO

Generally mild weather and regular rains have produced the best pasture growth we have had for several years. Bees are in good order; most have ample honey stores and ample pollen.

The weather during late September was changeable and so far the willow flow patchy; some sheltered apiaries have strengthened well.

A number of brassica seed crops are in flower which should also help to reduce the sugar feeding bill.

Unfortunately, bacillus larvae continues to be a problem and Vince Cook, the apiary instructor tells me that infected wild hives are spreading the disease in some areas. If you

know of a wild hive, destroy it to prevent the spread of disease.

We have been pleased to welcome H.M.A. chairman Russell Poole and his brother Allan of Kyeburn, Central Otago, as members of this branch.

It is a pity that so little interest is shown by members in entering honey at the local A. and P. Show. Only one or two members manage to keep the honey section alive. Honey on display at shows is a good cheap advertisement and greater participation is warranted. If members do not wish to compete, perhaps a branch display could be arranged.

Reported by R. B. Mackie

### BAY OF PLENTY

Continuing wet conditions have prevailed in the Bay of Plenty for most of the spring months and are still continuing at time of writing. Although hives came through the winter with adequate stores the unsettled weather has prevented bees from working early spring sources, and many hives are dangerously low in stores.

Rewarewa budding is very poor, and Tawari budding is below average.

The branch has held one meeting since Conference, this was to hear the delegates report on Conference, after which Doug Briscoe showed some very good colour slides, of beekeeping topics and others of a trip Doug and his wife took in the South Island last year.

Branch President Arthur Ward has not been in the best of health for some time and branch members trust that he will soon be fit and well again.

Reported by Don Barrow

### NORTHLAND BRANCH

After a very mild winter with good fine days the bees came through well, but the last four weeks have been terrible with cold winds and hail showers resulting in severe losses in strength. In some areas there are a few dead colonies about but whether it is the bees or the owner's fault one never knows. My apologies to our members that we have not had our usual field day. I have been on the sick list but hope to arrange something in the near future.

Last month we held a long session over the 2 cents for the H.M.A. of which we have not yet heard the outcome.

The Manuka is not flowering as well as we would like it in the North. In fact, insome areas it is non-existant so we have to rely on the buttercup which seems to be going to flower well to help reform the other pasture sources come on.

We are all hoping for a better flow and a bumper crop this year.

Reported by Arthur Tucker.

## WEST COAST

While admitting that Coast has had more wet than fine days this past fortnight we are **not** web-footed. Just experiencing a normal October.

Be it myth or legend or just so much talk the so called Maori saying: "Poor Kowhai and Clematis showing — Poor White Bait runs". Well all these are rather scarce in these parts this season; by that I do not mean that there is nothing for our bees. Many other spring stimulants have served as well and most colonies are in good condition.

Because of mild winter and early spring perhaps too good and will need control as a normal season of broken weather prior to main flow will cause swarming.

August-September raised Queens returned very high % of mating. Some 'late September' were too slow and may not be up to standard. (Is there such a thing?)

How do you choose a Breeder Queen? was David Penrose's multi-$ question at the Coast field day on October 16. (Canterbury visitors nearly out-numbered Coasters but it is very nice to know that some think enough of us that they make the effort to pay a visit).

All had varied ideas but it seems that the all important requisite is that the Queen's daughters stock should be quiet and easy to handle.

Many people, including farmers though they may like the product and service rendered by bees do not like their defensive — offensive habits.

With some colonies the latter term is correct! I had one colony last year probably as good a gatherer as any I have had **but** any thing that moved within 50 yards — animal or man — was attacked.

That extra box of honey was **not** worth the worry.

The question resulted from a very detailed — step by step study of the Glason method of Queen raising by Ralph Junior (High marks for his first show at public speaking).

Another subject was "Way's and means of filling and handling 40 gallon drums". These drums have many advantages particularly those with closed tops.

closed tops. All agreed that their present set up meant some heavy handling. None have an ideal method. Experiments take time and changes are costly. What have readers to say? This branch would appreciate ideas and a note.

A Kelly hive loader was put through its paces and for those in the pollination service or migratory beekeeping it must be a back saver! On the coast, because of rough, sloping, often soft going — perhaps not the final answer when crop gathering.

A general discussion on advantages of various types or designs of both base boards and lids followed. Never a dull moment!

Reported by Tom Holland

## SOUTH CANTERBURY

Above average temperatures early on have been followed by North West gales and very broken weather through the Willow flow with only 3 or 4 good days on nectar. However, good colonies made the most of it and results could be better than last Spring although still patchy.

Early queens mated well on fruit blossom and now have brood covering 4 frames in nucs.

General condition of hives is in line with the previous two years but a heavy snow cap on the Alps coupled with diminished stores could see prolonged sugar feeding in most of Canterbury.

Reported by Ron Newton

## WAIKATO

After a very mild winter with lovely warm fine unseasonal weather, one dairy farmer confided that he would like just a nice rain.

That was in late August and what started as a nice rain kept on, calling on all the stormy conditions to come and help show this farmer what a nice drop of rain could be!

Our spring has been a most soul destroying experience with 3 or 4 days continuous rain and gale force winds each week, week after week and still going strong.

Our September rainfall was 10.25" against an average of 3.9" and 22 wet wet days. Many apiary sites have become inaccessible for the first time ever, and only our trusty "Trekka" has made servicing many others possible.

Other than for some very early heath, all spring sources have been a complete failure. Five-finger hardly had a flower, while most pussy-willow just came into leaf with very little flower. Straight willow had a good flowering, but only one fine day.

Heavy feeding has been necessary in all places especially where wasps had been bad. One only wonders what we lost to wasps, and many beekeepers could lose $2,000 or more. We lost 200 hives or more (largely Autumn requeened), a further 300 badly mauled, bees eaten, and stores removed, while most hives had some honey removed. Even in late September we were still losing hives and destroyed some huge nests.

With the terrible weather pollen has been very scarce, and a lot of hives have just collapsed to a handful of bees, especially in some Rotorua and Taupo areas.

Barbery is now in full bloom, however the rain and wind have knocked the flower off as soon as it opens, and the bees have had no chance to work it as yet. We all hope we can get something from barbery, or a lot of sugar will be required.

Rewa rewa has little flower coming, Tawari a little poor, but Kamahi looks to be going to flower very well. Clover showed up well in pastures early but has been drowned out with all the rain and mud in a lot of areas.

Shifting has been quite a job, as it was a problem to get into get the hives and a problem to get in to unload. Many times we have had tractors standing by in case we didn't make it.

Queen rearing has gone fairly well after a late start, but now the problem is to get the queens in, as one tires of working hives in rain most of the time, and having to feed all the hives that gathered nothing from early sources as well.

Several members have sent submissions to The Caucus Committee, but the eight copies was quite a hurdle.

Reported by G. Bird

# Beekeepers' Technical Library

The Library thanks the following for contributions received:—

$10 donated by Mr Ian Berry of Havelock North and $5 donated by West Coast Branch towards the purchase of the new book INSECT POLLINATION OF CROPS.

Presented by Mrs M. J. Genese from the Library of the late James Forster of Rosewill: PRACTICAL QUEEN REARING by *Pellett,* QUEEN REARING SIMPLIFIED by *Jay Smith,* BEEKEEPING by *Earp.*

Presented by the Editor, N.Z. Beekeeper Journal: Survey of a Thousand Years of BEEKEEPING IN RUSSIA by *Dorothy Galton,* Copies of Field Day Programmes of the Auckland Branch, 1919 and after.

Presented by Mr Bill Ashcroft of Havelock North, sundry copies of The West Coast Beekeeper (Greymouth), The Alighting Board (Auckland), N.Z. Honey Bee, The New Zealand Honey Producer, and The Apiarist lifted from The Smallholder.

Catalogue of books and copy of rules available from Branch Secretaries or the Librarian. Books may be borrowed and bundles of assorted beekeeping magazines available by sending 20 cents.

CHRIS DAWSON
Hon. Librarian, P.O. Box 423, Timaru.

# *Letters to the Editor*

**Correspondence on any subject of interest to beekeepers is cordially invited. Publication does not necessarily imply agreement with the views expressed.**

Hastings,

July 23, 1971.

Sir,

The following local experience regarding the export of queen bees to the Northern Hemisphere might be of interest to your raders.

During last Autumn I was approached by Mr Ian Berry of Arataki Honey Ltd., Havelock North, for advice on the best ways and means of sending Queen Bees to the United Kingdom. The request was as a result of his firm receiving a trial order for 50 queens from an English Bee Supplies firm.

With the problems of sending similar consignments to Canada uppermost in our minds it was finally decided, after consultation with the local Post Office, to send them by ordinary Airmail. The argument being that the simplest way would probably be the best way. We were also notified by the Post Office that they would be supplying a special carrier bag, correctly labelled, to notify handlers that it contained live bees and would require special attention. The queens and escorts, which came from hives tested for and found free of nosema disease, were then caged and posted off as arranged with the necessary Health Certificate.

Just recently Mr Berry was informed by the English importers that all the queens had arrived safely although one died shortly afterwards. This represents 2% loss on a consignment that had travelled 12,000 odd miles on a journey that lasted 4 days since leaving Hastings. The remaining queens were placed into hives for comparison tests with local and other imported queens. As well as one being placed into an observation hive which was exhibitted at the Royal Agriculture Show at Stoneleigh Park, Warwickshire.

