THE NEW ZEALAND BEEKEEPER

FEBRUARY, 1967

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NEW ZEALAND HONEY QUEEN

BRANCH SECRETARIES throughout New Zealand are urged to form ginger groups to promote and foster the scheme to send a local girl to Christchurch in July to contest the title of NATIONAL HONEY QUEEN at the Association's Conference.

This is a great idea formulated by the Canterbury host branch and is deserving of the widest possible support.

Press, television and radio would look upon a promotion of this sort as ideal material for local reader, viewer, and listener interest, and the value of publicity to be gained by the industry is incalculable.

Promotion of Honey Queen contests in the United States is an annual event which the industry promotes to the fullest advantage, and our Honey Marketing Authority have been quick to realise the implications.

Financial assistance will be given to any branch to enable them to organise a local competition inviting young members of the fairer sex with the necessary vital statistics to participate. Worth while cash prizes will be given at the finals, and the glamour and excitement of the competition alone will be an alluring inducement to the lovely ladies selected to take part, at both local and national level.

If your local secretary has not yet taken active steps to acquaint the branch with Canterbury's proposals, start asking questions and demand some action from your committee. There can be no room for lethargy and lack of local support, and never let it be said that there are no suitable local aspirants in your district. If you do, the women will rightly be after your blood. What an uninspiring epitaph! "Here lies the body of a beekeeper who had no faith in the beauty and femine charms of local lovelies". Never let it be said.

BEE BREEDING

By I. W. Forster, Technical Officer, Wallaceville Animal Research Centre, Department of Agriculture, Wellington. In an address given to Beekeepers' Training Schools at Timaru, 1964, and Hamilton, 1965.

Man's way of living requires that he exploit other animals, and the more efficiently he shapes these animals to his needs the higher will be his standard of living. Today most primary industries derive considerable benefit from selective breeding of animals and plants.

The development of the hen provides an interesting example of what can be achieved. The jungle fowl laid a mere 20 eggs a year, yet by 1900 a bird had been bred that laid 100 eggs a year. By selective breeding annual egg production per hen has been increased steadily to about 240.

Among honey bees wide variations in characteristics are apparent between different races and strains. There would appear to be an almost limitless supply of genetic material from which to sort out those traits necessary for breeding high quality honey producers. How to sort them out is, of course, the problem.

ORIGIN OF THE HONEY BEE

It is interesting to contemplate what we know of the origin of the worthwhile honey-producing races of bee. Apparently the great Ice Age left the ancestors of the honey bee concentrated in the equatorial regions of the old world. Africa is probably the home of the progenitors of the honey bee. As the Ice Age passed those bees spread over the world, and their descendents developed differing habits and characteristics according to the conditions they encountered. Considering the great range of conditions that would be met it is understandable how the characteristics of the various groups would eventually vary to a very marked extent. Only a few races of bees developed so as to be of real use for honey production and so worth husbanding by mankind. Man soon showed a discernment for bees that would store a worthwhile quantity of honey, and discarded those of no economic value. History records trafficking in bee colonies long before the birth of Christ, apparently with considerable discrimination as to honey-gathering qualities. Selection of honey bees, then, actually started a very long time ago.

Worthwhile honey-producing races of bees apparently became established on the three great European peninsulas of the Mediterranean. These are the Iberian Peninsula, comprising Spain and Portugal; the Appenine Peninsula which is Italy; and the Balkan Peninsula consisting mainly of Yugoslavia, Rumania, and Bulgaria. The black bees of the Spanish area spread round the end of the Pyrenees to stock France, Germany, and England where they developed black and brown variations. Those were the bees originally brought to New Zealand.

The Balkans were the habitat of a greyish bee that spread north and east, developing variations to give mainly Caucasians and Carniolans. The situation in Italy was slightly different as the Alps provided an effective barrier to the north, and the country was sea-girt on all other sides. Italian bees were therefore virtually isolated and variations were originally only slight (Adam 1961). However, other races of bees were brought into Italy and crosses were produced. The Cyprian bee contributes much to the genetical make-up of the Italian bee as we know it today. Considerable variation now occurs even in Italian bees.

INTRODUCTION OF BEES INTO NEW ZEALAND

Most of the Italian bees brought to New Zealand came via other countries, and many were crossed with bees in these countries on the way. The black bee was well established in New Zealand when the Italian bees were introduced and crossed with it. Since then many different breeds of bee have been brought to New Zealand. Caucasian bees were bred quite extensively in New Zealand until recently, and Carniolans were kept in several districts. These races did not come into general favour indicating that they showed no superiority over our Italian strains.

These breeds have all left their mark on our stock and will continue to do so for a long time—indeed the great problem in bee breeding is this mixture of strains.

MATING HABITS OF THE HONEY BEE

The promiscuous mating habits of the bee have tended to create what can only be described as genetical confusion. From this we must sort out and maintain the strains we require.

Queen bees will mate with drones from any hive as far afield as 10 miles (Peer 1956). The number of times a queen will mate has been the subject of much investigation and all tests have shown that a queen mates with several drones before she commences to lay. Taber (1954) showed that queens mated with an average of six and a half drones. Peer (1956) put the average number of drones at seven. Tryasko (1956) caught queens returning from mating flights, dissected them, and measured the amount of sperm in the oviducts. He estimated it would take at least five drones to supply the average amount of sperm found in each mated queen. Woyke (1960) has shown that each queen mates with up to 10 different drones. Contemplation of such a tangled "family tree" must cause some concern to the bee breeder.

It is little wonder that variations occur in our strains of bee, and that the influence of different breeds, imported over the years, continues to affect our stock. From time to time we see the grey of the Caucasian, the silver of the Carniolan and its swarming fever, the heavy propolising of the Caucasian, and the extreme savagery that at times springs from a mixture of several races.

VARIATION BETWEEN STRAINS

Extreme cases illustrate the variations there can be between strains of what is accepted as the same race. Thus some Italian strains breed heavily to produce hives "boiling over" with bees but with very little surplus honey. Other strains, ostensibly Italian, may show a definite Carniolan trend in that hives will build up to only a moderate strength before swarming. The ferocity of some mixed strains can be "painfully" evident. It is claimed that these savage cross-breeds will gather more honey than quiet bees.

Such observations have long brought home the need to clarify the situation, and answer questions like the following: Is it necessary to have bees that sting violently in order to obtain good honey crops? Do some strains require less winter stores? Are some strains heavier pollen-gatherers?

Such questions cannot be easily answered. The difficulties in the breeding of bees as compared with the breeding of other stock has been aptly described thus: "The cow gives milk that can be measured. The hen lays eggs that can be counted. The ewe and the ram themselves grow wool. The queen bee, however, gathers no honey. She has to be measured by the worth of the honey gathered by her daughters." (Allen 1949).

QUEEN TESTING

In 1959 a small pilot test was carried out at Oamaru to find if it was feasible to compare the performance of Queen bees. The trial embraced five pairs of sister queens, each pair from a different breeder. Every possible aspect of hive performance and bee behaviour was recorded, and while two queens is obviously too small a group to give dependable comparisons, the results obtained did have some

significance. The performances of sister queens were no more related than those of any two unrelated queens. The average performances of each pair of sisters showed no marked differences except that one pair stored more pollen than the others. This test indicates that a more or less common strain has been evolved and is in general use throughout New Zealand. This strain is accepted as suitable for our conditions though we have no means of judging its comparative worth (Forster 1961).

THE GENETICIST AND BEE BREEDING

Honey bees were used for some of the earliest studies of genetics. Then for nearly three-quarters of a century no further work was done with bees. We may well wonder why. The main reason appears to be that the mixed-up mating system of the honey bee made it an unsuitable subject for such studies (Rothenbuhler et. al. 1953).

Rothenbuhler (1960) has outlined many of the problems met with and explains how "the geneticist cannot take an individual bee for his studies as he can take an individual cow, a sheep, or a fowl. He cannot even take a natural colony of bees as an individual or as a family. A colony of bees is a sort of family but it is composed of a mother, several fathers of unknown origin and now deceased, their daughters and her sons. Several fathers are involved because the queen mates naturally with up to nine different drones. Most of the workers in the hive are half-sisters. In other words the bee colony is a super-family in which a whole lot of sub-families are mixed together. The queen is the mother of the super-family but each drone with which she mated is the father of only one sub-family. The geneticist is unable to devise a technique by which he can analyse such an unspecified assemblage of half-sisters."

The behaviour of the colony, which is what really matters to the beekeeper, is decided by the combination of the habits of all these groups, together with their effect on each other.

For scientific breeding of honey bees it is necessary to control mating. The achievement of this by instrumental insemination, (e.g. Palmer-Jones and Miller 1950) has allowed work to be carried out on the scientific breeding of honey bees. Instrumental insemination can produce colonies of bees in which the workers are full sisters and therefore genetically alike. The bee breeder can make planned crosses and reproduce strains with some certainty. Such work has shown that most characteristics and behaviour patterns of honey bees are genetical traits.

BREEDING FOR DISEASE RESISTANCE

One example of scientific breeding is the work done on resistance to American brood disease (*Bacillus larvae*). Several characteristics can each operate to give a degree of protection from *Bacillus larvae*. Some resistant strains of bee show an ability to detect diseased larvae at an early stage, and eject such larvae before they can cause further infection (Thomson and Rothenbuhler 1957).

Resistant and non-resistant strains were fed syrup containing the same concentration of disease spores, yet syrup stored by the resistant strain had a much lower viable concentartion of spores. This showed the strain could reduce the viability of disease spores in honey while it was being processed in the hive (Sturtevant and Revell 1954).

Again the brood food produced by nurse bees of resistant strains contained less disease spores than that of non-resistant strains, though both were fed syrup with identical spore concentrations. This showed ability either to strain out disease spores or to inhibit growth by the addition of a disinfecting substance (Thomson 1955).

Larvae of resistant strains, placed in hives of non-resistant strains fed syrup containing spores, had a higher survival rate than the hives' own brood, indicating that the larvae of some strains have an inherent resistance to *Bacillus larvae* (Rothenbuhler and Thomson 1956).

These genetical traits may be passed on to subsequent generations. If they could all be combined in a single strain disease, one of the beekeeper's most serious problems might well be controlled.

CONTROLLED BREEDING

Much work has been done overseas on the breeding of hybrid bees of a specific cross to bring out qualities desirable for honey production. Results con-

clusive enough to be universally accepted in the field of practical beekeeping are not yet available. It is reasonable to expect that beekeeping may eventually gain advantages from the work of the geneticist comparable with those enjoyed by other occupations dependent upon controlled plant or animal breeding.

Controlled breeding projects are complicated and to be effective they need to be extensive. Artificially inseminated queens themselves are not suitable to head honey-producing hives. Natural mating must be resorted to for the final step. These matings must still be controlled or much of the advantage gained by painstaking scientific work may well be lost. Isolated mating yards would be the only method of obtaining such control and these would seem to be a very necessary adjunct to any advanced bee breeding programme.

The risk of introducing disease prevents us from importing bees and so taking advantage of breeding work carried out in other countries. Further developments in methods of transporting drone semen, and bees in immature stages, may eventually allow us to bring in new strains from overseas, but this would require extensive facilities in New Zealand (Palmer-Jones 1965).

CONCLUSION

The foregoing may appear to make honey bee breeding appear so difficult as to be a hopeless undertaking. This is not the case but the difficulties involved must be realised.

It seems we must continue to rely on the ability of our queen breeders and beekeepers to select stocks. Obviously the more the factors concerned are studied the better this can be done.

Beekeepers must be aware that the hive they are breeding from is composed of more half-sisters than full sisters. When they raise a batch of quens from this hive most of them will be half-sisters. Each queen will mate with a different combination of drones. The hive mothered by each queen will assuredly have a different set of sub-families. The only practical way to reduce these variations is to ensure that a preponderance of the drones of our choice are flying when the virgins go out to mate. Then the influence of drones from distant stocks will be greatly reduced.

Though we resign ourselves to the fact that breeding of honey bees by the methods commonly used cannot be critically selective we know that it can be reasonably effective.

REFERENCES

ADAM, Brother 1961: In search of the best strains of bee. Third journey: the Iberian Peninsula. *Bee World* 42 : 123-131.

ALLEN, A. L. Sandeman 1949: Some notes on breeding bees. *Bee World* 30: 88-89.

FORSTER, I. W. 1961: Queen Bee testing. Unpublished report.

PALMER-JONES, T.; Miller, G E. 1950: Improving strains of bees by artificial insemination. *N.Z. J. Agri.* 81: 101-108.

PALMER-JONES, T 1965: Importation of honey bees in immature stages. *N.Z. Beekeeper* 27: 3, 16-19.

PEER, D. F. 1956: Multiple mating of queen honey bees. *J. Econ. Ent.* 49: 741-743.

ROTHENBUHLER, Walter C 1960: A technique for studying genetics of colony behaviour in honey bees. *Amer. Bee. J.* 100: 176; 198.

ROTHENBUHLER, Walter C.; Gowen, John W.; Park, O. W. 1953: Allelic and linkage relationships of five mutant genes in honey bees (*Apis mellifera L.*) *J. of Heredity* 44: 251-253.

ROTHENBUHLER, Walter C.: Thompson, Victor C. 1956: Resistance to Ameriian foulbrood in honey bees. I. Differential survival of larvae of different genetic lines. *J. Econ. Ent.* 49: 470-475

STURTEVANT, A. P.; Revell, D. L. 1953: Reduction of *Bacillus larvae* spores in liquid food of honey bees by action of the honey stopper, and its relation to the development of American foulbrood. *J. Econ. Ent.* 46: 855-860.

TABER, S., III 1954: The frequency of multiple mating of queen honey bees. *J. Econ. Ent.* 47: 995-998.

THOMPSON, Victor C. 1955: A new type of resistance to American foulbrood originating in the nurse bees. M.S. thesis. Iowa State College, Ames.

THOMPSON, Virtor C.: Rothenbuhler, Walter C. 1957: Resistance to American foulbrood in honey bees. II. Differential protection of larvae by adults of different genetic lines. *J. Econ. Ent.* 50: 731-737.

TRYASKO, V. V. 1956: Repeated and multiple mating of queens. *Pchelovodstvo* 33 : 43-50.

WOYKE, J. 1960: Natural and artificial insemination of queen honey bees. *Pszczel. Zes. Nauk.* 4: 183-275. Reviewed in English 1960: *Bee World* 43: 21-25.

HONEY PROSPECTS for 1966-7 Season.

Reports from Apiary Instructors indicate that this season's total honey crop is likely to be about the average for the past six seasons. Following is a summary of the seasonal conditions and honey crop prospects in districts as at 15 January:

Northland:

Above average rainfall, humidity and cyclonic weather have curtailed the honey flow and prospects of any further surplus are not bright. Excessive swarming has reduced colony strength and section honey producers have been hard hit. Reports from the various districts are that crops are about half or less than average.

Dargaville presents a brighter picture where the largest producer reports a crop to date of 75 per cent normal with prospects of more honey from the profuse clover growth. Bush sources have yielded poorly and the quality of the honey so far secured is of good quality.

Auckland:

The latter days of December were unsettled and rain has fallen on 10 days this month with a total of 2.60 ins. Humidity has been extremely high. There have been few days of bright sunlight. Cyclonic conditions have been a regular feature.

Clover is blooming profusely, but with ground temperatures below 60° plus high humidity nectar secretion is impossible. The prospects for more honey are not good, but light soils could produce some if sufficient hot weather comes soon.

Swarming has been severe this season and section honey producers have fared badly. Strong hives on extracted honey have produced average crops. However, it now looks likely to be a below average season if the bees are to be left with sufficient stores.

Waikato:

Colonies generally came through the winter in good order and during August, September, October and part of November gathered good average crops from sources such as heath, willow, firefinger, barberry, etc., under ideal conditions.

From this point (late November) conditions changed to poor with strong winds and heavy rain with only short periods of weather suitable for nectar gathering by the bees. These winds and heavy rain also took their toll of field bees in exposed places, where hives are still only holding their own. However, hives placed in good sheltered positions have maintained bee strength and have done or are doing well, mainly on bush sources (rewa rewa, kamahi, tawari, etc.).

Crop prospects for the season with conditions remaining as at present are average or slightly below this figure, but should conditions improve, an above average crop may be expected as much clover and pasture weed sources are in full bloom.

The honey produced generally is expected to be darker than last season.

Tauranga:

The past winter was quite cold with below average rainfall. With spring came a moderately rapid build up of hives. September and first part of October brought fairly settled weather and during this period quite a heavy honey flow was experienced. Rewa rewa bloomed freely in the Bay of Plenty area.

Rotorua area was a little backward for this period of the year.

The remaining period from mid-October to January has been changeable with showery and cloudy conditions prevailing much of the time with only the odd periods of settled weather. Swarming was bad in most places.

Clover is still flowering profusely and if hot dry conditions are experienced in the immediate future, some good crops of good honey could yet be harvested.

At present the total honey crop is below average.

Hastings:

Spring conditions were difficult and the early summer months on the eastern side of the country have been very unsettled. The extra rain and cool conditions have produced an abundance of green pasture which could be very desirable after mid-summer. Shortly before Christmas, a week of hot days allowed bees to gather generously and store the best part of a crop. Changeable weather caused much swarming. The colour of honey in some areas is lighter than is usual. The season is late and estimates of tonnage are less certain at this stage, but an average crop is anticipated. The Wairarapa district has had too much wind so far, but pasture there is green so that beekeepers are still hopeful of a satisfactory crop.

The main features of this summer are that the season is late and the weather unusually changeable.

Palmerston North:

A light crop only is on the hives up to the preseht time in most areas of the district. Short but quite favourable periods of weather were experienced in the early spring months which enabled a reasonable build up of hive strength, but the late spring and the early summer months unsettled weather conditions with excessive rain persisted. If favourable weather conditions are experienced in the next few days the crop gathered could be above expectations.

Hawera:

Due to continued periods of rain throughout the late spring and summer months and the lack of high summer temperatures, only a light crop of honey is on the hives at the present time.

However if fine warm weather eventuates within the next few days a reasonable crop could still be possible in most areas of the district.

Nelson:

The crop for the whole district will be slightly above the seasonal average. This is due to the above average yields being experienced on the West Coast which has had good weather conditions and kamahi flow. So far only a few rata trees are blossoming and the yield from this source cannot as yet be estimated.

Marlborough has had a good flowering of nectar sources, but the weather has been overcast and tended to reduce the yield. But apart from this the crop will be on an average with other seasons.

The Nelson Province has had showery weather conditions and nectar sources have not flowered as well as usual. These factors have reduced the crop to one of below the usual average.

Christchurch:

Canterbury experienced a cold, dry, cloudy winter. The spring months were also generally cool and unsettled, with odd days of fine weather with high temperatures.

Early nectar sources were affected by the weather, and in general the season was a fortnight late. Pastures were in excellent condition.

Bees built up well, however, and colonies were in good condition for the start of the clover flow.

Although the summer to date has been cool and unsettled, colonies on the light and medium soils have stored well.

Good rains fell over the district during early January. Given fine warm weather conditions from now on, an above average crop will be secured.

Oamaru:

Cold overcast conditions during the first two weeks of January severely restricted bee activity and very little surplus honey was gathered. The hot spell which started on 14 January provided ideal flow conditions in South Canterbury and

coastal areas of North Otago, where white clover continues to flower. In these areas vipers, bugloss, catsear and thistles are also flowering. In inland North Otago it is dry and very little clover is in flower.

Most parts of Central Otago (apart from irrigated land) are very dry and clover has burnt off. Heavy rain, followed by warm weather, is urgently needed in these areas to prevent a complete crop failure.

Yields in South Canterbury and coastal areas of North Otago will be average. In inland North Otago and in Central Otago the crop is likely to be well below average.

The total honey crop is tentatively estimated at 570 tons.

Gore:

Spring conditions were the best for many years. Very low rainfall and more hours of sunshine allowed bees to work early nectar sources freely and hives built up strongly. Inclement weather prevailed from mid-November until the third week in December. During this period beekeepers had to feed hives heavily and many hives were retarded by pollen shortage. Conditions then improved and with high temperatures for several days a good honey flow commenced with clover, manuka, kamahi and other nectar sources yielding freely.

Several days of rain early in January relieved dry conditions and brought the clover away into good growth. Clover is flowering heavily in most districts.

If the present warm weather conditions continue the prospects are for an average to good crop of high quality honey.

AN IDEA for WAX MOULDS

Mr James Barber of Pio Pio has solved the problem of removing blocks of beeswax from four-gallon tins used as moulds.

Four-gallon tins when less than two-thirds filled with wax, turn out cubic shaped blocks of the most convenient size to fit into sacks for despatching the wax.

Normally, the blocks are difficult to remove from the tins. Mr Barber, however, selects tins fitted with six-inch diameter, lever-type lids and he cuts out the BOTTOMS leaving the lid ends intact.

After the wax has set in these moulds, the lever lids are removed to release the two-inch layer of rainwater which is in the bottom of every mould. This also permits entry of air beneath the blocks and they can be pushed out easily by inserting a hand through the lever lid opening.

Says Jim—: "Mr Rope and I were having a discussion on beeswax and I mentioned that my wax always darkened in blocking. We discussed water as a factor in darkening it and I have previously discussed this with Mr Ecroyd senior, who told me to continue to use water, so that any honey in blocks from the melter would be washed out. He also commented that the type of water had an effect on the colour of wax. I tried rain water, instead of the spring water I had always used with a very noticeable improvement.

The pleasure of turning out a good block of wax is often marred by the difficulty of removal from benzine or sixty pound honey tin moulds. For the last forty years I have suffered frustration in spite of setting in cases, with the corners pegged with wooden slats, but I recently found the complete answer by using the method Mr Rope describes.

With the tons of wax seen on the Authority floor it is obvious that a standard mould would be handy for all concerned, and it is also obvious that a departure from the handy sized sixty pound honey tin mould is occasioned by this removal difficulty. Most of the wax is in this size mould. It would be very much better if it were all so. I hope this little trick will assist towards this objective.

PACKERS MEET AT CHRISTCHURCH

Following the expressed will of Conference at Whangarei last July, when the Executive was called upon to inaugurate a meeting of packers within the industry to establish price stability in line with Honey Marketing Authority price guides a meeting was arranged and held on December 7 last, under the Chairmanship of George Winslade, the National Vice President.

Twenty-five members attended, and Jasper Bray of Leeston recorded the formal minutes of the meeting, which were as follows:

1. Moved by D. Penrose and seconded by T. Penrose, that future meetings of Packers be held when the honey crop is known. Carried.

2. Moved by J. Fraser, seconded by Lloyd Holt (pro forma): That this meeting of packers pledges itself to adopt prices not below those of the HMA. Lost.

3. Moved Lloyd Holt, seconded by Jasper Bray that this meeting nominate two packers to work with the Executive with a view to the possibility of forming a packer's organisation within the NBA. Carried.

4. Moved by Lloyd Holt, seconded by David Penrose that all packers adhere to the Price Guide issued by the HMA. Carried.

5. Moved T. Penrose, seconded by Stan Wilson that packers do not contribute to any "Specials" other than a proposed National scheme. Carried.

The timing of the meeting would have been better had it been held after the honey crop was known, but the Executive acted in good faith and upon Remit 1 from the last Conference to convene the first meeting. Procrastination and delay might not have proved advantageous.

Lloyd Holt and David Penrose were nominated to meet the Executive at their next meeting to explore the possibility of forming a packer's organisation within the framework of the National Association. The feeling was expressed that the packers realise the National Beekeepers' Association is the only organisation as the authorative voice of the industry, and that an arrangement along the lines suggested would be advantageous. (Study of the present constitution will be necessary to ascertain whether such an arrangement would be possible. The Association's Rules are at present under review for modernisation and consolidation).

The rejection of motion 2 and the fact that the packers require their own organisation to be built within the framework of the National body is indicative that they are confident of industry running its own affairs.

A useful purpose was served by the inaugral meeting despite unavoidable problems, and it remains to be seen what future developments will evolve when the Executive next meets.

BEEKEEPING

IN NIUE

By R. S. Walsh, Apiculturist, Auckland

At the request of the Island Territories Department I spent an interesting month last July looking at the beekeeping situation of Niue Island and was able to examine the possibilities existing in several other island groups.

Niue Island is an elevated coral outcrop in two terraces rising slightly over 200 ft above sea level. It is quite flat and covered with a thin layer of soil. The island is about 65,000 acres in extent and consists of 7,000 acres of virgin forest in the central, eastern and south-eastern parts of the plateau. The balance is in secondary forest vegetation, scrub, fern and plantation crops.

People

The inhabitants of Niue are Polynesian. They are intelligent, kindly and good workers. The population is approximately 5,000 with less than 50 Europeans, all of whom are connected with the administration, Public Works, Education or Church.

The hives were in charge of a Niuean who had been trained by an enthusiastic amateur European beekeeper and who made a very good job of both establishing the hives and training personnel. I could not have wished for a more cheerful and willing companion than Foster Gufi Gufi who taught me much about the Island, its customs and plant life. In return I did all I could to increase Foster's knowledge of beekeeping. I also received every assistance from the Administrator and his staff.

Climate

The climate of Niue is hot and comparatively humid with a moderate rainfall for the tropics. Records show that some rain falls on 174 days in the year. The average annual rainfall for 56 years is 80.66 ins. Relative humidity over 5 years is around 89 per cent at 7.20 a.m. and 75 per cent at 3.50 p.m. The island lies 1,400 miles north of New Zealand and 580 miles west of Rarotonga.

Plant Life

The flora of Niue appears to be about equally divided between indigenous and introduced plants. Including weeds there are probably 1,000 species of which perhaps 300 yield nectar, pollen or both. During the period I was on the Island the bees were working two species of the legume Crotalaria and three species of Eugenias. These plants were supplying a continuous light flow of nectar

which produced an extra light amber honey of excellent flavour. There were probably other sources available but I was able to pin point only the above-mentioned There are few plants or weeds the same as those found in New Zealand but there were many related specis.

Hives

The first hives were sent to Niue about 15 years ago by Mr Bill Marsden of Auckland, but they eventually died out. Another effort to establish bees on the island occurred four years ago when the Island Territories Department approached Mr Phil Muir of St Heliers Bay, Auckland. These hives were in excellent condition and were headed by Italian queens obtained from the queen breeder, Frank White.

Special attention to ventilation and other details was necessary as the bees had to travel on the deck of the "Tofua" in charge of the bosun. The trip takes approximately two weeks. The bees survived the journey in good condition and were successfully established. No great increase in hive numbers had been made up to the time of my visit. There were, in fact, only 15 hives on five sites.

I was soon to discover that queen rearing was not easy and that swarming was non-existent. The hives were also under medium strength and hardly in a condition to divide, so it was not surprising that development has been rather slow. Hives in the tropics are notorious for their small brood nests. This is caused by the continuous flow of nectar encouraging the bees to fill most of the brood combs before the queen can lay in them. The bees on Niue were confined to a single brood chamber beneath an excluder. I estimated that no colony possessed more than 60 square inches of brood. I endeavoured to rectify this condition by giving the hives a second brood chamber and continually replacing the combs that the bees filled with honey. Toward the end of my stay there was some evidence that this stratagem would eventually be successful.

Niue Islander Foster Gufi Gufi proudly poses with frame and queen cells. Beekeeping on the Island has few worries with excellent climate and no disease.

Making Increases

It was thought desirable to make an increase of about ten colonies. I did not find this an easy task as the bees showed no inclination to raise queens. All the orthodox methods were tried without success but finally a hive was found in the process of supercedure. From this point onwards no difficulty was experienced. I used the Greig method and raised some fine queens. July is a winter month in Niue so this may have accounted for the bees' reluctance to co-operate. It is be hoped that queen raising is not going to be difficult as no better place for raising pure stock could be imagined.

Apiary Sites

The hives are located in five sites within a mile or less of the coast. Each site could easily carry another 25 hives. Many more hives could be placed further inland and nearer bush areas. There is 50 miles of good road around the coast and a number of negotiable roads and tracks across the island. There is no surface water available, all supplies being held in the many large concrete tanks, and the bees obtain their requirements from seepage. With a large number of hives some more adequate means of supplying water would be necessary. The maximum hive carrying capacity of the island appears to be between 300 and 600 hives.

Production

When the present hive strength is considered, production figures are startling. In 1962 from three hives shipped from New Zealand in August 200lb of honey was extracted. Excluding local consumption in 1964, 1,449 lb was exported from 12 hives. In 1965, 1,750 lb and in 1966 2,760 lb from 15 hives. The honey is of good body and flavour and the colour range is from light amber to white. No great increase would be necessary to raise production to 10 tons per 100 hives. Whilst in Samoa I discussed production figures with a very capable amateur running 12 hives. He told me that some years ago when he had more time at his disposal his hives averaged 600 lb per colony. He still gets 300 lb per hive. Beekeeping in the islands is almost non-existent and I was shocked to think of the vast quantities of honey going to waste and of the obvious effect on the economy of the various groups through lack of pollination.

Trouble Free

The hives on Niue Island are free from bee diseases of any kind. There are no wax moths and ants cause little concern. Birds and rodents are no problem and the hornet, unlike the European wasp, does not attack the hives. Such an ideal situation is worth any effort to preserve and it is to be hoped that stringent precautions will be taken for its protection in the event of further imporation of bees or equipment to Niue. The bees gather very little propolis and store little pollen above requirements.

Conclusion

I cannot imagine a more pleasant life for a beekeeper than that of Niue Island. The prosperous conditions kept the bees docile and it was not necessary to wear protective clothing. The hives do not require a great deal of attention. An annual inspection, overhaul of equipment and queen check should be sufficient. The rest of the year, apart from ensuring that the queen has ample room, would be devoted to supering and extracting. This work could be carried out by a capable Niuean. Living conditions on the island are very pleasant and the climate is excellent. Most of the amenities of life are available and sporting and social activities are adequate. Dental and medical care is very good indeed.

STRAINING HONEY

By C. G. Rope, Honey Grader, Department of Agriculture, Auckland

All extracted honey must be strained BEFORE delivery to the honey packer. Once honey has granulated coarsely, considerable heating is required to dissolve the crystals, and the flavour of the honey will be impaired during this process if the beekeeper has not removed most of the wax, pollen nad other residue at extracting time.

A number of beekeepers successfully clarify their honey in settling tanks in a heated room. The temperature of the honey is controlled at 100°F for several days during which the impurities rise to the surface and can be skimmed off readily. Those who adopt this system never know for certain just when, or indeed whether, their honey IS properly clarified; and, if kept for such an extended period of time the honey will darken alarmingly if the temperature is increased above that recommended. For peace of mind, the beekeeper has no recourse but straining.

If honey is to be efficiently strained in volume, three main problems must be overcome. These are associated with the premature clogging of fine mesh by large volumes of coarse refuse, the sluggish flow-rate of honey at temperatures below 100°F, and the instantaneous blocking of strainers when they empty of honey and the refuse comes into direct contact with the gauze. Three items of equipment are necessary to overcome these problems: (1) a sump tank, (2) a satisfactory means of warming the honey to controllable temperatures, and (3) a strainer of efficient design.

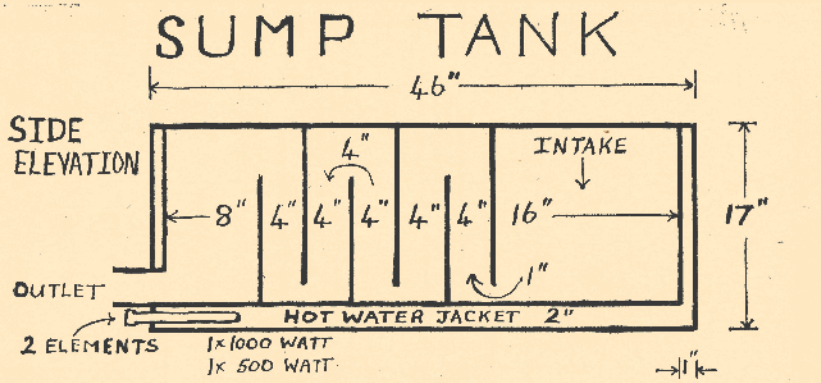
(1) The Sump Tank

Immediately after extraction, the honey should enter a sump tank having a series of baffle plates fitted across it in such a way that the honey must flow alternatively over one and under the next through passages 1 inch deep provided below alternate plates. A tank fitted with six baffle plates provides three skimming surfaces from which the bulk of the refuse can be removed before the temperature of the honey is raised to maximum. For large scale operation a series of baffle tanks, at various levels in a heated room, is recommended.

(2) Warming the Honey

Honey cools during extraction and it is necessary to warm it again before it enters the strainer. At no time, however, should UNSTRAINED honey be allowed to reach 120°F for fear of tainting. THE OPTIMUM TEMPERATURE FOR STRAINING HONEY IS 111°F. At this temperature, honey flows 6½ times faster than it does at 75°F (about summer room temperature). Beekeepers who extract late may be interested to note that honey flows 14 imes slower at 65°F than it does at 110°F.

Honey may be partially warmed by a HOT WATER coil on the sides or bottom of the extractor. Temperature may also be raised by water-jacketing the sump-tank and heating the water by steam or by THERMOSTATICALLY CONTROLLED immersion heaters. Or the honey may pass over a corrugated pan or through pipes surrounded by temperature controlled water. Such a heater is described on page 108 of Agriculture's Bulletin 267, "Beekeeping in New Zealand." These last two methods demand a continuous flow of honey,



This sump tank has a series of six baffles, providing three skimming surfaces to remove refuse.

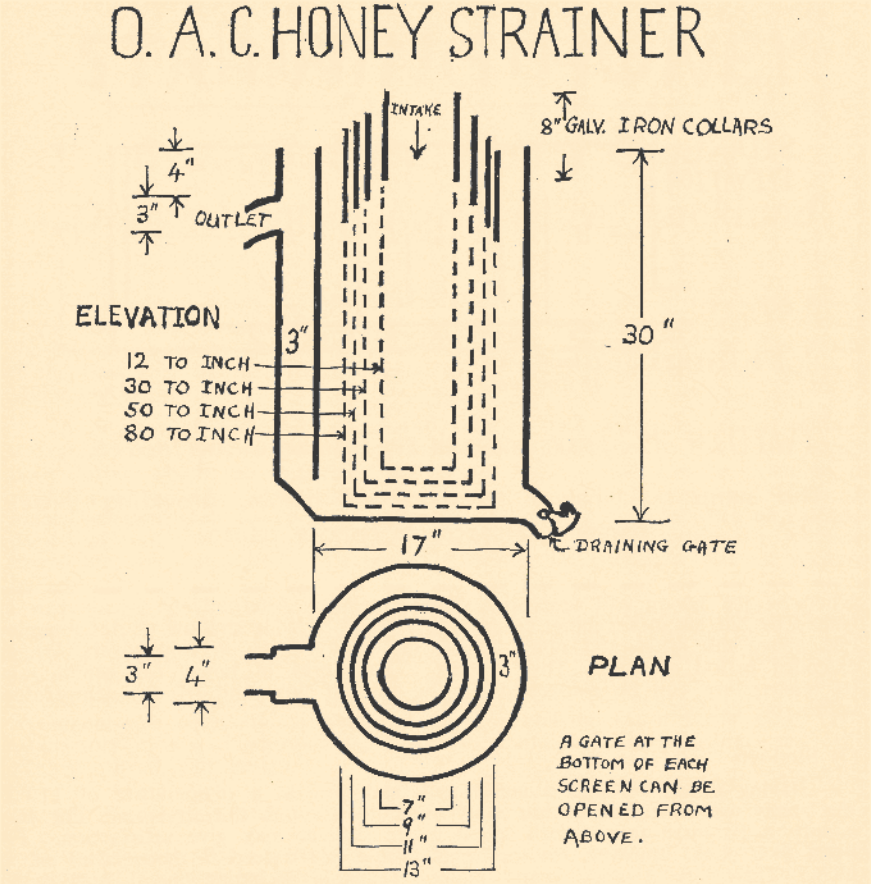
otherwise the honey will develop a "heater taint". Alternatively, honey can be heated by hot air in a cabinet containing a series of wide shallow chutes mounted one above the other and down which the honey flows in thin layers for an extended period of time. This exposes a large area of honey for heating and its temperature can be controlled by the rate of flow and by the temperature within the cabinet.

(3) Strainers

Having passed through a sump tank and now at a temperature of 110°F, the honey can flow without too much difficulty through the strainers. For bulk supply, a 50 mesh to the inch metal gauze strainer may give satisfaction. For one's own pack, however, the openings should not exceed 7 thousandths of an inch. There are a good many gauzes available including metal and nylon; there is a wide variation in the sizes of the openings and the gauges of the threads.

If any type of cloth strainer is in use, a few folds should be left in the material used. When the strainer becomes clogged, the folds can be pulled apart. This provides sufficient clean straining area to quickly empty the strainer and enables the cloth to be replaced without delay.

For best results the straining gauzes should be vertical or below the surface of the honey, and the straining area should be as large as possible within a container of convenient size. Remember that a tank 2ft x 2ft x 2ft holds over ½ ton! There are many who advocate the Ireland honey strainer also described on page 108 of Bulletin 267. The Ontario Agricultural College (O.A.C.) strainer, illustrated, has also been adopted widely. This strainer consists of a tank containing four circular screens of different meshes, one inside the other. The honey first enters the centre screen and passes progressively through the finer meshes. Once the strainer tank is filled, the strained honey flows under a baffle and is drawn off at the top of the tank. If the honey has previously passed through a sump tank as recommended, and if there is no granulation present, the O.A.C. strainer will handle honey very well even at room temperatures provided the straining area is large enough. But at 110°F as recommended, very large volumes can be handled, sufficient for all but the largest extracting plants. For these, a pressure strainer with a capacity of 1000 lbs per hour has been specially developed.



The Ontario Agricultural College designed this practical and efficient strainer.

Manuka Honey cannot be strained by the methods advocated here.

Layering in Tanks

Honey tends to stratify into layers of different specic gravities when it is allowed to settle in tanks, particularly large tanks. After the surface has been skimmed and before running off, the contents should be adequately stirred otherwise a wide variation of grade in all its aspects is likely to occur in containers from one extraction.

Specific Gravity

Beekeepers should also be aware that the flow rate of honey is greatly effected by its specific gravity though there is little they can do about it. At 100°F, honey containing 17.6% moisture, all other things being equal, will flow at least 1/6th faster than honey containing 16.6 moisture. This amounts to more than one hour per day! To quote the extreme case at this same temperature, very low S.G. honey containing 19.0% moisture will flow 5 times faster than very heavy bodied honey containing only 15% of water. Pressures exerted within the plant are affected accordingly.

(With acknowledgements to Ontario Department of Agriculture for extracts from their Publication 544, "Preparation of Honey for Market" by Dr G. F. Townsend.)

DO YOU WANT A CONTROLLED QUEEN REARING AND BREEDING ESTABLISHMENT?

(Under the auspices of the National Beekeepers' Association)

If "Yes", complete the entry form below. No obligation is entailed at this stage, but it is essential for a guide to be given to the organisers as to the strength of the support they may expect.

To: Mr G. Winslade 1 H., R.D. OAMARU

I, ... of .....
a member of the National Beekeepers' Association, wish to support the formation of a controlled queen rearing and breeding establishment which would enable me to obtain supplies of queens from tested and improved strains from overseas.

This declaration does not form a binding agreement but as a token of my support for the scheme and to assist the organisers I am prepared to indicate that I would pay to the Co-operative organisation when formed an annual sum of £ ..... for a period not exceeding 10 years if called upon to do so and on the understanding that I would be entitled to a dividend on my investment if a trading profit resulted.

I estimate that I should require ..... queens from the establishment each year, preferably in the month of .....

New Research on Honey Flavour

by A. R. Thawley

The task with which I am confronted for the next two years is to separate and identify the compounds responsible for the various flavours of honeys. This is quite a task, as half a pound of rata honey yields about one thousandth of an ounce of a material with the characteristic rata fragrance. The highly sensitive instruments now available enable the separation of this tiny amount of material into upwards of thirty distinct chemical substances. A graph of the amounts and characteristics of these will, I hope, provide a "finger-print" for each honey and show that honeys from different plant sources have different flavour substances in them.

The next phase of the project is to separate larger quantities of flavour extract from each type of New Zealand honey, identify the components and establish which of them determines the flavour of their source honey. It would also be interesting to see how the flavour is introduced into the honey. Does it come from the nectar or the pollen or is it modified by the bee in any way?

This work is being carried out under the terms of the Hopkins-Cotterell Bequest for research associated with bees and their products. The bequest was last used at the Cawthron Institute in the mid-1930's, when Mr R. H. K. Thomson worked on various aspects of honey composition and technology. Equipment at the Cawthron Institute is modern and well suited for this type of work and the various other lines of biochemical and soil research pursued by other workers.

Results of this project will provide useful information about the important flavour differences between New Zealand honeys. It may indicate techniques useful in producing honey for the market, but this is very much in the future.

COMMENTARY from the Editor's Desk and Mail

MENTION HAS BEEN MADE previously in these columns to beekeeping on Mauritius in the Indian Ocean. Their latest problem is that a consignment of Israeli Buckfast queens all arrived dead, having been eaten en route by a specie of ants unknown in the colony.

II II II

ISRAEL IS TRYING HARD to establish itself as the source of queen breeding for the world. Recent letters have been received from both the Israeli Department of Agriculture and individual breeders seeking information on market potentials in New Zealand.

II II II

A BEEKEEPER IN GERMANY, Hermann Mueller of Luneberg, writing in the "Norwest-deutsche Imkerzeitung," asks whether bees are disturbed by excessive traffic noise, or whether they become accustomed to disturbance. His bees are apparently situated in close proximity to the battle training ground, over which panzer tanks rumble en masse, creating a terrific noise and vibration which shakes the soil, nearby buildings and the air. Vibration is so great that houses have developed cracks through foundation settlements, and doors and windows will not shut.

This sounds a delightful place to live, and a haven for jaded nerves. Despite this, however, Mueller's bees thrive and do not appear to be affected despite shaking and jarring during the winter, when the colonies would be in a cluster, and all stocks survived. Local inhabitants have had their ears and sleep assailed for over ten years and cannot get themselves used to the clatter, and some have suffered ill-health as a result. Apparently the bees are made of sterner stuff.

II II II

EXPERIMENTING—Most beekeepers like to experiment and try out ideas which occur to them from time to time, and in this way progress is made. However, most ideas have been thought of, tried out and tested previously by someone else and the best one adopted, so before one proceeds with a costly experiment it would be wise to first consult an experienced beekeeper or an Apiary Instructor who can often save a good deal of trouble, expense and time.

If a beekeeper feels compelled to put his ideas to the test he should proceed cautiously and experiment **in a very small way at first,** because 9 times out of 10 there will be at least one flaw or unforeseen complication in this theory.

THE AUSTRALIAN BEEKEEPER refers in an interesting editorial to an address by L. C. Root in 1884 published in the "NEW ZEALAND AND AUSTRALIAN BEE JOURNAL" in which the author claimed that honey should be extracted immediately it was gathered when large quantities were coming in, so as to give the queen more room to deposit her eggs and to save the bees the labour of curing the honey and capping the cells, and the operator the onerous task of uncapping to permit extraction. The large force of bees thus secured is of great importance in sections where the seasons are long, or where autumn honey is abundant.

Mr Root went on to explain that where stocks are bringing in 12 to 20 pounds a day the bee labour saved is considerable, and that he had arranged an evaporator by means of which the proper degree of temperature is easily maintained, and the evaporation secured, by passing the honey over an extended surface of warm water.

"If the honey is evaporated as soon as it is gathered in very warm weather, no artificial heat is necessary. The evaporator is arranged so that a current of air will pass over the honey.

" I have with me samples of honey cured by this means:—

"Sample No. 1 was extracted as soon as gathered and passed over the evaporator three times from one cask to another. It will be seen that it may easily be evaporatod until it becomes solid.

"Particular attention is called to sample No. 2. This honey was extracted as soon as gathered and was very thin. It was left in a damp place until it had fermented. The improved condition and consistency to which honey of this sort may be brought by this process may be seen by examining this sample.

"I predict in the near future honey pure and unmixed will be evaporated to the proper consistency and take a high rank as desirable confectionery.

"The bearing this subject of properly evaporated honey has upon holding honey from one season to another is worth our attention."

If the late Mr Root was able to handle unripened honey satisfactorily and without the problems commonly associated with too early extraction, he certainly "had something". Does anybody in the industry know of any mechanical process which will relieve the bees of their labour?

II II II

COMMENT IS MADE in the English publication BEEKEEPING that the growth of a larvae (from egg to pupal stage) is one of the most amazingly rapid growths of tissue shown in any living organism. In comparison, a human baby weighing seven pounds at birth would, at the end of 6 days, weigh 4 tons, be 14 ft high and 16 ft round. Whilst the comparison is interesting in relation to the time factor, it must be remembered that the size increase of the human form from zero to birth is even more phenomenal.

II II II

THE SURVEY OF BEE HEALTH AND BEEKEEPING in England and Wales 1965 provides some interesting statistics, particularly those relating to the importation of queens, and to poisoning from insecticides.

The general impression was that the imported bees were poor honey gatherers but prolific breeders, even in poor weather, with the result that they consumed large quantities of stores in winter—or died of starvation. Although generally regarded as docile, many beekeepers said they did not come up to expectation.

Nearly 5000 queens were imported in 1965, over 3000 coming from Italy. Of 14 samples of attendant worker bees sent to the Ministry's laboratories for examination 8 were found to be suffering from Nosema.

Sixty samples of bees and one sample of wax foundation were tested by the Department of Insecticides and Fungicides at Rothamsted Experimental Station which they received from apiaries where losses due to chemical poisoning were suspected. Poisoning by organo-phosphorus insecticide was detected in 30 samples, 16 cases being traced to the spraying of field beans and runner beans in flower. Five samples showed poisoning by dieldrine, two cases of spraying mustard were

traced and one suspected as being due to sheep dipping. Three cases of lindane poisoning were traced to spraying of plums and brassica crops.

The foundation was found to be contaminated with both lindane and dieldrin, which caused the death of one colony. This foundation had been fumigated with a woodworm destroyer!

II II II

THE DEPARTMENT OF AGRICULTURE have suggested that the Returning Officer for Honey Marketing Authority elections should be an officer of the Authority as is customary with other similar bodies. An amendment to the H.M.A. Regulations 1964 would be necessary to change the present arrangement whereby an officer of the Department is deputed to act as Returning Officer. The Executive of the N.B.A. have been asked to submit their views on the subject.

II II II

THE 2nd INTERNATIONAL BEEKEEPING Exhibition-Fair is to be held in Bucharest, Roumania, from June 7-18. As an inducement to visitors a special exchange premium of 200 per cent over the official rate of exchange of freely convertible currency will be available.

II II II

NEW ZEALAND BEEKEEPERS will be united in their sympathy for Mr and Mrs David Penrose of Leeston, near Christchurch, for the tragic loss of their five-year-old son, Michael David, who was fatally injured when his tricycle and a car collided near his home. The year 1966 has been particularly hard for David and his wife and it is sincerely hoped that the New Year will be kinder. Readers will recall the disastrous fire which swept the Penrose apiary last June.

II II II

BEEKEEPING ASSOCIATIONS in Australia are pressing for a subsidy on honey and for a guaranteed price on export honey to boost exports and to obtain funds to promote honey on the home market. The Minister for Primary Industry, Hon. C. F. Adermann, is reported to have said that the industry would get a subsidy if a united industry so requested. Associations have been asked to express their views.

II II II

QUEEN BEES MAY NOT BE IMPORTED into Australia unless

(a) They are consigned to the Chief Quarantine Officer of the State or territory into which the bees are to be imported; and

(b) There has been delivered to the Chief Quarantine Officer:

(1) A declaration by the person who owns the apiary from which the bees were exported stating that at the date of the declaration—

(A) The bees are free from disease affecting bees and

(B) The bees are from an apiary which is free from disease affecting bees; and

(2) A certificate by a Government Veterinary Surgeon or other responsible Government Officer whose duties relate to apiculture in the country from which bees were exported certifying—

(A) That the bees are from an area that is free from disease affecting bees; and

(B) That Isle of Wight disease does not exist in the country from which the bees are exported.

The legislation is covered by Quarantine Proclamation 76a of the Quarantine Act, 1908-61.

II II II

THE FIRST EDITION OF "APIACTA" has been received, published by the International Federation of Beekeepers' Associations. The magazine contains some valuable scientific data on beekeeping research in various parts of the world. The cover design is a clever composite of honey comb cut to continental shapes, and although Australia and the southern hemisphere is detailed, New Zealand has not been included by the map maker.

SWEDEN HAS ORDERED 85 tons of New Zealand honey—20 tons more than last year.

The order is a follow-up to New Zealand particpation in the recent St Erik's Fair, Stockholm.

Swedish experts, however, believe pure New Zealand honey is too sweet and too light in colour for local tastes. They consider it should continue to be sold blended with one-fith of Mexican honey.

II II II

SYDNEY'S "SWARM PATROL" is having its busiest spring on record.

More than 40 people a day are calling the Department of Agriculture to ask for swarms of bees to be removed from sheds, garages, trees and fences.

The "swarm patrol" is manned by volunteer members of the N.S.W. Amateur Beekeepers' Association. Abundant pollen and thinnish honey which make for the best breeding conditions, are to blame for the record swarms.

II II II

A BEEKEEPER IN TOOWOOMBA reports trouble with his bees being responsible for a neighbour's goldfish. Although a good suply of fresh water was provided with typical contrariness the bees preferred a goldfish pond 200 yards away and another 300 yards away. The first pisciculturist reported a loss of 30 fish and the second claimed a death roll of 43. The theory was that the fish ate the bees as they settled to take on water, and died as a result of being stung en route through the gullet. When the bees were shifted and the water gathering stopped, so did the demise of the fishes. Circumstantial evidence certainly points a finger at the visitors. Has anyone heard of similar unfortunate results?

II II II

OUTER SPACE APIARY? Advertisement in a Kentish newspaper provides intriguing thought. "Child's Space Helmet, big enough for a man for beekeeping . . ."

II II II

AN INTERESTING and rewarding morning was spent in December at the CAWTHRON INSTITUTE, Nelson, where research into the flavour materials of honey is being undertaken by Mr A. R. Thawley, a Hopkins Fellow, under the direction of Dr C. R. Barnicoat, the Director of the Institute.

Dr Barnicoat patiently explained some of the research work being undertaken at the Institute, and some of the highly complex equipment used in their work. Fingerprint characteristics have been evolved which may well identify flavour materials of different varieties of honey, and it is hoped that a report by Mr Thawley may be received in time for publication in this edition.

II II II

THE CEREMONY OF CONFERRING DEGREES at the University of Otago is a colourful and impressive sight. The Chancellors of other Universities, the Deans of the Faculties, the tutorial staff and the graduands in their gowns with multi-coloured hoods and tassled trenchers present a mass of colour comparable with a bee's eye view of a country garden;—and an "olde-world" atmosphere apropriate to the solemnity of the occasion.

The visit to Otago was indeed a memorable one; not only for the justifiable pride and pleasure of witnessing my son's conferment, but for the oportunity of visiting apiaries in the South Island and enjoying West Coast hospitality. A pity indeed that time did not permit even more visits to be fitted in. Grateful thanks to my generous hosts; my apologies to those who were missed.

II II II

IT IS VERY PLEASING indeed to hear from beekeepers in so many different parts of the world who subscribe to and read the NEW ZEALAND BEEKEEPER. Letters from India, China, Roumania, Hong Kong, France, Germany, Russia, Canada, U.S.A., Great Britain, Sweden, Denmark, Greece and Indonesia are all from the brotherhood of beekeepers. Political racial and religious differences are

all subjugated to the background in the desire to obtain greater and wider knowledge of the craft. Complimented on his ability to express himself so well in English, Stephan Bontcheff of Varna, Bulgaria, responds with the information that he also speaks German, Rumanian, Esperanto, French "and unfortunately not too much Iranian, Turkish and Russian". Stephan is a retired factory mechanic and makes those of us with a smattering of linguistic ability feel pretty small time.

II II II

ENQUIRIES ARE RECEIVED from correspondents other than beekeepers. This month's mail brought a request from a Mr Elgie Turnipseed of Wisconsin, U.S.A., for an exporter of SIBERIAN IRISES. The connexion between irises and beekeeping is hypothetical, but the information was duly obtained and sent on to the questioner. All part of the service and in a day's work.

II II II

HENNING CHRISTENSEN of Gentofte, Denmark, writes that the stomach of a sea gull on dissection was found to contain a number of bees. Sea gulls are certainly carnivorous and ichthyophagous, but specific instances of consuming bees for food have not been heard about previously. Anyone else know of similar circumstances?

II II II

A HONEY OF A HONEY QUEEN will be chosen from entrants in the N.Z. wide competition to be organised by Canterbury Branch at the annual Conference in Christchurch next July.

Branches have been circulated asking for their support for the scheme which should be the open sesame to valuable publicity for the honey industry through the medium of television, radio, press and magazine publicity.

Candidates must be between the ages of 16/25 years; preferably single and associated with the industry. Judging will be by a panel of three, and participants will wear evening dress. Points will be awarded for poise, personality and attractiveness. Two candidates may be sponsored by any Branch or by the Honey Marketing Authority. An important factor in awarding personality points will be the candidate's knowledge of the industry, because the elected Queen will be asked innumerable questions by newshounds and she will have to answer them sensibly and to the credit of the industry. The H.M.A. have agreed to assist Branches financially in sponsoring their candidates, and cash prizes for the finalists will be in the region of £50 for the Honey Queen, with £25 and £15 for runners-up.

Election of local Honey Queens and the National title holder could be a wonderful source of publicity for the industry and a lot of fun for the organisers. Branch secretaries who require more information should write to A. R. Eagle, 22 Hillsborough Terrace, St Martins, Christchurch 2, without delay. A 2/1 grant will be available towards local promotional expenses.

II II II

MERVYN CLOAKE is to visit branches in the North Island to tell them of his Canadian trip. Three or four have so far been arranged.

II II II

NECTAR SOURCES BULLETIN. Copies of this long awaited publication are expected to be ready by the end of this month. Supplies will be available from the General Secretary.

II II II

ONE PROMINENT SPEAKER scheduled for the Conference at Christchurch in July, will be Keith M. Doull, who will address beekeepers on the subjects of pollen supplements, nosema, and lucerne pollination. An itinerary has been arranged to include the Conference and visits to both Islands.

MR HERBERT TYLER of Taita in an interview in a daily newspaper, claims that the merits of honey as a healing agent should be more widely known, particularly for the treatment of burns and scalding. He would also like to see greater recognition for folk medicine

II II II

NEW ZEALAND IS INDEED a land of contrasts. By the same post in mid January two letters were received from beekeepers six hundred miles apart; one in the South Island and one in the North.

The beekeeper in the South wrote "This is going to be a cracker season in Canterbury. The domestic group has a hive of seven supers, five of honey plus four or five frames taken out to make room . . . . . ."

The Auckland correspondent lamented "What a terrible bee season! The worst so far that I have known for 46 years. . . . . ."

Let's all hope that a late flow will help out the boys in the North and that conditions in the South will continue to make a bumper crop possible.

II II II

BOB DAVIDSON JNR. of Hadlow is meeting success with his uncapping machines, made and produced here in New Zealand. One machine has passed the 50 ton mark. All the original "bugs" have been eliminated, and from the prototype made for his own use, the newly developed machine has sold to Australia as well on the home market. One satisfied user admits that he bought his first machine price unknown and sight unseen. The Beekeepers' Special to Australia last year was largely responsible for persuading Bob to take the plunge and put his own machine on the market and to "have a go".

Letters to the Editor

Ruakura Agricultural Research Centre, Hamilton
9 December 1966

Sir,

The article "Something New on the Sex of the Honey-Bee" in the New Zealand Beekeeper of November 1966 suggested to me an improved way of controlled mating.

M. Meyer Jacques, referring to eggs laid in drone cells and covered with spermatozoa, says "The spermatozoa of the honey-bee are allergic to fresh air and perish after an exposure of one to two minutes . . . . . ."

My idea is that the breeder queen should be given drone comb in which to lay her eggs. After a delay of two minutes for the spermatozoa to die the eggs should be removed and implanted in queen cells. The eggs should then be covered in fresh spermatoza from a selected drone, and replaced in the hive for the worker bees to seal in the spermatozoa.

Alternatively, the drone cells could be cut out, the cell walls cut down, and the cells mounted vertically on bars in the usual queen procedure. This would obviate egg damage in transfer and speed up the whole process.

This assumes that the micropyle of the egg still remains open for spermatozoa to penetrate during the first few minutes outside the queen.

G. DE LA M. NICHOLS

St. Andrew St.,
Balclutha
December 5th 1966.

Sir,

I write this letter in the hope that you see fit to publish same with a reply. Many of your readers must, like me, keep bees for pleasure. My knowledge is passing good but not comprehensive.

Preparation for swarming is fairly obvious in most cases but occassionally the issue is clouded by the possibility of supercedure. Here are the facts and I would be grateful for a reply stating how one can be sure what is happening.

On December 4th I examined the hive which contained a queen reared in the autumn 1965. This hive is 2 stories high and full of bees. I found eight queen cells all sealed. Five along the bottom of the top combs and three high up on the bottom combs. I opened two at random and found the young queens half way through metamorphosis having head, thorax and legs but no wings and all white with grub-like body. There were no eggs and no grubs under four days old in the hive. The queen may have been present but couldn't be found. They had not swarmed. The question is—' Will they do so?' I felt it unwise to destroy the cells as this may have ruined the hive. The swarming season begins about now in this area. The weather has been cold and windy for the previous two weeks. Perhaps this has held them up and they'll be off on the first sunny day. Meantime I'll lift the lid at noon every day.

W. McALLISTER.

Reply: I think it unlikely that a prime swarm would leave the hive but because you left the eight cells there may be some after swarming, unless the bees decide to tear down the remaining cells following the emergence of the first queen. It is my belief that you accidentally killed the original queen during a previous inspection of the colony. I am curious to know why you lift the lid at noon every day.

(Answered by Bob Walsh, Dept. of Agriculture, Auckland).

Wallaceville Animal Research Centre,
Private Bag,
Wellington.
December, 15th, 1966.

Sir,

Beekeeping Research

Although there is no possibility of the Wallaceville Bee Laboratory undertaking bee breeding, I would like to refer to some points on this issue which have been raised by Mr F. A. Bartrum in his letter "Beekeeping Research" which appeared in your November issue.

It is true that Wallaceville has a climate unsuitable for artificial insemination and breeding of bees but so, in my opinion, has the Lincoln College area. The experience of myself and overseas workers is that hives are reluctant to accept artificially inseminated queens except during a hony flow. The ideal environment for both bee breeding and artificial insemination would be one with a mild climate and flora producing a honey flow for a long period. The Auckland and North Auckland climate most nearly fulfils these conditions in New Zealand, and both queen raising and artificial insemination could be carried out there for much of the year. Apart from speeding up operations, an additional advantage of this location would be that immature stages of bees, assuming it proved feasible to import these, could be brought in during the New Zealand autumn and perhaps winter, which would be spring and summer in the northern hemisphere. