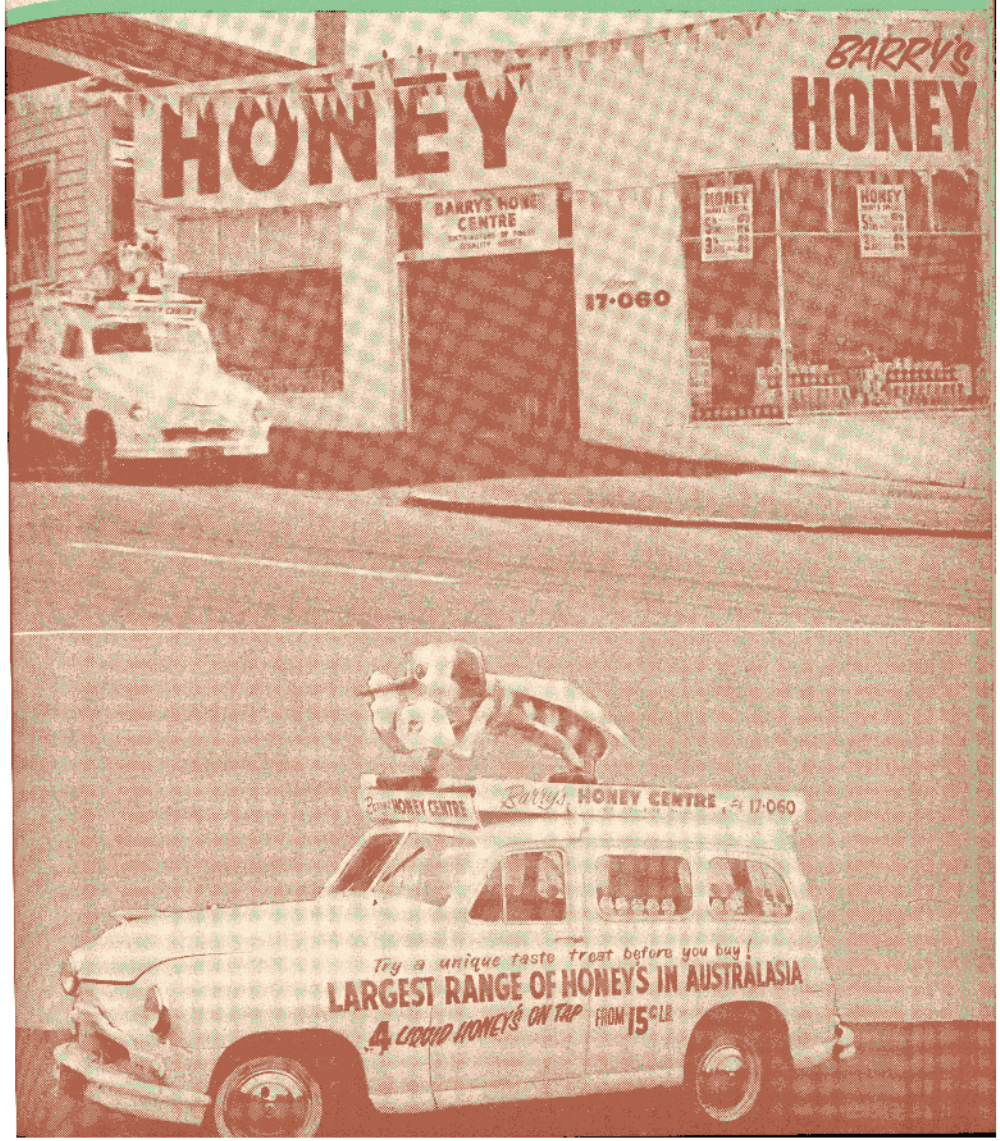
THE NEW ZEALAND BEEKEEPER

NOVEMBER, 1967



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THE NEW ZEALAND BEEKEEPER

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CONTENTS

FOOD FOR THOUGHT

RESULTS OF THE ELECTION of two producer representatives to the Honey Marketing Authority are detailed elsewhere in this issue. The industry has again indicated by a majority decision that they prefer the policies pursued in recent years to new or radical deviation in marketing practice.

Candidates have the courage of their convictions and conscientiously believe that their particular views are the best for themselves and for the industry of which they are part; of necessity, they expound those views whenever the opportunity presents itself at meetings of fellow beekeepers and put their thoughts into writing in the form of an election manifesto for postal distribution.

The democratic right of every qualified voter is to formulate his own opinion on the views expressed and to assess the ability of the candidates offering their services for election, and then to vote as they think fit.

Where politics or policies are at variance it is unfortunately human and frequent that disagreement can be heated through diametrically opposed points of view, but it is always regrettable and distasteful when candidates resort to personal abuse and inuendo at the expense of another.

Before the election, voters received an 80-page documentary prepared by Mr Malcolm D. Bale, a junior lecturer in horticulture at Massey University, Palmerston North, titled "A STUDY OF THE MARKETING OF NEW ZEALAND HONEY."

A great deal of time and effort must have been devoted to the preparation and collation of the work, and the considerable cost involved in the preparation, production and distribution was generously paid voluntarily by

Page 30 ➜

EXECUTIVE'S TWO-DAY MEETING AT WELLINGTON

The Executive met at Wellington to discuss routine business and matters arising from remits passed at Conference. Commencing at 9.30 a.m. on Wednesday, October 4 your representatives worked solidly until after 11 p.m. that same night. Resuming at 9.30 a.m. on the following Thursday, business continued until 6.15 p.m. Breaks were made for essential meals. Present were T. S. Wheeler, (Chairman) and Messrs G. Winslade, D. A. Barrow, F. Bartrum, T. Gavin, J. Glynn, the General Secretary K. E. Moody and the Editor L. W. Goss. It was a tiring session for all concerned and whilst other members may be made of sterner stuff, the Editor for one found that two days of pressure exhausting. Membership of Executive is voluntary in the service of the association and the industry, and it is certainly no sinecure.

HONEY MARKETING AUTHORITY. Following formal acceptance of minutes of the previous meeting at Christchurch, attention was directed to matters to be discussed with the Chairman of the HMA Mr J. Fraser and the Government nominee Mr Eric Lee. On the subject of honey advertising, executive felt that it was too early at this stage to assess the benefits of Honey Queen Week. Whilst there had been tremendous publicity for honey in the press and on radio and television which would react to the advantage of the industry, the local selling situation in Canterbury had been marred by the floods of 'specials' and packs being sold at very low prices. The market seemed, in fact, to be chaotic and until the trade settled down an accurate assessment was impossible. The cut-price situation could be due to individiuals and not to the well planned and presented 'Honey Week,' but executive was not in a position at present to make firm recommendations for further expenditure on similar lines. Mr Fraser mentioned that the HMA advertising agents are to be made available for advice to branches on joint advertising promotions, and that the HMA had some funds available for this purpose should a scheme be required.

TAX REBATE. The question was asked whether beekeepers would be entitled to benefit from honey supplied and exported through the HMA. As a Statutory Authority, the HMA is not subject to tax and no incentive scheme is necessary to encourage further exports. However, further exports could have the effect of removing surplus supplies from the home market and have a stabilising effect.

AMENDMENT TO HMA REGULATIONS. The Director General had asked the Association for their views upon a proposal to clarify the HMA Regulations providing that a levy will not be payable from sales of bulk honey intended for manufacturing purposes. Mr Fraser advised that the Authority had never asked suppliers to pay this levy and had no intention of doing so. The executive therefore agreed that the Association could have no objection to the proposed amendment.

HMA BUILDING. A decision was taken nine months ago to sell the property and rebuild elsewhere to an improved lay-out. The sale was expected to realise a surplus over and above the cost of new premises.

HMA ELECTIONS. The Department of Agriculture proposes to amend existing Regulations whereby the NBA will appoint a Returning Officer for future elections. It was noted that representations have been made to the Minister by a candidate in the recent election for the result to be set aside on the grounds of alleged irregularities in the conduct of the poll.

HONEY PRICES. Comment was made that the HMA set the pattern for prices, but it was pointed out that the Authority only receives one fifth of the N.Z. honey crop. Packers could pay an additional one cent per pound to producers if they so wished.

DEPARTMENT OF AGRICULTURE. Mr A. M. W. Greig, Director, Horticultural Division was welcomed to the meeting. Instructions had been issued to Apiary Instructors in reference to various Amendments made to the Act of 1927 which have not had the desired and intended result of making their duties clear in dealing with diseased hives and other matters. It is the intention of the Association to approach Government to consolidate and clarify the Act and its Amendments. Arising from general discussion on legislation, executive realised the importance of following closely Amendments placed before the House to ensure that an alteration does not weaken or alter the intent as approved by executive.

HEALTH INSPECTORS. Apiary Instructors are empowered to take samples from hives on behalf of the Health Department where there are reasonable grounds for so doing. Health Department Inspector's reluctance to do the work themselves could be understood.

WAIKATO BRANCH had raised the matter of an alleged act by an Apiary Instructor in making enquiries about honey supplied to a packer from a closed area. Little factual information had been provided by the Branch and it was understood that the matter had been considered by the Ombudsman and the Prime Minister.

FOOT AND MOUTH DISEASE. The situation which might arise in the event of such a calamity and the position of beekeepers of infected property was raised with Mr Greig, and it was agreed in the interests of all concerned to place the problem before Dr S. Jamieson, Animal Health Division, for advice. Mention was made of dirty conditions of seavans being used for comb honey exports, and that they are often returned from overseas with leafmould and other debris attached. The necessity for stricter supervision for the seavans to be thoroughly cleaned before returning to New Zealand was expressed and the matter referred to the Director, Animal Research Division.

CODEX MEETING—Vienna. A further meeting on September 6 and 8 had been held and the thinking of the Committee on European standards was a cause of concern for New Zealand.

APIARY INSTRUCTORS. Messrs Line and Griffiths of Hawke's Bay and Canterbury respectively were due to retire in April next.

IMPORT PROCEDURES. Mr A. Ecroyd of Christchurch had complained that Port Quarantine officers in Lyttelton were interpreting the requirements of the Act so far as used beekeeping equipment was concerned as also applying to new equipment. Prompt action by Mr Greig requested the Port Authorities to release all unused equipment which was being imported, and representations had been made to Customs to ensure no repetition.

APPRECIATION was expressed to Mr Greig for his attendance and co-operation.

BALE REPORT. Inaccuracies contained in Mr Bale's report on 'A Study of the Marketing of New Zealand Honey' were discussed at length, and it was resolved that:—

"Executive commends Arataki Apiaries Ltd for the initiative shown by them in arranging for and financing the work done by Mr Bale.

Executive was extremely disappointed with the Discussion Paper No. 48 prepared and presented by Mr Bale. The value of this work to the industry is limited because of the narrowness of its field of study in so far as its research on the marketing of honey in New Zealand has been confined in the main to the work of the Honey Marketing Authority, and because of the inaccuracies of some of the information contained in it.

Executive stresses to members that the views contained in the Discussion Paper are those of the author. It was stated in the report that it had obvious limitation and was intended to stimulate informed discussion within the industry. Members are cautioned in considering the points raised and in discussing them to be aware at all times of the purpose of the Paper, namely to stimulate thought and discussion."

Note: Following receipt of executive's resolution, a letter has been received by the General Secretary from Mr A. B. Ward, Senior Lecturer in Agricultural Economics at Massey University and a copy forwarded to the Editor for publication. It would seem, however, to be improper for the letter to be published until such time as it has been received and considered by executive.

LIBRARY. Approval was given for the use of Library Funds to purchase suitable slides or copies from the bursar and to arrange accompanying script, to be made available to branches on request. Better use had been made of books since Conference.

WELLINGTON BEEKEEPING CLUB. A delegation from this organisation of active beekeepers attended to ascertain whether they would be acceptable as a kindred body to liaise with the NBA and on what terms and conditions. Executive welcomed their approach and assured the delegates that for a fee of $5 per annum the Club could gain Associate Membership which would entitle them to information from the parent body and that the club would receive one issue of the journal as published. Many members of the club, which meets monthly, are individual subscribers to the journal. The Club delegates were to receive a written invitation prepared by the General Secretary for submission to the Club's next regular meeting.

SUPERANNUATION AND PERSONAL ACCIDENT INSURANCE. Enquiries are to be made through a firm of brokers to ascertain the most favourable terms available on an industry basis.

PUBLIC LIABILITY. The N.Z. Insurance Company, the Association's present insurers in this sphere, are preparing an article on the Association's public liability policy.

1968 SEMINAR. Resolved that a Training Seminar be held in the South Island and that Timaru be the venue. Suggested dates to be August 31, September 1 and 2 under the convenor Mr. F. Bartrum.

SOUTHLAND/GORE BRANCHES. The two branches are to be amalgamated.

COST OF PRODUCTION SURVEY. In conformity with a Conference remit, the General Secretary had prepared a preliminary survey from information supplied by executive members. A questionnaire was now to be prepared for completion by commercial beekeepers so that the results of the Survey may be completed as quickly as possible. All questionnaires will be completely confidential, anonymous, and destroyed after study by the Secretary.

INCREASED PRICE TO PRODUCERS. (Conference remit 12). The suggested increase of .025 cents per lb to producers was closely allied with the cost of production survey and it was resolved that action would be deferred until the survey is completed. A section of executive thought that the increase could be effected by the HMA in reducing their expenditure on advertising, honoraria, etc. A motion to convey this expression of opinion to the HMA was defeated on the casting vote.

POLLINATING SERVICE CHARGE. Executive resolved that members be asked to charge a fee of $3 for pollinating services on red clover and lucerne.

POLLEN AND NECTAR TREES. Branches are to be advised of Farm Forestry Organisation addresses in their area with recommendations for planting.

SYMPOSIUM AT CONFERENCE. Executive decided that, in view of the close voting at Conference (33 for and 24 against) it would be unwise to authorise such a radical change as envisaged in the remit. Resolved that Conference extend over three days as in the past, with specialised speakers.

PROVISIONAL TAX REMOVAL. Resolved that this subject be held over until publication of the Ross Report.

ROYAL INSTITUTE OF HORTICULTURE. Executive recommended that the Association nominate Messrs Lorimer and Forsyth for the Waikato area.

CONFERENCE AGENDA. Adherence to numerical sequence of remits was accepted as desirable but because of circumstances was not always practical.

DIPLOMA IN APICULTURE. The report of the committee was tabled and received. The fact had to be realised that unless there was some financial incentive accruing from gaining the examination there was little point in it continuing. Resolved that representations be made to the Department that unless some recognition be made by way of salary increase to Government employees passing the examination, that Executive would consider recommending that the examination be discontinued.

TESTING MACHINERY. Lincoln College had been most co-operative in the suggestion that facilities be given for beekeeping equipment to be tested. Professor Burton wished to visit honey houses in the Canterbury area. Canterbury branch would liaise with Lincoln College and a procedure laid down for submitting equipment for testing.

SURVEY OF N.Z. POLLENS. (Remit 5). Mr. Trevor Palmer-Jones attended executive and explained that Wallaceville were collecting samples for protein analysis.

NEW CLOVER. Dr. D. F. O'Connor of Lincoln was carrying out research upon a new line of clover-grasslands 4700. Nectar secretion is being tested first, with some tests on bee counts, flowers per acre etc, in December of this year.

FAILURE TO SECRETE NECTAR (Remit 6). Mr. Palmer-Jones stated that there was no real evidence of failure other than normal to crop and season.

HORMONES AND SPRAYS. Mr. Palmer-Jones has thoroughly studied this subject and reported that 24d was fairly deadly and beekeepers must be given advance notice of its use. DDT was the only insecticide shown to repel bees and this for a short period only. Research showed that other forms of insecticides had no effect on bees.

WASP BAIT. Tests were being carried out on a new proprietary bait produced in this country but no indication could be given at this stage of success or otherwise.

NOSEMA (Remit 11). Of 81 samples sent to Wallaceville in the 66/67 season 11 proved to be positive. This year, 22 samples have been received and only four found to be positive. There appeared to be a disease which could easily be mistaken for nosema and instances were cited of a type of paralysis. Further samples for research would be welcome.

CONFERENCE 1968 is to be held from July 10, 11 and 12 in Hamilton.

SMOKERS. Complaint from Waikato was tabled on the poor quality of smokers and detailing various weaknesses. Executive agreed to write to the suppliers asking for the faults to be remedied.

PACKERS' DIVISION. The recommendations forwarded by the meeting of packers as a suggested basis for creating a Packers' Division within the NBA was discussed, and points with which executive did not agree were to be conveyed to the elected delegates from the meeting at Christchurch, Messrs Holt and Penrose, for presentation to their management committee. No insuperable difficulties were apparent.

NOTE: The Editor has received notification from Mr R. Davidson of Timaru that an independent body under the title of N.Z. Honey Packers' Association has been formed. An advertisement in this issue details the officers of the new body which is not, of course, affiliated to the National Beekeeper's Association.

BRANCH LIFE MEMBERSHIP CERTIFICATES. A supply of certificates are to be produced and made available at cost to branches.

SPECIALTY PACKS. Executive expressed to the Authority the necessity to ensure specialty packs are sold true to label.

BURSARY SCHEME. Steps are to be taken to extend the fund to enable another selected bursar to study overseas.

N.Z. FOOD AND DRUG REGULATIONS. The regulations as affecting honey have not yet been finalised and the present interim situation is to be ascertained.

HORTICULTURAL PRODUCERS' COUNCIL. The Association is to continue to support this body and its work.

HONEY MARKETING AUTHORITY

SEALS LEVY

Producers selling honey at the apiary or adjacent roadside stalls are reminded of their obligations under the regulations to ensure that all containers up to 10 lb net weight bear a label and a "Seals Authority" as an indication that the levy has been paid.

An instance is cited where honey in 5 lb tins was displayed for sale without labels not two minutes from the Auckland G.P.O. Appropriate action has been taken by the Authority in this case.

Producers should be aware however that breaches of this nature not only render them liable to prosecution by the Authority but also the Health Department under the provisions of the Food and Drug Act.

The Authority feels that in fairness to those producers complying with the Regulations and regularly contributing towards the Seals Levy Fund that it must take firm action in such cases of evasion.

1967 ELECTION RESULTS

NOTIFICATION OF RESULT OF ELECTION
FOR TWO PRODUCERS' REPRESENTATIVES

The valid votes cast for each candidate at the above election were:

BERRY, Percy	1,398
FRASER, John William	1,494
LORIMER, John Dudley	1,708

I therefore declare the said—
John William Fraser and
John Dudley Lorimer

DULY ELECTED
(Signed) ALFRED ANSLEY,
Returning Officer,
21.9.1967.

It is understood that a candidate in the H.M.A. election has made representations to the Minister of Agriculture to have the result set aside on the grounds of alleged irregularities in the conduct of the poll.

POLLEN SUPPLEMENTS and NOSEMA DISEASE

by Keith M. Doull
New Zealand born Senior Lecturer at Waite Agricultural Research Institute, Adelaide, South Astralia, formerly lecturer at Lincoln College, Christchurch.

Introduction

The dependence of bees on pollen for most of the proteins, vitamins, fats and minerals they need for growth and development accounts for their importance as the main pollinators of many crop plants. However, this dependence of the bees on a food which is so variable—both in quantity and quality—is the basic cause of many of the problems which face beekeepers throughout the world and there have been many attempts to develop a replacement for pollen.

The task of developing an artificial food to replace pollen and to relieve the beekeeping industry of this dependence on pollen is a difficult one, for the nutrition of the honeybee is more complex than that of most other insects. Considerable progress has been made over recent years, and pollen supplements are now available which, although not capable of replacing pollen completely, can be expected to produce satisfactory results if used in the right way and at the right times.

The relationship between honeybee nutrition and the frequency and severity of outbreaks of Nosema cannot yet be stated with any precision. A study of the results achieved from the use of pollen supplements when taken in conjunction with current knowledge of the etiology of Nosema disease does, however, indicate that the use of pollen supplements at appropriate times may be expected to reduce the severity of the disease.

As a preliminary to discussing the ways in which pollen supplements may be used for this purpose, it will be best to consider firstly the parasite, its life cycle and its relationship to the host, and then to consider some of the broad principles of the use of pollen supplements.

Nosema Disease

The increasing frequency and severity of outbreaks of Nosema disease are explained by modern methods of beekeeping. The climate and floral conditions under which beekeeping is carried out, and the practices employed by beekeepers create, from time to time, conditions which are unfavourable for the maintenance or development of honeybee colonies. If these conditions prevail for any length of time, the relationship between the bees and their parasites is disturbed, and this results in outbreaks of the disease. In order to understand this more fully, it is necessary to examine first the relationship between the parasites and its host and consider the situation in individual bees rather than in the colony as a whole.

The life cycle of *Nosema apis* Zander—the casual organism of Nosema disease—is relatively simple. Bees become infected with the disease by swallowing spores. The spores germinate in the gut of the bee and put out a fine filament which become attached to one of the cells of the wall of the stomach. The contents of the spore pass down this filament and into the cell, where the

organism grows, develops and finally produces more spores. These pores are then released from the cells in one way or another, and are passed out in the excreta of the bee. The spores are highly resistant to heat, cold and drying, and can survive for very long periods. The life cycle of the parasite can only be resumed when the spores are swallowed by another bee.

Nosema apis can only develop in honeybees, and it follows that over the many thousands of years in which the two organisms have existed together, they must have developed a relationship which enables both species to survive. The bee provides the parasite with an environment in which it can develop and reproduce, but as far as we know, this is a one-sided relationship from which the bee derives no benefit.

Obviously, however, since the parasite cannot survive without the bee, it is essential that its host should remain alive for, if the host dies, the parasite must die. The ideal situation is therefore one in which the parasite can survive and reproduce without causing any harm to its host. This is the normal condition, and in all hives, at all times of the year, there are likely to be a few infected bees carrying small numbers of the parasite which grow and reproduce slowly, so that the number of infected bees is maintained at a low level.

However, the parasite lives a hazardous existence. The most critical stage of its life is the spore stage, and large numbers of spores fail to survive or to be swallowed by other bees. *Nosema apis*, like all other internal parasites, is capable of an exceptionally high rate of reproduction under certain circumstances, so that by the production of large numbers of spores there is some assurance that a few spores at least will survive to infect other bees and so maintain the species. This massive multiplication is presumably initiated by physiological and biochemical changes within the host as it nears the end of its life. Unfortunately for bees and beekeepers, the mindless parasite has no way of knowing whether these physiological and biochemical changes are in fact the indication of the approaching death of the host, or whether they are due simply to a temporary physiological disturbance from which the host would eventually recover.

So the situation arises that when bees suffer a check through, for instance, a spell of poor nutrition, cold damp weather, too frequent disturbance of the colony, or loss of their queen, the parasites within infected bees receive a biochemical "message" of the impending death of their host, and the phase of rapid multiplication is initiated. This multiplication of the parasite is so rapid that more and more spores are passed by infected bees and more and more bees become infected. The outbreak of disease in them is thus the result of the massive infection of large numbres of bees but the primary cause of the outbreak was the set of conditions which initiated the phase of massive reproduction.

Whenever there is a close host-parasite relationship such as occurs between *Nosema apis* and the honeybee, the host has usually developed a tolerance to the parasite which enables it to support a low level of infection without suffering any harm. Frequently, the host possesses a mechanism which enables it to maintain the parasite population at this safe level. Massive reproduction by the parasite is only likely to occur when this tolerance is overwhelmed either by some internal factors which initiate rapid multiplication of the parasite, or when the host becomes infected with so many parasites that its mechanism for maintaining the host-parasite relationship is swamped and become ineffective.

The Seasonal Cycle of Nosema Disease

The general seasonal cycle of the disease is the same in all temperate climates. The number of infected hives, and the percentage of infected bees within those hives reaches a peak in spring, declines rapidly in summer, and remains at a low level throughout the winter. In Australia, however, a small peak may occur in autumn, and this is usually followed by a severe outbreak in the following spring.

The reasons for this fluctuation in the incidence of Nosema disease lie primarily in the fact that most bees are infected by spores picked up inside the hive. (It must be taken for granted that there will be spores and some infected bees in all hives at all times, and the factors such as spores in water containers, on the ground around the hive, or being blown into the hive can be discounted.)

Bees cleaning combs for brood rearing swallow spores and become infected. These spores may have remained on the combs from the previous year, or may have been recently passd by infected bees. Bees are more likely to defaecate on the combs in late winter after long confinement, and when their metabolism is heightened by spring brood rearing. Thus, infected bees foul the combs with spore-carrying material, other bees become infected when they clean the combs in preparation for brood rearing, and an epidemic is initiated.

Infection declines when bees are able to fly and defaecate outside the hive, and contamination of the combs is reduced. At the same time as old and susceptible bees die, there is a higher proportion of young bees which are less likely to be infected with the parasite.

Thus the main means of controlling, or rather of reducing the effects of Nosema disease are those which reduce the numbers of spores deposited in the hive, and which enable the bees to breed quickly and pollen supplements play their part in this.

Infection within the hive may be reduced if bees are given clean combs in the brood chamber at the onset of brood rearing. Acetic acid fumigation of combs as recommended by Bailey is the most satisfactory means of achieving this. The simplest method is to stack supers of spare combs and place pads impregnated with acetic acid at two or three places in the stack. In spring, combs in the brood nest may be removed and replaced with clean combs, and infected combs can in turn be fumigated. If Ethylene di-bromide is used to control wax moth, acetic acid may be mixed with E.D.B., to do two jobs at once.

Another practical means of reducing the severity of spring infections is to site the apiaries in sheltered places where they are in the sun for most of the day. This will encourage flight of infected bees and reduce the number of spores deposited in the hive.

However, any means used to control Nosema disease can be rendered ineffective if the colonies are unable to breed fast enough to maintain a population with a high proportion of bees in the less susceptible age groups, or if bees are confined to the hive by cold or wet weather. Strong colonies, if provided with enough honey and pollen, can maintain strength in winter, and will begin brood rearing and foraging earlier than weak colonies.

If pollen supplements are to be used most effectively, it is neccessary to understand something of their virtues and weaknesses, and of the behaviour of bees using them, so that they may be used to encourage brood rearing in autumn and spring.

Pollen Supplements versus Pollen.

Whenever pollen supplements are compared with pollen in caged colonies, it is always found that they are inferior to pollen in the amount of brood reared by test colonies. It is also found that bees always eat more of the pollen than of the pollen supplement.

There are two factors involved here. In the first place, pollen, which is an exceedingly complex material, contains small amounts of a number of chemicals, such as cholesterol, gibberellic acid, fatty acids, plant hormones and cobalt. All of these chemicals have been found to improve the quality of pollen supplements, when measured by the amount of brood reared.

These chemicals are not present in any of the pollen supplements available today. Since they are expensive, and would be difficult to incorporate in pollen supplements in the small amounts required, we cannot at the moment envisage them as ingredients in pollen supplements mixed by beekeepers. Moreover, their addition to commercial supplements would, on present indications, result in a product too costly to contemplate.

The second factor limiting the value of pollen supplements is that they do not contain enough of certain chemicals which elicit feeding responses from bees. The absence of these chemicals would probably offset much of the advantage which might be gained if the food value of supplements was increased by the addition of the chemicals mentioned.

The importance of these attractant chemicals cannot be over-estimated. In our experiments we have found that, when offered a choice of different pollens which had been gathered by bees, pollen-collecting bees showed distinct preferences for some pollens, but neglected others until competition for the more popular pollens became so intense that some bees were forced to collect these less attractive pollens. The fact that this is a chemical attraction is shown by the way in which bees neglect dry pollen supplements, but will collect the same supplement when pollen or an extract of pollen is added to it.

Feeding of insects in particular is influenced by chemicals in the food. For instance, in studies on feeding habits of the silkworm, it has been found that three chemicals are required. One chemical attracts the caterpillars to the food, a second stimulates them to chew, and a third stimulates them to swallow and to continue feeding. If these chemicals are not present in the right proportions, the caterpillars do not eat enough food.

While we do not know as much about the feeding of bees as we do about silkworms, we do know that bees, given a choice of pollens inside the hive, will eat some and neglect others. All pollen supplements now available are much less attractive than pollen, and the addition of pollen or an extract of pollen is sufficient to increase the amount that the bees will eat (and we may assume that chemicals in pollen stimulate the bees to feed. However, the presence of brood to be fed creates a further stimulus which induces the bees to feed on less attractive foods. Bees will not usually eat pollen supplements when they have no brood to feed. But pollen supplements are inadequate on their own, and will produce results only if there is some pollen in the hive. Thus we find that bees use pollen and pollen supplements together.

Many of the older bees appear to use the supplements rather than pollen. Young bees, however, tend to use more pollen because they are reluctant to leave the brood area. This reluctance is basically an inherent preference for the temperature of the brood nest, but it means in general terms that such young bees, which have the greatest need for pollen, are less inclined to use pollen supplements unless these contain sufficient attractants, such as pollen or an extract of pollen, to draw them away from the brood nest.

Thus in making use of pollen supplements we must recognise certain basic factors:

(1) All pollen supplements are ineffective if there is no pollen available.

(2) No pollen supplement is as good as pollen, either in attractiveness or in food quality.

(3) Colonies use both pollen and pollen supplements at the same time.

(4) Colonies will not use pollen supplements unless they have brood to rear, and unless there is pollen in the hive.

(5) Older bees use pollen supplement candies, which probably increases their length of life. Increased honey production following the use of pollen supplements is due to this fact as well as to the stronger colonies resulting from the pollen supplements when some pollen is present in the hive.

(6) When there is pollen available in the field, colonies using pollen supplements increase their stores of pollen. This may at times be a disadvantage, since excessive pollen storage reduces the area available for brood rearing and colony strength will decline. However, this is only a temporary effect.

There are two different types of results which may be expected from feeding pollen supplements.

1. *Immediate short term results* which are obtained when pollen is in short supply, either through broken weather, which inhibits foraging, or through a general shortage of pollen-producing flora. This result is particularly apparent when colonies receive pollen supplements in the spring, and results in an immediate increase in colony strength and brood rearing, provided the colonies have enough honey to support this increased activity.

2. *Long term results* which are less apparent, and occur several months later. These long term effect result from the higher plane of nutrition of both grubs and young bees, and since a new generation of bees emerges every three weeks, the effect of better nutrition over one or two generations will still be apparent after two to three months.

Long term effects are most noticeable when colonies are provided with pollen supplements in late summer and autumn. Provided they have adequate pollen, the strength of the colonies and the vigour of the bees is seen in rapid build-up in the spring.

Under conditions as they exist in South Australia, our experimental experience has been supported by that of beekeepers who have found it profitable to fed Krawaite pollen supplement whenever pollen intake is below that required for maximum brood-rearing. The cost of 10 to 15 pounds of supplement per hive per year is more than compensated for by the return to be obtained from one extra tin of honey, which is achieved with ease.

Pollen Supplements and Nosema Disease

The only effective reduction in Nosema disease is obtained when colonies are well fed and breeding actively in the autumn and spring. Any colony which loses strength in winter or which is slow to get going in spring is in danger of severe infection with the disease.

The best way to obviate this danger is to ensure that:

(1) The colonies are able to support a strong cycle of brood rearing in autumn.

(2) That they enter the winter with the equivalent of at least two combs of pollen.

(3) That they have adequate stores of honey.

(4) That they are able to begin brood rearing early in spring.

The primary problem is one of pollen supplies. If provided with pollen and honey, good colonies will rear brood in winter even in the coldest of climates. It is, however, not always possible to ensure that all colonies will store adequate pollen, and under such conditions, the use of pollen supplements

in late summer and autumn to induce pollen "harvesting" may be considered. The continuous use of pollen supplements until pollen supplies are ensured in spring will then enable colonies to come through the winter in a strong condition.

Colonies managed in this way will in general be populated with vigorous bees and although they will be subjected to some Nosema disease—this is unavoidable—they will suffer less and will recover more quickly.

A pollen supplement such as Krawaite which will not deteriorate if left in the hive for several months is ideal for this purpose since colonies can be provided with enough of the supplement to last them for several weeks, and manipulation of the colonies in cold weather becomes unnecessary.

Finally, in regard to pollen supplements, I would like to stress the need for beekeepers to be their own experimenters. Conditions and practices of beekeeping vary so greatly that it is not possible to carry out experiments or make recommendations to cover all the multitude of situations that may arise. Beekeepers who are concerned with their colonies' need for supplementary feeding should select and mark say ten hives and feed pollen supplements to these hives and feed pollen supplements to these hives as conditions indicate. Some record of performance of these colonies and of ten others marked as controls should be made. Memory is unreliable and even if a note is made on the hive, it will be helpful. From all our experiences in Australia it is clear that, if conditions are suitable for the use of pollen supplements, the results will be obvious and unmistakable. However, if, as is all too often done, the supplement is fed to all hives, there is no way of making comparisons to determine the effects of supplementary feeding.

AN EXPERIMENT WITH QUEEN BANKS

By R. S. Walsh

Apicultural Advisory Officer, Auckland

That queens can be successfully quartered in banks or reservoirs for short periods is now well established. It occurred to the writer that it may be possible to bring queens through the entire winter by the same means. If this could be accomplished a very early supply of young queens, bred the previous autumn, would be available for requeening or to head new colonies the following spring. Should this prove feasible then a further step would need to carry only one third of his hives over the winter, to be broken up into the required number of nuclei the following spring. This would mean the saving of 50 lb of honey per colony that would otherwise have been used to bring the hives through the winter. Only two frames of honey for each spring nucleus need be retained.

Rearing the Queens

With this end in view a local beekeeper was approached and asked for his co-operation. He readily assented and with the help of Instructors, Messrs Wilsher and Walton, the queens were reared in the autumn. They were held in nuclei until brood rearing began to taper off. This in Auckland is normally towards the latter part of April.

Housing the Queen Banks

An enclosed shed was placed at the writer's disposal by the beekeeper who is a cabinet maker by trade. We erected an elevated bench against one wall of the shed in which flight holes for the bees were cut. These were 3 inches by $\frac{3}{8}$ inches. The bench was actually an elevated box 6 inches deep and long enough to accommodate four hives. Four 15 watt electric bulbs were connected to the floor of the bench, spaced to sit under the centre of each hive. Wire screens were then set 6 inches above each lamp on which to stand the hives. By using screens it was considered the bees would receive maximum warmth, from the small bulbs and that the light would keep the bees active. Later a fifth hive was set up in the same way for the purpose of breeding bees to keep up the strength of the queen bank colonies.

Three strong two storey queenless hives and one queen right hive were placed on the bench to take care of the queens. A wire screen was placed on top of each colony under the lid and a thermometer laid on each screen. Entrances were not reduced but were covered with a V-shaped wooden tunnel leading to the flight hole cut in the wall of the building. It later became obvious that too much heat was escaping through the top screens so waterproofed pinex was cut to fit above the screens. This proved to be very satisfactory. No brood was taken from the hives when they were set up and no attempt was made by the queenless bees to raise cells, nor did they do so on brood they were given from time to time.

Cages and Frames

The outside measurement of cages in which the queens wintered were $1\frac{1}{2}$ x $1\frac{1}{2}$ x $\frac{5}{8}$ inches. They occupied a wire gauze covered interior $1\frac{1}{2}$ x 1 x $\frac{3}{4}$ inches. The entrances 1 x $\frac{3}{8}$ inches were blocked with a swivelled piece of tin.

Department of Agriculture's Apicultural Advisory Officer Bob Walsh holds a set of cages in the frame, and the channel that holds the cages. Wintering queens reared in autumn is discussed, and the methods employed for their care throughout the winter months, during which time they were examined four times.

The queen cages and frames that wintered the queens in the hives. Some of the dead queens that did not survive can be seen. Experience has shown that no more than two rows of queens should be employed close together under the top bars.

Seventy-five cages were covered with gauze twelve meshes to the inch. There were no losses of queens in the wide mesh cages and they seemed livelier throughout the trial. The cages were held in ordinary Hoffman frames with insets in the side bars carrying three metal tracks with ½ inch raised sides. These firmly held the cages which were slid on to them with the metal covered entrances downwards.

Temperatures and Feeding

The queen banks were put into the wintering colonies about mid May. At this time the outside temperature was 58°F. Hive temperatures and numbers of queens per bank were—

A	67° F	queenless colony	25	queens
B	68½°F	" "	25	"
C	70° F	" "	36	"
D	71° F	queen right "	14	"

There was very little fluctuation in these temperatures during the period of the trial. However, when it was apparent that frosts were likely the beekeeper would switch on in the shed a 900 watt heater.

The hives and queen banks were first examined on June 1st. The bees were strong and good tempered and all queens were alive except one which was considered to have been injured when being transferred to its cage. Feeding was carried out atmospherically by arranging half gallon jars on stands fixed to the back of the hives. An attachment was soldered to the metal caps of the jars, that was intended to allow the syrup to fall slowly into cannisters leading into the hives. It was originally planned to feed the bees a mixture of half honey and water but owing to a fault in the cap attachments, such a light mixture left the feeders at too fast a rate. Lack of storage space in the hives controlled the intake by the bees to about ½ gallon of feed every fourteen days. In order to achieve this the mixture had finally to be increased to five of honey and one of water. The available honey was in the writer's opinion poor as it was dark brown from a cappings melter and contained many wax particles. However, no loss of queens is attributed to this source nor to the heavy syrup.

Retaining Hive Strength

It was now nearing the end of June and as the writer was leaving for the Islands in a few days time a further examination of the hives was undertaken. Hive temperatures averaged 70°F at 10 a.m. Some of the queens had died. Hive A contained three dead queens, B 3, C 6, D nil. The losses in hives B and C appeared to be caused by neglect as they were in the bottom row of cages just above the floor screen which seems to have been deserted by the bees It was decided to add more bees to the hives and this was done by adding bees of combs in a third super and using the paper method. This proved successful and was the method used for the rest of the trial. During the author's absence the hives were looked after by the beekeeper and Messrs Byers and Walton. In the early stages the bees were sprayed with warm water before queens were examined but this practice was later discarded as it was felt bees were being lost through taking flights to get rid of the water. The use of smoke proved a good substitute and the bees that flew from the hives left through the door and returned by the flight holes in the hives.

Returning the Queens to Nuclei

Shortly after the writer's return early in August it was decided that the time had arrived to remove the queens from the banks as queens in outdoor hives were laying well and a little honey was being gathered. Sixty-five queens had survived so sufficient nuclei were then made up to accommodate them. Each nucleus received two frames of honey. The queen cages were removed from the banks with adhering bees and those shaken from a couple of frames and put into a nucleus box for conveyance to the apiaries. Little trouble was experienced with introduction. The queens were allowed to walk out of their cages into previously prepared paper bags containing two dessertspoonsful of well shaken bees. The confectionery bags had been passed under a sewing machine needle to make three rows of ventilation holes. This was probably unnecessary as the queens were soon released and readily accepted.

Inquest and Suggested Remedies

The banks were examined four times during the winter. Frequent examinations of the queen banks does not appear to be detrimental but should Nosema be present in any of the hives this would tend to spread the disease.

Hive A	Examined	27.6.66	Queens dead	2	
	"	12.7.66	" "	4	
	"	25.7.66	" "	6	
	"	1.8.66	" "	6	Total 6

Temperature in hive on 1.8.66 72°F.		
Hive B Examined as above queens dead	4	
	4	
	6	
	6	Total 6
Temperature 72°F.		
Hive C Examined as above queens dead	15	
	17	
	22	
	23	Total 23
Temperature 78°F.		
Hive D Examined as above queens dead	Nil	
	Nil	
	Nil	
	Nil	
Temperature 74°F.		

Mortality was heaviest in hive C which held the greatest number of queens. There were two banks in this hive totalling 36 cages. Most of the dead queens were in the bottom rows. It appeared that this row had been neglected.

In the light of this it is considered that no more than two rows of queens should be employed close together under the top bars. If on the other hand the queens were wintered in single storey hives where three rows of cages would receive adequate attention this would no doubt prove quite satisfactory. Waxing the queen cages would also help, and the use of wider mesh gauze.

The strength of the liquid feed supplied does not appear important, provided it is not too thin. Some means of supplying additional bees from time to time seems essential as they do not cluster and are apt to take flights resulting in many bees failing to return to the hives. It was originally intended to keep the hives in an open fronted shed but as one was not available a closed shed had to be used and it is now thought that this type of building is best. It has a number of advantages particularly that of heat control. It is better to subdue the bees with a little smoke rather than water.

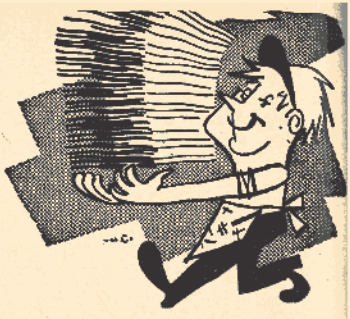
It appears to be an advantage to leave the colony queen in the hive as the bees seem more contented and the queens in the bank are definitely livelier and stronger. However, the cages in the queen right hive were all constructed of the large type gauze so no definite conclusion can be arrived at from this one trial. There were also only fourteen queens in the hive.

How the Queens Performed

There appeared to be no unusual problems with queens over wintering in this way. They were accepted naturally and performed normally in all respects. A little supercedence did occur because a few nuclei were not strong enough in bees to attend to the eggs laid by the queens. Queens released from banks have an intense desire to unload their eggs and unless the nuclei are strong enough to cover all the comb area these queens require they will lay numbers of eggs in some cells, thus bringing about their own supercedure.

The nuclei quickly built up into strong colonies which produced a large and often larger crops than many colonies wintered in the orthodox manner. It appears to be fairly conclusive that wintering queens in banks is in no way detrimental to them and some evidence tends to suggest that queens perform better after wintering in this fashion.

BRANCH NOTES



WEST COAST

The annual field day was held on Saturday, October 14th, in ideal conditions, at the home apiary of Mr K. Detlaff at Ross. It was well attended by local beekeepers, and several visitors from the Canterbury district were present. After welcoming everyone to the field day, the president, Mr J. Glasson, called on Mr R. Glasson senr. who addressed the gathering on the value of such functions and mentioned that the last field day held in Ross was about 20 years ago.

Mr Detlaff then conducted beekeepers through his honey house and work shop and explained his method of working.

Mr P. Marshall, the apiary instructor for the district, gave a full and instructive address of bacillus larvae, telling how to recognise it, and the steps to be taken to eradicate it.

Beekeepers showed great interest in a bee-blower demonstrated by Mr K. Ecroyd and Mr J. Glasson gave a demonstration of the use of benzaldehyde boards for removing bees from the supers.

Mr R. Buchanan read extracts from a letter he had received from Sandy Richards, a former Coast apiarist who is at present working for a beekeeper in Canada. Local beekeepers will be keen to hear of his activities in Canada when he returns.

Mr J. Glasson demonstrated his method of raising queen cells, and several beekeepers demonstrated various pieces of equipment they had devised to help them in their work.

An innovation at this field day, and one which will certainly be carried on, was a cooking competition involving the use of honey. The number of entries exceeded expectations and the Judges Mr and Mrs Dick Robbins of Tai Tapu had a difficult time selecting the winners. The cake section was won by Mrs M. Detlaff with Mrs R. Derks second, while the biscuit award went to Mrs R. Buchanan with Mrs R. Glasson second.

At the conclusion of the day's activities the president thanked Mr and Mrs Detlaff for the use of their apiary and for the provision of morning and afternoon teas.

Reported by R. V. Glasson.

SOUTH CANTERBURY

A very interesting meeting of the Branch was held in Timaru on the evening of September 9.

The Branch President Mr E. R. Robins welcomed a good gathering of beekeepers and their wives.

Mr V. A. Cook, Apiary Instructor of Oamaru, explained points of great interest in regard to new Regulations of the Apiary Act, and showed a map illustrating where B.L. was reported. It was plain this enemy is by no means conquered and all beekeepers must take precautions to eradicate the problem.

The remainder of the evening was taken up by illustrated travel talks by Mr A. Simpson of Geraldine and Mr J. Bray of Leeston.

Mr Simpson's talk and slides took us on a trip to Western Australia in which he showed some of the people, places, and beekeeping industries. Mr Bray's talk included slides and movies on a trip to the International Bee Congress at Maryland, U.S.A. This was very interesting and was much appreciated. All present were grateful to both speakers for sharing their overseas travel.

Reported by J. G. McKenzie.

SOUTH CANTERBURY

An interesting field day was held on 7th October at a riverside picnic spot near the apiary of Mr Ivan Thomas of Waimate.

The weather was fine and a picnic spirit prevailed and all who attended had an enjoyable day. Our thanks to those who organised the programme, to speakers and to Mr Thomas for making his apiary available for demonstrations.

Mr V. A. Cook, apiary instructor, gave an interesting address on swarm control and queen introduction by special cage, and answered numerous questions.

Mr F. A. Bartrum of Pleasant Point gave a report of a recent meeting of the National Executive and answered questions.

After lunch Mr R. Davidson of Timaru gave an interesting demonstration on how to open up a hive for inspection and protective gear to use to avoid excessive stings. He recommended the use of a good veil and hat and the use of gloves when the bees are inclined to sting. His advice was sound and his talk appreciated.

Next was a demonstration by Mr K. Ecroyd of Christchurch on the use of various stypes of mechanical blowers for getting the bees out of supers. The machine certainly shifted the bees in a hurry but many bees must have suffered concussion with the speed they hit the ground.

My view is the machine will do the job but somehow the frightful noise of the motor does not seem to belong to beekeeping but that's only my point of view. The demonstration was followed with much interest.

The final talk was by Mr M. Cloake on queen raising. This was most interesting and he answered questions and displayed his Electric wax melter for making cell cups and other items of interest. Mr H. Cloake answered questions on queen raising, which brought to a close a very interesting day for us all.

Reported by J. G. McKenzie.

SOUTH CANTERBURY

(Obituary)

The passing of James Forster, of Rosewell, South Canterbury, on Wednesday, 18th October, closes a page in the history of beekeeping in South Canterbury. James believed in spreading beekeeping knowledge, training and helping beginners to understand bees; he never at any time operated his outfit for profit, but concentrated on instructing others, and spent endless hours with local beginners. James immigrated to New Zealand in 1910 from Northern Ireland, where he was a school teacher and part-time beekeeper: he continued as a part-time beekeeper until, at his death at 89 years of age he had upwards to 40 hives under his care. James did not delve into the politics of beekeeping, but concentrated on the honey bee and its activities; for this reason he was not widel known outside Canterbury. He was Secretary of the Canterbury Branch, for many years, and was elected a Life Member of the National Association. So passes a friend, whose place in our Canterbury and South Canterbury beekeeping world cannot be filled.

Reported by Bob Davidson

NORTHLAND AND FAR NORTH BRANCHES

The present situation seems as if we in this area are to have a good season with the fine weather we are having.

Last winter was very mild so the bees came through in good heart with plenty of stores to carry over. So far there have been very few swarms around.

There seems to be far more flowers on the barbury hedges, the willow and manuka are also flowering heavier this year so it looks as if we may have a better season than the last.

On October 14, a very successful field day was held at Mr Arthur Palmer's honey house and home apiary in Dargaville where we had visitors from as far at Kaitaia, Mangatarata and Auckland. Our instructor Jack Byers was in attendance. Grateful thanks to Arthur for the use of his gear and property.

Reported by Arthur Tucker.

BAY OF PLENTY

Bay of Plenty Branch members had the pleasure of a very interesting and instructive address by Mr K. M. Doull, just prior to Conference, a good four hours, which members really enjoyed. After Conference two branch members spent a pleasant week on the West Coast, and enjoyed the hospitality of Jack Glynn and his sister of Runanga.

One of the most striking features of the West Coast is the beautiful native bush in the scenic reserves. With the varieties of trees in the reserves, they will always be a great interest to all forest lovers.

Mr D. A. Barrow gave his delegates report on Conference to Branch members, followed by some interesting slides by Mr D. A. Briscoe. During the evening a presentation was made to Mr J. C. Higgins in appreciation of services rendered as secretary of the Branch. The new secretary is Mr A. C. Barrow. Branch members are very pleased to hear that Charles London is back at work again, after several weeks in hospital. Charles had the misfortune to lose the tips of three fingers in his buzzer saw.

The rewarewa has a very poor budding this year, and consequently very little honey is expected from it. At time of writing weather is fine and warm, and bees are just beginning to work barberry. Hive strength is below normal for this time of the year in most apiaries.

Reported by Don Barrow.

AUCKLAND CENTRAL

The Auckland Central Branch had a particularly interesting evening in August, when an officer of the Department of Inland Revenue attended to explain to members their liabilities for tax on income from whatever source, and the exemptions and reliefs to which they are entitled. Emphasis was placed upon the fact that the department is anxious to assist taxpayers and simply ensure that taxation is correctly assessed and that there is no wish or intention for any tax payer to pay more than is necessary.

The speaker apologised for the absence of a colleague due to sickness;

—"we usually hunt in packs . . . " and furthered the avowed policy of the department by giving every possible assistance in answering questions frankly and with a complete absence of red tape. In a number of instances explanations were provided which would materially assist beekeepers in paying less tax than might be anticipated.

Branches elsewhere might well be advised to approach their local taxation office and request the attendance of a senior officer to be present at an evening meeting for informal and helpful question and answer discussion. The personality of the individual concerned will dictate the level of informality, but inspectors are human and welcome the opportunity of meeting on a common ground and to learn problems of specific industries. Whether you utilise the services of an accountant or not in the preparation of returns, a talk by an inspector will be to your advantage.

AUCKLAND CLUB

At the meeting of the Club on August 28, an enthusiastic audience of around seventy amateurs attended to hear Apiculturist Bob Walsh speak and show slides of his recent visit to the Islands and Niue in particular. Conditions there certainly seem to be a beekeepers' paradise, with complete absence of disease and swarming with yields of fantastic weight.

Meetings of this friendly beekeepers' club always seem to be well attended, and it serves a most useful and practical purpose in assisting amateurs to look after their bees more efficiently.

CANTERBURY

Following a mild winter a cold snap with snow in September retarded the early round for most beekeepers. Willow and brassicas have yielded well though nearly a fortnight later than usual. Colony build up has been irregular due in some areas to a shortage of pollen. Grass grub and Porina have played havoc with the pastures many of which necessitated ploughing and are therefore lost to beekeeping for this season. However, recent rains have been most beneficial and the first clover is now appearing on th light land. Prospects are good.

On 25th October Dr. W. A. Stephen addressed a meeting of Canterbury and South Canterbury beekeepers at Ashburton and Mrs. Stephen showed some slides of honey displays. Dr. Stephen is Extension Apiculturist at the Columbus University, Ohio, U.S.A. and is on a world study tour.

He discussed the imbalance in duties of the bees in the hive, when there is an early flow which results in the tapering off of the broodrearing at a time when the hive should be building up for the main flow. This is probably the reason why hives often dwindle in strength when we least want it.

Beekeepers in the States make more of their opportunities to display honey at shows and in many cases enter into competitive displays as we saw from slides of them.

Reported by Jasper Bray.

A BEE BLOWER — NEW ZEALAND STYLE

By Brian John Capstick

Hamilton

After reading an article by "Bud" Diehnelt in the American Bee Journal, Mr. K. Graham of Hamilton designed and built a similar machine. The idea of the bee blower is to mount a centrifugal fan directly coupled to a small domestic two stroke motor, in an angle iron frame. This frame also supports the super and the outlet of the fan is directed by a reinforced flexible hose. Some 100 cubic feet of air per minute is sufficient to blow the bees from the capped honey and on to the ground below the super. The locally produced model does not have a deflection panel as did its American counterpart, but no visible damage to the bees was seen at any stage. A few drones were, however, looking quite lost and bewildered after this wind tunnel treatment but soon recovered.

The article in the American Bee Journal stated that the blower method was far more satisfactory than chemicals since there was no likelihood of honey being tainted. Less time is involved, and operator can work at his own speed and there is no danger of prolonged use of chemicals on a hive and its effect on the honey and bees.

An average super can be cleared of bees in 45 seconds, and the blower requires no greater knowledge on how to use it than that involved in starting the motor.

In the 1966-67 season the blower was tried and thoroughly tested. An initial modification that was necessary was that of having control of the motor revs. As the motor had been designed with an air flow governor the throttle linkage had to be controlled manually by a length of bowden cable with suitable attachments. It was also found that any restriction of the air outlet to form a jet of air resulted in an overall loss of efficiency. The centrifugal fan is designed to run with a minimum of restriction in the outlet and any restriction results in a large loss of air flow.

In the field, the blower is comparatively light to handle being a little over fifty pounds and the frame work lends itself to easy carrying. When in use the blower confuses the bees due to the large air movement and even the most savage hive can be handled with a minimum of discomfort to the operator.

With no experience of the effects of air in such quantities the blower was used early in the season on supers containing willow honey. Instead of the honey crystallising it remained in an extractable state. As far as it can be seen it appears that the air intake is heated by being drawn over the motor and exhaust system. This raised the question—is the air at that outlet tainted? As far as it can be seen the answer is 'no.' The exhaust is blown well clear of the air intake, and petrol fumes are also well clear. Oil and other foreign matter is prevented from dropping into the intake by the exhaust assembly.

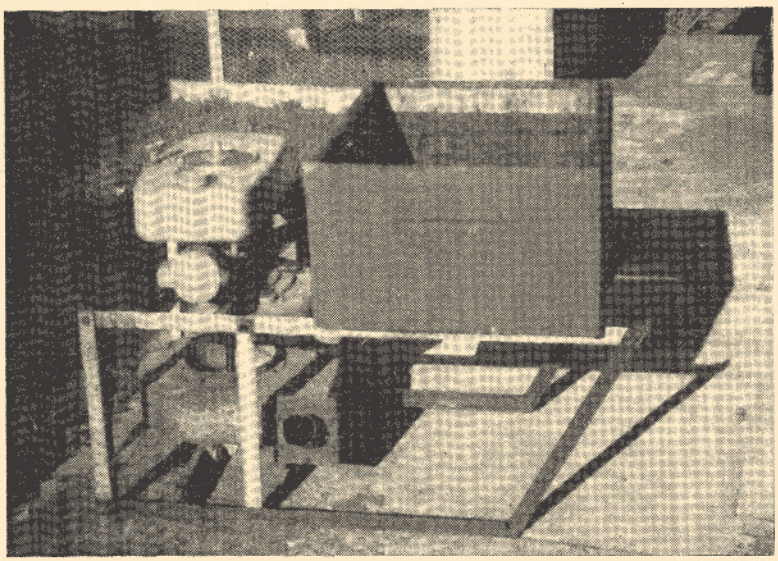
Another item found to need attention early in the season was the placement of frames. To encourage even building with a minimum of brace comb 9 frames to a super was found to be best. This allowed fast and efficient clearing of the super which is the basic idea behind the blower.

Drone behaviour was rather interesting, and they did not come away from the capped honey as fast as the workers. Because of their size the drones, more often than not, were blown out in a series of rolling motions, and it is probably due to this that they were a little longer in recovering when they were blown to the ground. In some cases, small areas of uncapped honey and workers presented problems. Workers partially inside the cells were not affected by the blower and because of this a few bees returned to the honey house.

After a full season's use the final analysis is that the idea is excellent and practical. Although the initial outlay is higher than equipment necessary for chemical removal, the long term savings when time is taken into account is high. The few bees that are brought into the honey house in the supers makes the bee blower very worthwhile.

Just prior to the completing of this article advertisements have appeared in overseas journals for a bee blower carried on a frame on the back of the operator. Although I have not seen this model, I have seen an agricultural spray unit which was motorised and was quite comfortable and surprisingly vibration free. The spray unit had a disadvantage that the spray had to be carried, adding to the weight the operator had to handle.

This basic idea however, should speed up one of the more laborious tasks beekeepers encounter.



Here is the home-made blower which will clear an average super of bees in 45 seconds. The centrifugal fan is seen beneath the motor unit and the outlet for the flexible hose is at centre. A suggested modification is a shoulder harness.

COMMENTARY

from the Editor's Desk and Mail

THE AUSTRALIAN HONEY BOARD recommended to the Minister for Primary Industries that 46 honey export licences be granted, has been accepted. A levy of .4 cents per lb for honey sold on the local market provides finance for the promotional grants to each State honey council or committee which expended some $A30,000 for 1966/67.

II II II

HONEY ICE CREAMS, confecionery and biscuits made with ice cream are now firmly established on the Australian market, and further steps are being taken to participate in overseas trade fairs. Another activity of the Board is their approach to the International Centre for Biological Research, Geneva, to see whether they would be prepared to undertake basic research on the value of honey as a health food.

II II II

SOUTH EAST ASIA is slowly acquiring a taste for honey with meals as distinct from its use as a sweetening agent, although the market is faced with the fact that mainland China supplies the bulk at 50% less than Australian brands. The market developed in Singapore is primarily composed of sales to British forces there, and their withdrawal and closure of the base will be the virtual end of sales. The local population are unlikely to buy honey at twice the Chinese price.

II II II

AT THE VICTORIAN APIARISTS ASSOCIATION three-day conference at Melbourne, it was moved and adopted that "owing to the high registration fees under the new Bees Act, it be an instruction to the incoming executive to pursue a compensation scheme similar to the schemes operated in N.S.W. and W.A." Under the provisions of the new Act, beekeepers will pay: 1 to 5 hives 50c, 6 to 20 $1.00, 21 to 50 hives $1.50 and 51 to 100 hives $2.00, over 100 hives $2.00 plus $1.00 per 100 hives or part thereof in excess of 100 hives. (This means for example that owners of 300 hives pay $4.00, 500 hives $6.00 and 1,000 hives $11.00).

II II II

THE N.S.W. DEPARTMENT OF AGRICULTURE'S role in improving bee breeding stock and queen rearing methods, was the subject of an address by Mr Neville Cutts, Senior Livestock Officer in Apiculture at Hawkesbury Agricultural College, N.S.W. at the V.A.A. Conference. The Department performs an important service to the beekeeping industry in connexion with the introduction into Australia and the distribution of some of the best strains of bees available from other countries as well as the development and maintenance of new and existing strains. The

Department periodically imports new strains from recognised breeders in New Zealand and the U.S.A., and a record number of breeding stock have been supplied by Hawkesbury College to commercial beekeepers in N.S.W. this year. Given suitable conditions and the required assistance, the supply for the following season will be increased.

II II II

A RETIRED BEEKEEPER in N.S.W. reports that he was recently requested to shift a "swarm" from a calves feeding hopper. He found in fact that a large number of bees were feeding from the flour feed, leaving the husks behind. At 3.30 p.m. the number of bees flying and feeding equalled three swarms, and it was said that there were many more each morning. Not surprisingly, the calves decided to go without their grain feed whilst the bees devoured their find of "pollen substitute".

II II II

THE WALL STREET JOURNAL is read by bulls and bears but is hardly the publication in which to find recommendation for beekeeping. Staff reporter Niel Ulman wrote in his colum that bees are cheap to buy at $5 a pound and pay good dividends in honey with an average surplus 50 lbs. He also quoted two firms in the States who sold 37½ tons of bees last year and estimates that there are 10,000,000 bees to a ton.

II II II

LA GAZETTE APICOLE records that there are 330,000 beekeepers in the Common Market countries owning between them 3,237,000 hives. Honey production is in the region of 65¼ million lbs—an average of just over 20 lbs per hive—most of which is consumed by the producers. Italy, France and Holland export between them some 1¼ million lbs to other countries, and honey imports to the "6" comprising the Common Market are around 86 million lbs.

II II II

THE U.S. DEPARTMENT OF AGRICULTURE announces that, beginning with the 1968 crop, open end drums will be required for honey packaged in drums and offered for price support to the Commodity Credit Corpoation. This action establishes discounts for honey below standard because of excessive defects and moisture, thus failing to meet at least the requirements for Grade "C" of the U.S. Standards for extracted honey. The discount set for honey with excessive defects is 1 cent a pound; for excessive moisture 2 cents a pound; and for both defects and moisture 3 cents a pound, U.S. currency.

These discounts reflect the approximate cost to C.C.C. of conditioning, to meet quality standards, the honey obtained in price-support transactions. The discounts will apply to all types of substandard honey obtained by C.C.C.

Beginning with the 1968 crop, the drums in which honey is offered to C.C.C. must be "open-end" types. These drums, which are fitted with covers held in place by clamps, permit easier and quicker removal of crystallised honey than is the case when "closed-end" drums are used. For 1968 and following crops, honey packed in "close-end" drums will not be eligible for price support.

II II II

HONEY BEES HAVE an internal "biological clock" that influences their behaviour, according to research technician John A. Kefuss of U.S.D.A.'s Agricultural Research Service and the Utah Agricultural Experiment Station.

The study was reported at the 21st International Apiculture Congress at Maryland.

Mr Kefuss and A.R.S. entomologist William P. Nye found that the photoperiod, or amount of daylight, affects honey bee brood rearing. Longer days stimulate brood rearing and short days inhibit it.

Besides brood rearing, the bees' flight habits varied with different amounts of light. In both long (16 hours) and short (8 hours) days, bee flights from their hives were very low in the first half of the day and high in the second half. An hour before the end of their artificial day, the flights tapered off.

In one experiment the bees were accustomed to a 12-hour day, and then shortened their day to only two hours. The bees responded with a fourfold increase in the number of flights. Flights from the hive continued at a high pace even after the day was lengthened by several hours.

COLONIES CAN BE protected for at least eight months from bacillus larvae by experimental fumigation treatments being tested by the U.S. Department of Agriculture.

Microbiologist Hachiro Shimanuki fumigated beehive equipment with ethylene oxide, a gas often used by hospitals and food processors to sterilise heat-sensitive materials. Bees in hives to which untreated equipment was added developed the disease within two weeks.

Best results occurred when four supers with brood combs on a plywood board were covered with a plastic cloth, and fumigated with ethlene oxide.

After fumigating the supers they were sealed under the plastic for 26 hours. Residues that might be harmful to bees were dissipated by holding the supers for an additional 24 hours in a room heated to 106° F.

Before recommending treatments to beekeepers additional tests will be made to establish the amount of gas to use, optimum temperatures, humidity, and other favourable fumigating conditions.

The treatments show promise for controlling other bee diseases as well as the greater wax moth.

II II II

QUEEN BEES may have to share their hives with other queens if beekeepers adopt a caging technique for keeping some "spares" handy to establish new colonies, according to U.S.D.A researcher Emmett R. Harp.

A single hive maintained more than 40 queens successfully for three months in special cages was described and although the tests have not yet indicated the most desirable number of "guest" queens for a hive, they do demonstrate that breeding bee stock can be maintained without the many colonies otherwise necessary. One advantage Mr Harp pointed out in keeping only queens over winter is that beekeepers would not have to maintain weak colonies.

Queens that hatch at the most favourable times of the year—usually spring or autumn, when food, weather, and colony strength are at their best—could be stored as guests in the cages until needed for a new or queenless colony.

The "excluder cage" is constructed so that queens cannot escape or other queens enter, but which permit worker bees to enter and leave to feed and groom their guest. Of some 250 queens held in these cages, less than 10 per cent did not survive. In contrast, Mr Harp lost two-thirds of the queens held in an older type wire cage.

Presence of the guest queens did not cause the "reigning" queen to stop laying or otherwise change either her normal behaviour or that of the rest of the hive. Mr Harp also described successful ways to introduce guest queens into a hive and the kinds of colonies best suited as hosts for multiple queens.

II II II

HUMIDITY IS NEITHER an aid nor a deterrent to Nosema disease, once honey bees had been infected with the organism, according to John D. Hitchcock, an entomologist of U.S.D.A., who described research aimed at pinning down some of the conditions that affect this serious disease of honey bees to beekeepers at the 21st International Apiculture Congress.

Nosema disease, which severely weakens bee colonies, is caused by a microscopic, single-celled protozoa.

Mr Hitchcock said that artificially infected bees held at a relative humidity of 92 per cent developed the disease as severely as those held at a relative humidity of 30 per cent. Uninfected bees held under the same conditions did not develop the disease.

Now that tests rule out humidity differences as governing the severity of Nosema in infected bees, Mr Hitchcock called for additional research to nail down any roles that humidity might play as either benefactor or villain in controlling the disease. For example, research is needed to determine whether different humidities affect bee behaviour or their bodily functions in ways that foster or impede the spread of the disease by infected bees in their contacts with other bees and with their food and water.

CONCERN HAS BEEN EXPRESSED at the poor quality of some smokers. It seems that one batch in particular were made with substandard bellows and the distributor was not aware of the situation until complaint was made. None of us can rectify mistakes if we are not aware that they have been made, and if any beekeeper feels that he has a legitimate complaint the right and proper action is to protest strongly to his supplier. Distributors have a reputation of fair trading to maintain and any justifiable complaint will be put right.

II II II

MR. A. R. MORRISON of Balclutha has shipped a consignment of bees worth $12,000 on the M.V. MAGGA DAN to Fiji sailing from Lyttelton in the South Island and calling at Auckland. A first attempt at stowage was made in August but unfortunately the weather turned warm and activated the bees who quickly found various escape routes caused through shrinkage in the timbers and the wharfies decided the consignment was too hot to handle. One wit reported that the watersiders have not moved so quickly since a crate of Scotch was accidentally dropped from ship to shore. However, on the second attempt in mid September the crates were well protected with sisal and the 300 hives safely stowed with half a ton of sugar for feed. One problem Mr Morrison will have to face is the native hornet as a predator amongst other enemies, but climatic conditions should suit the bees well. In wishing Mr Morrison well with his enterprise we shall hope to have a report from him soon on progress and overcoming problems.

II II II

THE NORTHLAND AND FAR NORTH branches held a combined field day at Palmer's Apiary, Dargaville in mid October and in addition to members, visitors from Auckland and from a wide area enjoyed a thoroughly instructional and congenial day. A visitor from Helensville took away with him in the boot of his car six 3½ lb packages ready for hiving that same evening, and it seems that New Zealand may well be following California's practice of buying active queen right packages in early spring from specialist breeders instead of wintering their own stocks. On a basis of 60 lb of honey for safe wintering there may well be much to be said for taking off the complete harvest after the honey flow and gassing off stocks ready for a new start next spring. Mervyn Cloake was impressed by the package business in the States during his bursar's trip and much of the information he gleaned on the subject is being put to good purpose in practical application.

Whilst speedy delivery can be effected by air transportation from the North to the South Island, it could be a paying and practical proposition for trucking on a large scale if apiarists co-operated on a buying basis. It is certain that we shall see more of this method of beekeeping in the future. Incidentally, all handling staff of NAC have been given instructional talks on what to do in the event that the outer gauze of a package is pierced or a knot works loose and leaves a hole.

II II II

HMA MANAGER Colin Gosse received a letter from Census Mata Salame of Malutu, Lakepa, Niue Island enquiring after his health and whether he was getting on with his work. Census was a prize winner and a keen follower of the Roving Bee, and her handwriting with the pen she gained as a prize is certainly above standard for her age of 16. A student at Niue High School, she seeks a pen friend and any New Zealand beekeeper with a daughter of similar age is invited to establish contact by writing direct.

FOOD FOR THOUGHT

From Page 1

Arataki Apiaries of Havelock North.

The value of any work study is focused on the accuracy of its content, and while Mr Bale recorded some interesting data in his research, the undeniable fact remains that there are a number of inaccuracies which must necessarily cause his views and suggestions to be suspect.

It is more than surprising that the author, with his academic training, did not check his facts to ensure authenticity.

It could well be that Mr Bale was at a disadvantage and working against time to complete his work to a deadline.

In fairness to Mr Bale it must be recorded that he admits . . . this study has obvious limitations and is intended to stimulate informed discussion within the industry rather than to offer a cut-and-dried blueprint for future planning . . . " This assessment may well be correct and a useful purpose would be served if the inaccuracies were rectified.

The Executive of the National Beekeepers' Association had to reluctantly decide that they were unable to afford the estimated cost of a complete study of honey marketing in New Zealand, although it was fully realised that the result might prove to be extremely beneficial.

In acknowledgments to assistance given by members of the industry Mr Bale writes . . . The author naturally accepts full responsibility for any errors or omissions and for the views expressed in the paper . . . "

The fact, however, that Mr Bale's association with the Department of Agricultural Economics and Farm Management at Massey University, Palmerston North, is clearly shown on the front cover, could confuse the casual reader and those outside New Zealand as to merit and accuracy of the work.

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.

Eastport Road,
Waihou,
18/9/67.

Sir,

Are the Abundant Clovers of New Zealand in Need of a Tonic?

The article written by J. W. Fraser and published recently in the New Zealand Journal of Agriculture, concerning the failure of our Clovers to secrete nectar, suggests that the probable cause is in the inferior strains of clover now propagated. As one who has been aware of this problem and studied it ever since 1915 when phenomenal yields of honey were secured in the Waikato and Thames Valley areas, I feel sure this contention of Mr Fraser is not correct—at least for our area. We have the same pastures now as we had then; indeed it is a very rare thing to plough up old pastures and then only to re-sow old root-bound Paspalum. We therefore have had the same Clover in all those 50 years or more, but alas it has progressively declined in nectar secretion. The cause or causes of this I firmly believe have nothing to do with the nature or the variety of the clover itself, but rather in our *soil content* and climatic conditions prevailing plus grazing management. The first cause and main one I firmly believe is the loss of certain essential trace elements which losses are probably caused by liming and the use of artificial fertilisers. For example I suspect the lack of magnesium is one factor because this element is rapidly released and exhausted by applications of lime which has been applied heavily—that is up to two tons per acre.

Secondly the rich and heavy swards of grass and clover on the heavy land as compared with that on the lighter soils of the hill-land or in the pumice-country, certainly retards a desirable soil temperature.

Thirdly, according to my Scale-Hive and temperature recording over the past 40 years, our Summers have not been as consistently hot as formerly; although despite steady temperatures of 80° and fields all white with clover bloom in some seasons, yet very little honey has been harvested. In the season 1964-1965 there was a good crop secured by apiaries on the shorter hill-pastures but practically nothing on the Plains. However with the present practice of the use of the electric-fences and consequent closer grazing by feeding cows in breaks, higher soil temperatures should result. This also prevents the grass from dominating the clover, yet despite all this good pasture management our clovers fail to secrete nectar. Again I ask why? Surely it indicates that the primary cause is to be found in one or more chemical deficiencies. I therefore heartily support those remits submitted to the last N.B.A. Conference urging that there should be a thorough programme of soil research in relation to Clover culture. This matter is of national importance as my correspondence with the late P. D. Sears clearly proves the supreme value of clover in building up soil-fertility. If space permitted I could describe the ease with which we produced clover honey in the first decade of this century, yet with poor bees; weaker colonies; inadquate equipment and slap-happy methods some could average up to 200 lbs per hive and even I with 80 cows to milk averaged 177 lbs from 5 apiaries aggregating 200 hives. When walking through clover one's boots would become sticky with raw nectar. Well sir, I still hope to live long enough to see those conditions restored and even bettered but a lot of research will be needed to achieve it.

Chas. F. Horn.

The Chairman,
"Honey Conference,"
CHRISTCHURCH, 1.
July 5, 1967.

Sir,

Why is it so impossible to buy hard honey now-a-days. I have been trying all over Christchurch for many months without success. Years ago you could buy soft honey that would go hard in the winter months—hard enough to have to cut out of tin. Grocers have repeatedly sold me honey which they thought was hard, but on opening for use it has only been firm creamed honey. My family prefer the hard chunky honey they enjoyed as children, but it seems the producers have settled that we must have liquid or creamed.

Maybe somewhere there is a brand about of the hard honey, but I have yet to find a carton so marked, I have given up hope of getting our preference but after your conference I must have another look around. Years ago so much honey was eaten by my family that it was always bought in 60lb tins so you can imagine it is now missed from the menu.

(Signed) "CHUNKY HONEY"

*NOTE: This letter was received during Conference and is indicative to proponents of creamed honey that a demand still exists for granulated. Unfortunately, the writer did not provide his address or the need would be promptly met.

II II II

Ryal Bush,
6 R.D.
Invercargill.
21st October, 1967.

Sir,

May I use your columns to express my thanks to those producers who gave me their support in the recent H.M.A. election.

J. W. Fraser.

II II II

P.O. Box 16,
Havelock North.
24th October, 1967.

Sir,

I wish to thank those who voted for me in the recent H.M.A. Elections.

Although I ran out a little short of votes, I assure my supporters that I am only just starting to fight for the principles we wish to have applied. I also wish to assure those who cast a vote for my policy and then cast another vote against it, because they read the voting paper to mean that it was necessary to vote for two candidates to make it valid, that I have made representations to the Minister of Agriculture to have the Election set aside and another Election held.

I understand that the Minister is seeking advice on the regulations governing the form of the voting paper, but up to the time of writing he has not been able to give a decision.

Massey University Study: I wish to thank Mr M. D. Bale for the production and to thank Mr A. B. Ward and the University for the assistance given. I also want to thank the N.B.A. Executive member Mr. T. Gavin for a financial contribution toward reimbursing my Company.

My thanks are also due to the N.B.A. Executive for forwarding me a copy of a letter it wrote to Mr Ward giving him particulars of a letter it wrote to you, Sir, for publication in the "Journal." I hope the Executive withdraws the request for publication whilst there is still time.

One cannot but wonder if the Executive would have made the decision to publish a letter of this nature if the Chairman of the H.M.A., Mr. Fraser had not been present at their meeting.

If the article is to be published Sir, then I request that in fairness you should publish the full text of the letter* from the Executive to Mr. Ward—copy enclosed.

As I pointed out in a circular to H.M.A. electors, Arataki Apiaries Limited would not have supported the Study that our Annual Conference asked for, and the Company paid for, if it had been anticipated that the University would have been smeared with the politics of our Industry.

Under the circumstances I should perhaps have anticipated this. If so, I extend my apologies to Mr. Bale, Mr. Ward, and the University for any unfortunate implications that may have appeared in any election manifesto opposing my policy. I can only hope that these matters will not lessen Mr. Bale's desire to return to New Zealand after completing his appointment in the United States. As we all know, this country is already losing too many men of his ability.

Percy Berry

* *Readers are referred to the report of the two-day meeting of Executive for information.—Editor.*

II II II

P.O. Box 4032 Kamo,
17th October, 1967.

Sir,

As there is same confusion concerning Invert sugar I am forwarding a recipe that I have used for many years for the making of candy in use in mailing queen cages.

25 lb sugar
1 gallon water
½ oz Tartaric acid

Mix ingredients together and bring to boil, stirring well and boil slowly for half to threequarters of an hour. A small quantity of this is mixed with icing sugar to make candy as required.

As icing sugar contains varying quantities of cornflour an easy and quick method of testing for cornflour is to mix a teaspoonful of icing sugar in a small glass of water (cold). The sugar dissolves and leaves cornflour suspended in water, which settles on the bottom of glass after standing awhile.

The best icing sugar to use is the one that has the least sediment in the bottom.

F. D. White,

BRITAIN'S GROWING TASTE FOR HONEY

(Reprinted from "The Financial Times," London)

Britain's honey imports from some 40 countries last year totalled more than 292,000 cwt—a rise of about 30,000 cwt on 1965 and the biggest jump in consumption since the resumption of supplies after the last war.

These figures suggest that the honey marketers may at last have found the key to unlock the potential of a country whose appetite for honey over the years has remained stubbornly at about half that of its Continental neighbours.

One of the biggest influences on the market last year was the emergence of Australian honey for the first time as a promotional force, leap-frogging the publicity efforts of Canada and New Zealand, the only other countries that have ever done much to advertise honey here.

The Australians, who have traditionally sent honey to Britain mostly for blending or manufacturing at prices heavily discounted by anonymity, are proud of the coup they pulled off with Joseph Farrow in having all their Gales brand Australian honey labelled as to origin. The sale of Australian honey under this brand is increasing at something like 10 per cent a year.

Record Sales by Australia

This identification might not have accounted for the increase in Britain's honey consumption or the fact that Australia's own sales rose last year to a record 105,342 cwt, compared with just over 100,000 cwts the year before. But the fact that Australia supplies almost a third of Britain's honey requirements, that Gales commands 65 per cent of the British market and that almost £100,000 was last year spent on promoting it gives the deal significance in the British honey marketing scene.

An area in which the emancipation of honey last year was especially pronounced was Scotland, where there has always been a soft spot for honey since the time when every town dweller had a country relative who kept bees as a source of sweetening for food. One distributor hit on the idea of selling honey through flower shops because they seemed more appropriate for a commodity of such botanical derivation, and claims since to have sold 50 per cent more honey than he did before.

Along with the rise in consumption, honey prices climbed about 10s last year, and there are signs that shortages this year may force the price up further.

The most striking recent penetrations, relatively if not in outright volume, have been linked with restraint—such as in the compellingly low rates that sent Mexico's sales up last year from 18,000 to 30,000 cwt and the good cheap honey that has begun to arrive from China, which has been accepting terms that effortlessly undercut those of suppliers for whom cost of production is more of a reality.

Australia makes no secret of its intention to upgrade prices from the humble levels they have occupied in the past, but, with the general economic standstill, and memories still fresh of an earlier premature attempt to "legislate" prices the market would not pay, they have lately been concentrating on setting the foundations for doing so by tightening quality standards, bringing honey under their well-known multi-commodity promotional umbrella and tightening up the marketing of it —notably by appointing this year two effective agents in place of the dozen or more who previously formed a rather spongy springboard for its

British distribution. The minimum Australian honey price is at present 112s a cwt. though on the market it is averaging somewhat more.

In Australia itself, the Honey Board, formed four years ago to pull together an industry that was completely disunited, has now adopted an arrangement for buying up and marketing all the honey from the country's 1,000 or so producers and paying them all at the basic minimum price in immediate cash. Almost to a man the beekeepers are availing themselves of it.

This year honey production is down in Australia for seasonal reasons, but the industry's organisational reforms are bound to ensure steady long-term increases from this source.

For some years Australia has been looking over its shoulder at Canada, whose growing deliveries of pre-packed honey have lately been a feature of the British market's development. Despite the big price differential—66,000 cwt of Canadian pre-packed honey last year brought $713,000 while Australia's 105,000 cwt of bulk netted $532,000—Canadian honey has been gaining much ground largely because,, being mostly clover in type, it is similar in flavour to the English honey on which the market naturally bases its taste. Last year's Canadian increase of 4,000 cwt was about the same at Australia's.

Success with Strong Honey

Recent marketing successes with honey once thought too strong to be sold unblended, plus the fact that new colour grading regulations give complete control over quality, have encouraged the Australians to think the British palate is not all that parochial.

At any rate, having convinced one large packer that its product is worth handling, they now have their eyes on a large pharmaceutical network thought capable of unloading 1,000 tons a year, or a fifth of all Australia's British honey exports. Something all suppliers to this market would like to get rid of is the so-called honey "season"—an illogical undulation produced by retailers assuming there are times when honey will sell and others when it will not. But that, too, may soon be changed. The one thing Commonwealth producers like Australia, New Zealand and Canada do not want changed is the present 5s a cwt preference that now shields them from the full impact of Argentinian and Mexican honey and which will disappear if Britain joins the Common Market.

1967 - A VINTAGE YEAR
IN THE UNITED KINGDOM

CONGRATULATIONS to our beekeeping friends in the British Isles who at long last have experienced a bumper crop to the extent that several small backyard apiarists are wondering where to put their unaccustomed flow of honey. The bee press are cautioning their readers not to be intoxicated with their sudden success and to give away too much or sell at low prices but rather to emulate the example of the wise virgins and save their gleanings for a poorer season. Reminders are given too, to render all the wax available bought by trade buyers at 53 cents lb spot cash, 55 cents set against purchases or 70 cent lb when converted into foundation. Trade buyers are offering 30 cents per lb for honey tins returned, and 50 cents a lb is not unusual at the apiary door. Makes our back door sales look pretty poor, but supply and demand are the ruling factors at all times.

THE XXIst
APICULTURAL CONGRESS

as seen by G. M. WALTON of the N.Z. Dept. of Agriculture studying at the University of Guelph.

The XXIst Apicultural Congress was held at the University of Maryland, College Park, Maryland from August 11 to 18, 1967. The staff of four Professors and four Graduate students from the Apiculture Department, University of Guelph, attended. This Department, headed by Professor G. F. Townsend, who was both the Vice-President of the Congress Organisational Committee and Programme Chairman of the General Session, gave considerable assistance in the preparation and organisation of the Congress.

The Congress Programme was divided into two sections, the Scientific Session on the 11th and 12th of August, and the General Session for the remaining time.

The Scientific Session, as the name implies, was orientated to the research worker, both in field and laboratory research. Although many of the papers in this section were of no practical benefit to the beekeeper, a number were of fundamental importance to the biochemist, geneticist, pathologist, behaviourist and the pollination research worker.

One paper presented that I found of theoretic interest was Rembold's "Factors that determine and differentiate the worker caste from the queen caste." Dr. Shuel, in our own laboratory at Guelph, is also working on this problem. Both workers are at about the same stage working on independent lines. Another paper of interest in this section, and which was further mentioned in an informal discussion group on the Saturday night, was the paper of Giuilia Giordani (Paper 44), dealing with the rearing of Acarapis woodi, or accarine mite, on honeybee brood. She had quite 'good' success in artificially rearing the mite. Giordani's work could indicate the possibility of finding Acarapis in the brood of a hive. This could lead to practical considerations in that importation of honeybees in immature stages, in itself, could result in introducing acarine disease. (Refer: "Importation of Honeybees in Immature Stages." N.Z. Beekeeper, August 1965). The probability of the acarine mite in the brood, I guess, would be very low compared with that in the adult tracheae.

Two papers which were presented and might be of interest to Mr Palmer-Jones are:

(1) Toxicity of pesticides to honeybees in the laboratory. E. L. Atkins, Jr. and L. D. Anderson, Department of Entomology, University of California, Riverside, California, 92507, U.S.A.

(2) Toxicity of pesticides to honeybees in the field. L. D. Anderson and E. L. Atkins, Jr., address as above.

I was particularly interested in recent developments in bee breeding. In some laboratories in the States considerable improvement in be strain has been made possible by selection and artificial insemination. But at Guelph, where a continuous and expanding breeding programme has been in operation fo ra number of years and involving at least six European strains of bees, the results, to me, are not conclusive. No statistical analysis of strain suitability has been done. I cannot place too much confidence in the strains I have seen—at least in the pure inbred lines. The chief faultis propolising. The honey season in Ontario was so poor this year that I could not get an indication of honey production as

related to strain. So far, comparing my limited experience on bees here and at home, I thing we have in New Zealand bees that are as good as, and in many cases better than, those at Guelph. But before I leave I would like to study some of the commercial strains being bred in the U.S.A. particularly the Midnite and Starline strains.

To improve honey production per hive in New Zealand, the two-queen system of management, as practised here, I think would be financially more lucrative to the beekeeper than looking for a "superbee", as it were. New Zealand's partial and total restriction of queen bees in the past and present is proving quite sound. Some of the problems other countries are experiencing is evidence of this. South America is faced with the rapidly diversifying African bee—Apis mellifera var. adonsonii—renowned for its migratory swarming habit and its vicious stinging. Australia is reported to be having some problems with poorer strains. A recent suggestion that has been made in Canada is that beekeepers in Alberta and British Columbia might obtain queens in better early season condition from bee breeders in New Zealand in preference to some Californian breeders.

Regarding honey and its export, the German H. Duisberg gave a controversial address titled "The German approach to the quality of honey." West Germany imports honey only if the diastatic content reaches a certain level. They place considerable importance on the enzymatic levels in honey.

One very entertaining address on beekeeping as he saw it was by Mr John Guillfoyle of Darra, Queensland, an occasional visitor to New Zealand.

Australasians were well represented at the Congress, despite the collapse of an organised party from New Zealand and Australia. Six New Zealanders attended, and also 14 Australians. Well over two thousand people attended the attended, and also 14 Australians. Well over twothousand people attended the Congress.

To me this Congress was a great success despite some lapses. It was a success not only from the quality of the over one hundred and seventy papers presented, but more so because of the opportunity to speak to people of different lands with different ideas. I left with many new friendships made.

Nearly four hundred overseas visitors travelled to Guelph after this Congress to examine the facilities here.

Two men, both retired from the U.S.D.A., (Department of Agriculture) and both having visited New Zealand, I was lucky enough to have the opportunity to talk to, were Dr. Dyce and Mr. Todd.

G. M. Walton
Apicultural Advisory Officer.

. . . and from Jasper Bray

In company with Ron Newton of Ashburton and Dudley Ward of Dannevirke I recently visited North America where we attended the 21st International Apicultural Congress at the University of Maryland in Baltimore —near Washington, D.C.

We averaged about 1000 miles a day during the 28 days of our trip and during that time visited beekeepers, Honey Co-ops and bee supply manufacturers in both Canada and United States. Beekeepers seem to be the same throughout the world, always willing to stop and show you things, keen to hear of your methods and best of all they have a knack of making you feel really welcome. If only we hadn't to spend so much time travelling!

At Vancouver we visited the home of the Hodgson Bee Supplies (where our extractors were built nearly forty years ago) and thence to Alberta where

we were taken on a 900-mile trip northwest to Peace River and Beaver Lodge. Not a hill or mountain did we see, just flat prairie country, vast fields of grain, red clover, rape, alfalfa, fescue etc. and of course, virgin forest or bush of mostly a white poplar. Then there were the oilfields with the pumps and wells and flares burning off the excess gas in the pipelines. Here beekeepers own 1000 hives and upwards and start with a package each spring, gassing off again in the autumn. These packages come 1700 miles from California in huge trucks, and are carted mostly by the beekeepers themselves. One beekeeper we met did seven trips for packages this last spring in seven weeks a total of 25,000 miles. He keeps a truck solely for this purpose and it would cost about 16,000 dollars N.Z.

We couldn't help noticing that everywhere we went beekeepers seemed to be over capitalised. Where a Kiwi has one extractor they would have two and the same with trucks, pumps, uncapping machines etc. We saw several of the latter tossed out in the back shed that would have done us for years. Crops vary from area to area but Canada's average of 97 lbs is well above our 60 lbs per hive. Last year Saskatchewan produced 148 lbs and Manitoba 165 lbs, with individual producers gaining up to 500 lbs with two queen hives.

From Saskatoon, Saskatchewan we had a rental car and spent three days in the Nipawin area. It was here that we went out with Don Peer and took off a load of honey—the hard way. Loaders, either motorised barrows or boom have not taken on yet. Phenol, benzaldehyde and "Bee-Go" are used extensively. Humping the honey is the order of the day. Blowers are just appearing.

Canadian honey is very white and mild flavoured but in the blending the predominant flavour of sweet clover imparts that 'Canadian' flavour which we think spoils it. The liquid is generally filtered giving it a beautiful glow but leaving it rather flat in flavour. The Dyce method is used almost exclusively for creaming honey which though quick and convenient does not produce the same product as our New Zealand methods. We wondered whether this is why creamed honey has never taken on as it has here. Canada's per capita consumption of 2 lbs is well down on our 4½ lbs but up on the U.S.A. figure of 1¼. (There is even less creamed honey packed in the States).

The Manitoba Co-op in Winnipeg where we visited before crossing into the States, is packing about 20,000 lbs of honey per day and was one of the most efficient plants we saw. From the melting from the 44 gallon drums to the packing of the jars into cartons is one smooth continuous operation.

From the prairies of Canada we moved into the more rolling and wooded country of the States where the main crops were corn and soya bean. It made us wonder where the honey came from, but honey they get all right from alfalfa, red and white clover, sweet clover and basswood (lime). At Cannon Falls we saw 2 queen hives of Robert Banker's seven stories high, full and swarming! But the season was over and they were not interested in the swarms!

At Madison University Emmett Harp showed us his queen breeding programme and in the experimental apiary we saw some of the results. Here he is developing a method of over-wintering about thirty queens in a hive using excludered cages. The prime purpose is to carry over breeding stock but it could have a significant commercial value. Later, we visited Dadant's at Hamilton, Illinois and met Dr Cale who heads a team of seven engaged in bee breeding on a commercial scale. Dadant's supply the breeders to commercial queen breeders who use them on a royalty basis. Their "Starline" and "Midnight" queens are now world famous. After seeing what is involved in such a project I realised just how futile our efforts would be in establishing a bee breeding project here, it would be far too costly for the number of queens required in this country.

We were pleased to arrive at Congress as we knew we would sleep in the same bed for at least four nights. We met up with the other New Zealanders Norman Tuck, Derek White and Graham Walton and with the Aussies we could again talk in English!

After Congress we had two days at Expo in Montreal and on our way across to San Francisco had an afternoon at the Sioux Honey plant in Sioux City. With the combined output of the plants this co-op can pack 500 tons per week. They have two suppliers of over 500 tons each but they haven't the biggest honey tank. That belongs to Ralph Stone at Billings, Montana and it holds nearly 1500 tons.

After a month of travelling, the heat, haze and noise made us long for a cool clear day and some peace and quiet, so when we arrived back at Auckland we could not make out where all the people had gone and why the cars had shrunk in size! But now we are back to normal again, raising queens, feeding bees and wondering when it is going to rain again.

NORTHERN COMB HONEY PRODUCERS' ASSOCIATION

COMB HONEY

The following is an indication only of Merchants' and Retailers' average prices of Comb Honey for next season:—

	Weight	*Packer to Wholesaler*	*Wholesaler to Retailer*	*Retailer to Consumer*
Section Honey	12-14oz Net	$2.42 per doz	$2.78 per doz	29c each
Section Honey	14 oz & over net	$2.67 per doz	$3.07 per doz	32c each
Cut Comb	7 oz net	$1.33 per doz	$1.53 per doz	16c each
	Weight	*Packer to*	*Wholesaler*	*Retailer to*

EXPORT COMB HONEY

Minimum prices were fixed for Export Comb Honey at $3.85 per dozen C.I.F. with 15 cents extra when shipped in cases. New enquiries 20 cents per dozen extra.

FORMATION OF N.Z. HONEY PACKERS ASSN.

At a meeting held in Timaru on Friday, 29th September, 1967, it was unanimously agreed to form a New Zealand Honey Packers Association, the object of which would be to further the interests of Honey Packers and their suppliers.

Association Officers are:—President, Mr. J. Bray, Secretary, Mr. R. Davidson. Additional Executive Members:—Mr. L. Holt, and Mr. R. Holland.

Membership of the Association is restricted to those Honey Packers, whose packs are sold by the Retail Grocery Trade. For Prospective Members, the Secretary's address is:—

N.Z. Honey Packers Assn.,
No. 4 R.D.,
TIMARU.

A FAIR DAY'S PROFIT

What did you tell that man just now?
I told him to hurry.
What right have you to tell him to hurry?
I pay him to hurry.
How much do you pay him?
Four pounds a day.
Where do you get the money?
I sell products.
Who makes the products?
He does.
How many products does he make in a day?
Ten pounds' worth.
Then, instead of you paying him, he pays you six pounds a day to stand around and tell him to hurry.
Well, I own the machines.
How did you get the machines?
I sold products and bought them.
Who made the products?
Shut up, he might hear you!
—Anonymous (from a Ceylon paper).

Book Review

The Department of Agriculture, Western Australia, has published a new booklet titled "THE HIVE" which is well illustrated and detailed and will form an excellent guide to beginners in the choice of their initial equipment.

Dr Francis G. Smith is well qualified to be the author as a scientist who has contributed valuable data to apiculture and as Senior Apiculturist to the Department.

Much of the material has been published in the journal "Apiculture," but collation in its present booklet form will provide a most useful guide and reference.

The respective merits of different types of hive are compared, and the author recommends the use of the new Plasticore foundation in preference to the normal comb foundation.

Printed on good quality art paper, the half tone illustrations and line drawings are very well produced, and the information is well presented and easily understood.

Copies may be ordered through a bookseller or obtained direct from the Department of Agriculture, Government of Western Australia, South Perth, for 50 cents (Australian) per copy.

A EULOGY ON HONEY

1. Honey LOOKS appetising and TASTES delicious.
2. Its various flavours are derived from the flowers themselves and lend variety to the palate.
3. Honey is a natural food containing no additives.
4. It is energising, and especially popular with folk who feel the cold.
5. Unlike most other foods, honey cannot become a source of infection to humans by bacteria which are destroyed in honey by its acids and osmotic pressure and by a substance it contains called Inhibine.
6. Unlike other sweetening agents, honey is mildly laxative. It is often used as required in baby's diet to control bowel motions.
7. Experiments indicate that honey assists in the retention of calcium by young young infants.
8. And it would be cheap at twice the price.

Topics for beginners . . .

SPRING MANAGEMENT

By "TINGLE"

You are on the verge of a critical few weeks of the spring which (if you do the right thing) will make the difference between a poor hive—a little honey—or a satisfying crop. The spring moves quietly and gradually and in the dark hours of the night—to warmer and longer days—to the point that you must act *now* to have bees in strength for the advance towards summer and a harvest.

Near the east coast, are some early colonists' gravestones inscribed 'SPES ULTIMA... 'The ultimate hope' of a keen beekeeper is to coax and manipulate the bees into being sufficiently numerous or strong, to gather a *goodly crop*.

A few cardinal requirements or 'musts' are mentioned below:
Making up hives and bee equipment.
Chart for handling bee frames.
Seasonal ideas for mid-spring.
To finely granulate honey.
Early spring requirements.
Method of Destroying diseased hives.
Onset of hot weather and tendency to swarm .
Extermination of wasps.

The text-book "Beekeeping in N.Z." is also available—(5/-).

1. See that a hive has enough honey, 4 frames of it, or equivalent syrup at least,—(not thinner than half and half sugar and water).

2. Watch for queen-cells and destroy them, unless you leave one to replace an old queen. (Cells often hidden at margins).

3. Cull out faulty, or drone-combs from the brood-nest area, and put them later, above an 'excluder' or where the queen can't lay in them. Scrap some old combs yearly, and renew.

4. If a hive is *weak* in bee population, it will need a boost. Firstly see why it is weak. Is there no queen (no eggs to be seen); or perhaps starvation; a drone-layer; a very old queen (only scattered brood); mice eating pollen away; or disease?
If adding combs of capped-brood from a strong hive, see that *no* disease is transferred! be critical of a punctured or darker capped cell. One way to strengthen a hive is to shift it to the site of a strong one, but switch places at night or morning—not afternoon.

5. If the hive is *strong,* then switch over the two bottom boxes (if the weather is warm) so that the larger half of the 'brood-nest' (or most of the bees) will be in the bottom box, and pack under the back of the bottom-board to give it a *slope downward* towards the front; this keeps the hive healthier. If both boxes are well filled with bees and honey—add the third super.

6. Remove any cause of shade, or damp foliage, so that if possible, the hives get sun from early morning to midday.

7. Don't retain an *old* queen in the hive (see the brood-pattern); for various reasons she won't give you a crop of honey—to give friends; to sell; to put in your cup of tea; or to put two tablespoonsful in your pot of stewed apple, and to make you feel successful.

These are the primary things to do for three or four weeks, and the others you can read about and fit them in where you can

Starvation and/or *swarming* are your immediate worries.

THE SMOKER WILL ASSIST OR DESTROY

By "Konini"

This article was first published in N.Z. HONEYBEE, July 1938 under the auspices of Percival A. Hillary, and will certainly be of equal interest now as it was thirty years ago.

The most useful and important piece of equipment in the apiary is the smoker. Beekeeping on present day commercial lines would be impossible without it.

Every beekeeper should learn how to use his smoker efficiently and scientifically—for it is made according to strict scientific principles and quickly loses its efficiency of not kept in perfect order.

The correct use of the smoker enables the manipulations of the hives to be performed speedily and comfortably, by arousing in the bees an old instinct of fear which leads them to visit their stores of honey and fill their honey sacs.

Mr H. A. Seabright, in the American Bee Journal ,states: "that a smoker is a highly-perfected piece of apparatus. It will produce smoke from practically everything which is combustible. The main difference between a small stove and a smoker is in the air supplied to the fuel. A stove usually gets an excess of air, while in a smoker the air supply is deficient. Smoker combustion is therefore incomplete as compared to that of heating devices such as stoves. If a smoker is given too much air ,too much heat is created there is less smoke, and the fuel is consumed too rapidly. But if the air supply is reduced, the combustion of the fuel is likewise reduced and more smoke is given off.'

All fuels do not act alike in the smoker—some burn too quickly, some do not give sufficient smoke, some give off poisonous fumes. The use of the right kind of fuel is important; that in common use in the Dominion is ordinary sacking from disused sacks. This burns with a smouldering, slow effect and gives a good volume of smoke. It is necessary to use only clean sacking—that from bags in which manures of chemical substances were contained give off fumes that are deleterious to the bees, and are agonising and painful to them. Such smoke disorganises them for days in their work in the hive. This is a serious matter during the honey flow. Some beekeepers use dead needles from pinus insignus trees, and find the smoke more acceptable to the bees. Material that gives irritating smoke should be avoided, such as propolised mats, tarred bags, etc. This creates a hostility in the bees that overcomes the first instinct (aroused by the smoke), to quietly go to a cell and drink honey. Stinging results.

Fuels consist of two main combustible constituents—carbon, the heat producer, and volatile matter which is driven off in the form of vapour when the fuel is heated. With a full supply of air, the volatile matter would be mostly burned, but, with a specially arranged deficiency of air supply, the vapour moves off unburned and constitutes the large part of the smoke. The carbon of the fuel burns with the formation of carbon dioxide, which is a colourless and odourless gas. The heat of the burning carbon drives off the volatile part of the fuel in the form of smoke.

The ideal fuel for a smoker is one that burns very slowly, but will not readily go out. Dry, clean sacking fulfills these requirements, but when damp, it causes excessive waste of time by dying out or requiring vigorous work ing of the smoker bellows to cause it to burn. Using damp sacking or other unsuitable material is definite inefficiency. It means that a perfect piece of equipment is being used in a

bungling, careless manner. Also, uniformity in the fuel ensures evenness of smoke production.

Many beekeepers oversmoke their bees and disorganise them for days. They use smoke, instead of care and expertness in handling the bees. The avoidance of quick movements, jarring, rubbing, or squeezing the bees would eliminate the need for huge, choking volumes of smoke. Gentle puffs, first at the entrance, then under the corner of the mat and over the tops of the frames as the mat is gently pulled off will work wonders in subduing the bees. Then, continuous gentle puffs will keep the bees in full control.

Some beekeepers smother the bees in smoke, then put down the smoker and lav it there. They "tear" the hive to bits with a roughness that the sensitive bees find intolerable. The bees become gradually incensed and hostile, with consquent stings for the beekeeper. He "retaliates" with fierce volumes of dense smoke (if his smoker is burning well), or else covers the hive till he gets his smoker fiercely alight and can give the bees a "real doing."

When bees are treated in this wary, the whole organisation of the hive is disrupted, the bees are physically affected by their abuse, and the working spirit is destroyed for many days. Wax building ceases completely for at least three days, and the loss of honey is considerable if the incident occurs during the flow. It is because of the risk of all this occurring that inexpert beekeepers are advised to manipulate their colonies as seldom as possible.

By the correct and intelligent use of the smoker, such expert work as uniting bees from different colonies, introducing queens, etc., can be successfully accomplished. Many beekeepers obtain a large measure of satisfaction from keeping a few colonies of bees, and, to them, the smoker enhances the pleasure and satisfaction of husbanding one of nature's most useful and interesting insects.

THE EDITOR wishes readers everywhere a Merry Christmas and Bumper New Year.

WORK WANTED

21-YEAR-OLD STUDENT

Requires Employment for period early December to mid-February (approx.). Applicant has had some experience.

A. J. BRADFORD, R.D. 8, Masterton.

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EIGHT-FRAME PENDER HONEY EXTRACTOR

In Good Condition

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One 4-Frame Pender	$20.00
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REVERSIBLE
HIVE
LOADER

With Ramp and Carrier to fit behind Truck. This machine is fitted with an Hydraulic Fork Lift, but would sell with or without Fork Lift to suit Buyer. The machine is in Excellent Condition, and would suit a one-man outfit.

Price: $350.00 with Fork Lift
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DAVIDSONS UNCAPPERS
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This is to announce that the firm of Davidson's Apiaries Ltd., No. 4 R.D., Timaru, have taken over the sale and distribution of these modern, 12-frame per minute uncappers.

These machines have proved themselves both in New Zealand and Australia. A limited number can be supplied for this season's operation.

The price for the Improved Model is $700.00 or £350.

HONEY EXTRACTOR

Eight-Frame Pender. Good Order. $100.00.

PULLIN'S APIARIES LIMITED,
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Auckland

FOLDING WIRE GAUZE BEE VEILS

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Mail your Order Now to:

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HIVE MATS **HIVE MATS**

FABRIC HIVE MATS (16in x 20in), manufactured from phormium tenax (native flax fibre), are available ex MANU FACTURER in bales of 150 mats at $9.50 per bale, f.o.r. Foxton.

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

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P.O. Box 44, Foxton

The National Beekeepers' Association

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

'Better Beekeeping—Better Marketing'

SUBSCRIPTIONS

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

JOIN YOUR NEAREST BRANCH AND DERIVE FULL BENEFITS

APIARY INSURANCE

(Public Risk Indemnity)
Free Cover for Association Members

All financial members of the Association are automatically indemnified against Public Risk claims up to $10,000 in any occurrence of injury or death to persons or livestock directly attributable to the action of the members' bees and arising from his or her negligence as the beekeeper. The cover is underwritten by the New Zealand Insurance Company Ltd and the premium met by the Association from consolidated funds.

THE N.Z. BEEKEEPER

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

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

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

ADVERTISEMENT RATES

Quarter Page	$4.50	Per Inch	$1.25
Half Page	$8.25	Min. Charge for each insertion.	65c.
Full Page	$15.00		

PICTURED ON THE FRONT COVER this month is Barry's Honey Centre on busy College Hill, Auckland where the connoisseurs can take their choice of a wide variety of honeys ranging from the delicate to the strongest flavour in liquid, creamed or candied form.

Barry's special delivery van is a familiar sight with residents of the Queen City and the giant worker bee enlarged to many thousands times life-size 'flying' on the roof is a certain eye catcher to even the most unobservant pedestrian, passenger or driver.

Claiming to be the only specialised shop of its kind in New Zealand and possibly Australasia, beekeeping by-products such as royal jelly, pollen and wax are on display and sale, and the shop has become a venue for its range of flavours. Free 'tasters' are offered customers before commitment to buy, so that thereis no excuse for unaccustomed flavours not meeting with final approval.

Owner Barry Hailes started selling honey at the early age of 13 years from his own apiary of 30 hives with a stall along the main route to Whenuapai Airport, now closed to civilian traffic. Additional to his Honey Centre, he has roadside stalls on principal exits from Auckland, selling named varieties and blends under his own label from supplies bought in by tender, and apiarist's packs in bottles ,tins and jars on a commission basis .

Barry thinks there is much to be said for marketing the smaller packs in glass to enable the buyer to savour the colour in depth as well as the aroma by unscrewing the lid.

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