Also they advised that the comparison tests will be made available to Mr Berry at the end of the English season. It will be interesting to see how New Zealand queens reacted to another Northern Hemisphere country.

I have forwarded this information to you as a possible news snippet for the Journal, with Mr Ian Berry's full agreement.

(P. W. Marshall)

Apiary Instructor

Alofi, Nuie Island,

13th September, 1971

Sir,

This sample of our local honey is not a good one — most of it is lighter in colour. The flavour doesn't seem to vary very much — a comment made by Colin Rope, the honey grader.

This lot was produced from mixed tree sources, mainly native Tuale. This is one of the local varieties of Eugenias, trees with flowers mostly cream in colour. Some of this honey also comes from Taue Taue, a tree producing strong honey and looks a little like New Zealand Five Finger. At present another Eugenia called Kafika is starting to flower and we are hopeful of getting a good crop from this. We produced over 70 tons from 1250 hives last year — still not enough to cover long freight and rising costs, at a low price per lb.

Time will tell as to whether we can produce more from the same number of hives. Many more hives could be run on Nuie and good queens can be produced here also.

Do hope this finds New Zealand enjoying a favourable season for beekeeping.

J. B. MacKisack

# COMMENTARY from the Editor's Desk and Mail

WASHINGTON Amateur and professional beekeepers are being asked by the U.S. Department of Agriculture to guard against the illegal importation of queen bees.

Officials of USDA's Agricultural Research Service are concerned about the possible introduction of Acarine disease and the aggressive African bee. A 1962 law protects the domestic honey industry by banning the introduction of adult bees into the United States from all foreign countries, except Canada.

The African bee could upset the entire American honey bee industry. Although it is a honey producer, the African bee's vicious swarming and stinging habits could make beekeeping a dangerous occupation. To control this bee, major changes would have to be made in U.S. apiculture methods.

In addition to being concerned about the African bee, beekeepers also should be concerned that any imported bee may have Acarine disease, sometimes called Isle of Wight disease, caused by a microscopic mite that infests the respiratory organs of the bee. The mite has a debilitating effect on the individual bee and eventually leads to the degeneration and death of the entire colony. The mite, *Ascarapis woodi,* is carried by the adult worker bee.

American beekeepers have an interest in seeing that the Honey Bee Act of 1962 is observed and enforced. The African bee is already a problem for keepers in Brazil and other Latin American countries. Strict observance of this anti-importation act will help keep this dangerous bee out of the U.S. Acarine disease is a problem in most countries outside of North America. Even where outbreaks are not recorded, the country usually lacks effective import quarantine procedures to guard against introduction of mite-infested bees. The U.S.S.R. and most of the eastern European nations have recorded instances of Acarine disease dating back to 1927. — USDA's News Report.

A NEW FILM produced by the Australian Honey Board titled 'HONEY — NATURE'S LIQUID GOLD' is finding praise and popularity in the over-seas trade press. The film runs for twenty minutes and shows the marvels of the honey bee, how they produce molten gold food and methods of extraction. There is a sound track with the film and in addition to magnificent shots of Australian flora, such facets of beekeeping as the communication dance are explained to viewers.

★ ★ ★

IN THE U.K., some beekeepers are insisting that they themselves open their hive when apiary inspectors are looking for bacillus larvae because there have been instances of inspectors' own hives being inspected and allegations made that infected hive tools, gloves, etc. have spread the disease to non-infected hives.

Basis of the action is similar to that of farmers in the recent foot and mouth disease epidemic among cattle when vets and Ministry of Agriculture inspectors were not made welcome when they arrived from dealing with diseased cattle on neighbouring farms.

It is to be hoped that our own apiary inspectors take proper care to thoroughly disinfect hive tools and other equipment used in their inspections in order to minimise the risk of spreading the disease.

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RECOMMENDED PRICES for honey in the U.K. are listed as:—

| | Retail | Wholesale |
|---|---|---|
| Per 1 lb jar extracted clear of granulated "flower" honey ..... | 40p | 30p |
| Per 1 lb cut comb "flower" honey in cartons | 48p (3p per oz) | 36p (2.25p per oz) |
| Per 1 lb top quality "flower" honey sections, wrapped or in containers ..... | 60p | 45p |

for mixed floral sources. New statutory Regulations have been published governing the packaging of honey, which must include the net weight, the name of the producer, his address and a description of the contents, but the word 'pure' is not permissable. It should be noted that New Pence are '100 to the £ sterling.'

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WHAT HAPPENS WHEN A QUEEN "wants to go places"? Whereas worker bees and drones make frequent cleansing flights whenever the urge necessitates, the question "what does the queen do" has been asked by a German magazine, 'DIE BIENE'. The question is one which has probably failed to cross the mind of the average beekeeper as to whether she had any need for a special arrangement for evacuation purposes, since the queen does not leave th hive except for mating flights or to head a swarm.

The German correspondent asks 'One may wonder whether queens really do not need to visit the "pottie" because of their previous com-

plete supply of larval food. Or must they now and then make a call after all. If so, how, when and where'.

The magazine assures the enquirer that even queens have to follow their natural function but not so frequently as do worker bees or drones, or nurse bees which consume large quantities of pollen containing indigestible components.

Over-wintering on sugar means that the bees have to consume very little indigestible food and are thus enabled to store up the collective remains of digestion for months on end. A queen bee consumes large quantities of Royal jelly which contains small portions of indigestible remain necessitating excretion. Queens, however, are the only occupants of the hive to soil the interior but the 'cleaners' in the social strata of the colony quickly gather up the deposists and carry them outside. Where nosema is present millions of spores would be spread by collection of the excreta and the progeny weakened and more likely to die out.

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THE AMERICAN HONEY INSTITUTE which was founded in 1928 and has been responsible for propogating a great deal of information on the virtues and use of honey in America, has had to close down. Lack of cash for promotional and advertising purposes meant that it was impossible to carry on. A pity.

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THAT HAPPY BAND OF AMATEURS the Auckland Beekeepers' Club were as friendly as an active queen — right hive when they held their meeting at the Club apiary on the first Saturday in October. By arrangement with President Phil Muir and the Clerk of the Weather first class conditions prevailed. Nucs put down last September are doing well and the Club is looking forward to another good co-operative yield. Department of Agriculture inspectors give the Club willing support and turn out in their own time to provide practical help and advice. Auckland must surely boast the most active and progressive band of amateur beekeepers in the country, and their winter evening and summer outdoor events are always enthusiastically supported. It's a pity there are not more clubs like them, and some of the commercial boys could take a lesson from the example.

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SWEPT-UP indeed is the description for the new, modernised Department of Agriculture noteheading on which official communications are now sent. In place of the rather drab but perfectly utilitarian type-set note paper with the heading crest, there new paper shows a stylised emblem of an 'A' set in white on a green circle, with departmental detail such as address, telephone number and office reference printed in black in a sans serif type on the extreme righthand side. It's a move with the times.

"MY HUSBAND, walking up Harley Street (London's renowned centre of medical consulting rooms) one long-shadowed evening, heard a man shout from a window that he had just received delivery of six Caucasian virgins. Dark suited business men hurrying home, hastily glanced up with a light in their eyes which had nothing to do with the fiery reflection of the sun from the windows opposite.

But my husband, who is one of London's 1,000 beekeepers and who nurses a very profitable hive on the top of our bathroom roof, knew immediately that this was merely a fellow madman who kept his hives within easy bee flying distance of the lime trees in Regent's Park. Caucasian virgins, for the benefit of the uninitiated, are a variety of queen bee which, when introduced into a bad tempered colony, swiftly produce a desirable calming effect." *(Culled from The Catholic Herald, June, 1971).*

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HONEY BEE MATING BEHAVIOUR is the title of a new 16mm film produced by Pennsylvania University in colour with sound track. Running time is 13 minutes and copies are available for US$140.00.

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A PICTORIAL STAMP OF A HONEY BEE is the aim of beekeepers in America and approaches have been made to the postal authorities. Similar requests made by the National Beekeepers' Association in N.Z. have not so far met with success, but we keep trying.

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BRITISH BEE JOURNAL reports that the current (northern) summer has been an all time record for decamping swarms and divided lots have failed to settle their fever and have left home repeatedly for new sites. The year has been fairly good for honey, and it is recommended that 1 lb glass packs should retail at not less than 32½ new pence the equivalent of 6s 6d.

Another comment is the unexpected return of many wild flower forms not seen for years in field and hedgerow and on newly turned up ground. Species of wild flowers not seen for eight years having been blooming in profusion and charlock has been left to bloom in cornfields with extensive areas of wild poppies flourishing at the edge of ripening corn.

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APICULTURA EN MEXICO is the title of a new beekeeping magazine under the editorship of Senor Antonio Zozaya and published by the Union Nacional de Apicultores. There are 34 pages of bee news and information printed on good quality paper and it is regretted that the contents can not be reviewed or commentary made because the text is printed in Spanish.

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APIACTA 2/1971 contains some extremely interesting data, and an article by Dr G. Vorwohl in an article on the Significance and Aim of Pollen Analysis of Honey refers to the fact that one gram of honey

contains approximately 5,000 pollen grains. Commenting that size and shape of the pollen grains of plants foraged by bees differ very much one from the other by looking at the grain, the expert may recognise the family of the plant which produced the respective pollen grain. On the question of adulteration of one floral source to bulk out by the addition of another, the whole pollen spectrum is studied during microscopial examination and a spectrum 'distorted' by addition of another source would be immediately noticed during examination.

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MR KEITH M. DOULL, a senior lecturer at the Waite Agricultural Research Institute, near Adelaide, South Australia, has discovered a key ingredient in natural pollen which he believes not only induces bees to produce vital food for bees in the larval stage but also may revolutionise bee-keeping techniques.

One-crop farming, pesticide use and bushland clearing has led to the reduction of nourishment sources for bees and there has been a world shortage of natural pollen for many years.

The chemical which Keith Doull believes attracts the bees has been identified as Octadecatrans 2, CIS-9, CIS-12 Trienoic acid which in effect, is the key to success in the bees' honey producing cycle.

Simultaneous Canadian research has shown it also is the substance which attracts bees to flowers.

The professor of organic chemistry at the University of Adelaide, Professor Athelstan L. Beckwith, is trying to synthesise the chemical so that it can be produced commercially for pollen substitute.

In apiary tests in Australia the pollen substitute made of soya bean flour, brewer's yeast and the chemical additive had proved equally attractive to the bees as the best of natural pollens.

Mr Doull said he had been working on the pollen substitute for the past two years but present methods of extracting the chemical from natural pollen were lengthy and complex. He was hopeful that research workers at the University of Adelaide would eventually be able to synthesise the product, because use of a pollen substitute would give bee-keepers opportunities to have their bee colonies in readiness for pollination whenever they were requird.

Bee pollination was a key factor in the fruit, vegetable and flower growing industries, which at present were worth SA100,000,000 a year to Australia.

Pollen substitute also would solve the frequent problems of bee-keepers in Australia having to travel hundreds of miles to find suitable natural pollens.

★ ★ ★

HONEY HAS LONG been known for its extraordinary properties as a food and for cosmetic use. The principle disadvantage to those wishing to improve their complexions has, of course, been the natural stickiness of the substance and a normal husband's rooted and understandable

objection to going to bed with a spouse like an old fashioned fly-paper.

However, be it noted that cows are not so fastidious and their owners have found advantage in applying honey to the body elsewhere than the face.

Cow-cockies have found that the use of honey on the teats for cow-pox and cracking of the delicate surface is far better than any product manufactured by chemists as a restorative treatment.

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MR J. C. SMITH, manager of Capilano Apiaries, Brisbane, who sent 16½ tons of honey to the U.K. in a specially constructed tank some months ago, was well impressed with the potential for future sales on the European market and with the Australian Honey Board's agents handling of sales. He said that the two agents Kimpton Bros. and Overseas Farmers are doing a good job for Australian honey.

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PENNSYLVANIA BEEKEEPER reports that there are 50% fewer apiaries in production in their area now than was the case in 1955 and the number of colonies has reduced by 40%. Perhaps they have been having a run of poor production years and will be encouraged by the 1971 season in some parts of the U.K. where a late flow has meant that amateurs have been borrowing any kind of container available from long disused wash-stand bowls to zinc baths to contain the unexpected bonanza. There was a similar late flow in 1955 and amateurs long accustomed to a harvest of 30-40 lbs from each hive in a 'good' year suddenly found they were blessed with yields in excess of 100 lbs per colony. Straining and bottling an unexpectedly large crop can be quite a problem for the beginner.

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BRANCH SECRETARIES certainly cause some problems. On a recent visit to Wellington assistance was requested to try and decipher addresses of new members written in a hand well known to the originator but as good as Chinese characters to the beholder.

Another problem is the use of local area names which are completely unknown outside a small area. To provide anonymity, the name of the place concerned has been changed, but whoever has heard of "Pirates Bay"? Sending correspondence or copies of the journal to such an address would cause problems for the post office and certainly entail delay in receipt.

Branch secretaries have an often thankless task with more kicks and grumbles than compliments and no remuneration, but as this is their lot, please make the General Secretary's life less complicated by attention to details. It might well be that some members are no longer in the industry or have died. Until recently, copies of the journal were despatched with unfailing regularity to a beekeeper who died four years ago entailing unnecessary expense in postage and printing, and possible hurt to surviving relations. Cull through your membership lists, notify the General Secretary of changes promptly, and in your spare time ensure that information of branch activities are recorded and forwarded to the Editor for publication.

CARELESSNESS COST LIVES is a well known truism propagated by the Road Safety Association, and it has equal application in other spheres. Carelessness also costs money and great inconvenience to other people. Take, for example, the carriage of bees by aircraft.

Some careless queen breeder sent a package of bees insecurely fastened by air to a customer and the aircraft used was a Friendship. The bees escaped from the cargo hold and entered the navigation area to which the Captain and flight officers understandably took objection. People's lives depend on the skill of a pilot in flight and the difficulties in keeping away from the face and body when concentrating on a landing can be well imagined.

The result is that the Pilot's Association has declined to fly any Friendship type aircraft with live bees as cargo, and who can blame them? Little use at this stage in declaiming the idiocy of the packer or that it is unlikely to happen again. The fact that it happened once is sufficient in itself, and the industry must therefore suffer through the carelessness or stupidity of one person. There is little point in passing the buck and blaming assistants. Secure packaging of bees in a public transport, in any public place or even in a private car is the direct responsibility of the beekeeper, and if he does not himself handle the packing he must be sufficiently responsible to see that the cages leave his premises adequately secured.

RON NEWTON of Ashburton writes: "September 26 was the best day for a long time with the bees on the golden willow catkins, the birds singing and even this old ex-beekeeper was seeking the shade. It would be pleasant to wander down the river bed to the old yard and see just how they were going.

Suddenly, the roar of a bulldozer shattered the Sunday silence and on seeing two small boys running, I ran too! My heart sank on reaching the yard of 50 nucs and 10 hives. How two little devils could start a giant machine with a 10 ft blade, put it in reverse and leave it going, only they will know. The results were not conducive to a good willow flow.

Three paddock fences, the apiary's cyclone netting and all colonies in its path were skittled and those nucs were put into the smallest space one could imagine. Fortunately, the big brute aimed at the thinly spaced part of the yard then became bogged down in a wool scouring drain after taking on several other obstructions. Perhaps the operator will remove the key in future as on a previous occasion this same machine was started with the rippers down on a new tar-sealed road!!"

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THE N.Z. CONSERVATION SOCIETY has issued a booklet emphasising the problem of human survival is the problem of learning to walk in harmony with nature, and Fairfield Osborn's quotation from "Our Plundered Planet" on the frontispiece highlights the seriousness of existing conditions to every thinking man and woman. — *"Today, almost every purpose and activity of modern life takes precedence over the one most basic purpose of all, namely, that of conserving the living resources of the earth"*. Subscription is nominal at 50 cents and further details may be obtained from the Secretary, P.O. Box 3249, Auckland 1. Prevention of contamination is of vital importance to us as individuals and to the industry.

★ ★ ★

VANDALISM IS NOT restricted to this part of the world. The British Beekeepers' Association has an excellent comprehensive insurance scheme for beekeepers against known risks, and members pay a premium of £0. 75p ($1.50) as against £0. 63p last year. However, due to the alarming increase in malicious damage and vandalism in out-apiaries, beekeepers must now carry the first £25 of any loss.

★ ★ ★

ONE AUSTRALIAN manufacturer of wax foundation now declines to accept any comb foundation for rendering tainted with benzaldehyde. Earlier claims that the chemical was carcegenous have been refuted, but the disadvantages of using a bee repellant on rendered foundations are obvious.

# YOUNG BROOD ESSENTIAL FOR GOOD GRAFTS

A recent research finding reviewed by

**G. M. WALTON**

**Apicultural Advisory Officer, Palmerston North**

Research workers often obtain results that, to the layman, appear to be well known and obvious. Some New Zealand beekeepers, for instance, were seeding honey with fine honey crystals 20 years before Dr Dyce described the creaming process that now bears his name. But experimentation and the publication of results are usually far more meaningful than just statements of the obvious. Research often takes a more than superficial look at a subject. It defines and analyses. It asks why? and under what conditions?

Most beekeepers realise that the best queen-rearing results are obtained when the youngest larvae are selected for grafting. Larvae of 3 or 4 days of age often result in "runty" queens. Although scientific endeavour has examined the diets of the larval honey bee and the time at which worker/queen determination occurs, little research has been done on the effect of grafting age upon the resultant queens. In a recently published article Dr J. Woyke of Poland examined this.

Dr Woyke, of diploid drone fame, transferred brood of different ages to queen cups which resulted in larvae being fed with royal jelly for differing periods of time. All virgin queens were weighed soon after emergence. Some were allowed to mate naturally whereas others were artificially inseminated with varying quantities of semen. The success of queen rearing and mating was assessed by measuring the number of ovarioles in the ovary, spermatazoa in the spermatheca, and the volume of the spermatheca.

The ovarioles are tubules of the ovary through which pass eggs in different stages of development. The number of ovarioles per queen decreased with increasing age of the grafted brood. Queens grafted from one-day-old larvae contained an average of 308 ovarioles in both ovaries. Two, three and four-day-old larvae resulted in queens with significantly less numbers of ovarioles.

The spermatheca, or sperm-storage organ of the female, decreased in size and volume with each increase of 1 day in the age of the grafted brood. The volume of semen, and the number of sperms in the spermatheca decreased when older larvae were selected as grafting material. Naturally mated queens grafted from eggs contained an average of 6.1 million sperms in the spermatheca. Queens derived from 3-day-old larvae contained only 3.9 million. Spermathecae of different sizes had similar concentrations of sperm.

Woyke's work indicated that the best queens were obtained by grafting eggs. He used the Orosi-Pal method. However, the egg-grafting technique results in a higher degree of grafting failures. For the practical beekeeper, grafting of larvae of the earliest possible age (less than 1 day of age) is recommended.

With each increase of 1 day in the age of the brood used for grafting there was a decrease in body weight in the queens produced. Emerged queens averaging 189 milligrams were obtained from 1-day-old larvae. Two-day, and three-day-old larvae resulted in queens weighing 172 and 147 mg respectively. Woyke recommends that the weight of a virgin queen is an important criterion in selecting for better queens. Heavy queens would not only contain larger spermathecae and more ovarioles but could well be expected to continue in egg-laying for longer periods of time.

**REFERENCE** **Woyke, J. (1971)** Correlations between the age at which honeybee brood was grafted, characteristics of the resultant queens, and results of insemination. **Journal of Apicultural Research** 10 (1): 45-55.

# PREPARATION of BEESWAX FOR COMB FOUNDATION

By R. S. WALSH
Apiculturist, Auckland

The esters of myricyl and ceryl alcohols combined with palmitic and cerotic acids are the principal elements of uncontaminated beeswax, but when produced under commercial conditions wax becomes contaminated in various ways and finally reaches the market as a substance of particularly mutable constituents. In their endeavour to improve the condition of their wax many beekeepers resort to repeated boilings.

In actual fact, the boiling with water results in the wax emulsifying with the water which can never be completely separated from it with methods of settling and clarifying which a beekeeper can apply. A spongy sediment will be found adhering to the bottom of blocks of wax subjected to excessive boiling. This substance consists of wax and water and a certain percentage of dirt. No ordinary method of settling is capable of separating the impurities; consequently, repeated boilings continue to throw down this spongy sediment almost indefinitely, particularly where hard water is used and where vigorous boiling is permitted, or boiling for long periods and melting with high pressure steam. (Emulsifying is a term used to describe a physical union between an oily substance such as wax with a dissimilar substance such as water). Wax containing water in an emulsified state would have a lighter appearance than it had before the incorporation of the water. This apparently improved colour would disappear if the water were extracted as must be done for the purpose of preparation for manufacture into comb foundation, otherwise the foundation would have insufficient strength to withstand the weight of the bees engaged in drawing it out, the inevitable result being drone comb.

**Propolis Contamination**

Another factor in sagging combs is the contamination of bees wax by propolis, a substance very difficult to remove and which results in variation in the acid number. It is a common practice with beekeepers to scrape the propolis and burr comb from the frames when uncapping.

Propolis consists largely of a resinous gum which is soluable in beeswax. It has the effect of lowering the melting point of wax to an appreciable extent which results in foundation made from such wax invariably sagging when subjected to the weight of the bees at hive temperature.

The removal of propolis from wax requires the application of a much more elaborate process than clarifying by settling by gravity method used by beekeepers. It should therefore be readily appreciated why contamination of wax by propolis and emulsifying during treatment should be avoided.

Although all reasonable care is taken it is impossible for the beekeeper with the equipment at his disposal to produce a wax which is 100 per cent pure, consequently a large proportion of that used for conversion into comb foundation requires treatment by the manufacturer as it is necessary for the wax to be as near as possible to the product originally secreted by the bee, if the resulting combs are to withstand the demands made upon them.

Proper clarifying of wax by the comb foundation maker is therefore of paramount importance if a satisfactory article is to be produced, consequently a loss of weight in manufacture is unavoidable if a perfect foundation is to be expected.

In addition to the heavier impurities in beeswax which include pollen, ordinary sediment, a percentage of moisture and propolis, there is always present a proportion of very finely divided impurities of a colloidal nature which by reason of their ultra microscopic size remain in suspension in the wax, irrespective of the length of time the wax may remain liquid. The removal of these impurities is the task of the comb foundation manufacturer who has special facilities for coping with this problem.

Cappings which are rendered by the use of an electric melter or solar wax extractor produce an almost first-grade article at the initial melting, but it is usually necessary to remelt the cakes to obtain a uniform size block and to ensure complete freedom from honey and any small amount of dross that might come over with the wax. Such subsequent melting should be done in ample water as too little water gives the wax a granular appearance. The water should be heated as far as possible without being allowed to reach boiling point. No doubt the foundation manufacturer would prefer this second melting to be avoided if possible, and it might be a good idea to consult him on this point. Before melting combs, particularly those which are old and dark, it is definitely advantageous to soak them for a day or so beforehand. This has a two-fold effect, firstly in removing from the cocoons a great deal of the stain which is both wax soluble and water soluble, thus resulting in the extraction of a lighter coloured wax. The second advantage lies in the fact that when once the cocoons are thoroughly saturated with water they will not absorb the wax to the same extent, consequently a large quantity is obtained. After soaking, the combs should be put into a boiler and melted. Excessive boiling should be avoided although simmering if not too prolonged will not have any appreciable deleterious effect. High pressure live steam should never be applied directly onto the combs or wax.

Various methods are in use for converting old combs into wax, and some are very wasteful and as much as 40% of the wax can be lost. The Hatch press and the German Hot Water press have, over a long period, proved to be both economical and efficient appliances for the purpose. Wax presses have been greatly improved both in design and capacity but the rendering of old combs by means of hot water or hot water plus steam remains unchanged.

**Wax Moulds**

The receptacles into which the wax from the press is run should be stored in a convenient place to allow the wax to harden. Then the bottoms of the blocks should be scraped clean of the adhering dross, before remelting, care being taken to keep the water below boiling point. In order to avoid having many tins containing little wax and much water, a tin with a tap at the bottom should be placed under the wax tap of the press. By turning on at intervals and running off the excess water full tins of wax can be obtained. This water can be returned to the boiler (avoid coppers if possible) thus eliminating the necessity of repeated additions of cold water, or it can be poured back into the press to assist in loosening the wax from the slumgum. All utensils used during the treatment of wax should be free from rust, as rust imparts to the wax a brown stain impossible to remove except by elaborate processes not within the scope of the average beekeeper. It is not advisable to use containers made of galvanised iron unless in the presence of water, because of the chemical action which takes placeb etween the wax and the zinc.

When the tins of wax are put aside to cool, care should be taken to see that an inch or two of water lies at the bottom of the tin under the wax to enable the sediment to settle to the bottom of the cake. When honey tins are used it is advisable to cut the rims away to a depth of ½" in order to facilitate removal of the blocks.

Small chocks of wood placed under each of two corners of the tins ensures the wax solidifying at an angle which also helps the blocks to slide out easily. Alternatively, the bottoms can be removed from tins with large lever lids. When the wax has solidified in these tins it is easy to remove the lids and push the blocks out. It is preferable to stand the tins close together and cover them with newspaper and two or three grain sacks. This will keep the wax in a liquid condition sufficiently long to allow most of the impurities to settle and will be the same time largely prevent cracking. An alternative method is to stand the tins in cases and when filled cover the cases with their lids or sacks and stack close together.

**Harmful Acid**

The use of sulphuric acid in the treatment of wax is definitely harmful in the hands of the beekeeper as it tends to make the wax brittle. The apparently lighter colour due to the use of acid is almost entirely the result of the emulsifying of the wax caused by the vigorous action of the acid.

In explanation of the harmful effects of sulphuric acid on beeswax, the recognised test for the adulteration of wax with paraffin is cited. The suspected sample is heated with sulphuric acid which completley destroys the beeswax, leaving the paraffin exposed and unharmed.

As beeswax in its pure state is white in colour its susceptibility to contamination, it is hoped, has been clearly demonstrated.

With the exception of some of the bright yellow colours which are caused by the influence of pollen, the variety of shades in which the wax leaves the hands of the beekeeper is due almost entirely to the methods employed in processing.

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Has limited experience and is keen on bees.

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

*'Better Beekeeping—Better Marketing'*

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### THE N.Z. BEEKEEPER

This Journal is issued to all members of the National Beekeepers' Association and direct subscribers.

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.

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# Front Page Story

**TO SOME** New Zealand beekeepers, the European wasp **Vespula germanica** is regarded as their most serious problem. Instances are cited where whole apiaries have been robbed of their winter stores, and where bee populations have been annihilated to provide a tasty morsel for the tenacious wasp.

The photograph on the front cover shows a worker wasp holding firmly, with her mandibles, onto the abdomen of a freshly killed bee. This, and many other similar specimens were obtained at the entrance to an overwintering wasp nest gassed off in Palmerston North last September. Food sources also included native bees, ichneumon wasps, blue- and blow-flies, and what appeared to be cake icing.

Upon dissection the overwintered nest revealed a total of 7,019 workers, 656 drones, and 2,475 queens — a total strength that would rival many a honeybee colony in September! The large brood nest contained the three castes in all stages of development. The large size of three queen wasps suggests that some mated queens may return to the parental nest and commence egg-laying, thus continuing the nest through the following season.

Unlike the honeybee colony which proliferates by swarming, a wasp nest produces several hundred queen wasps, each one with the potential to mate, hibernate, and establish a new nest. Hence its quick distribution throughout New Zealand.

BOUGHTWOOD PRINTING HOUSE, North Shore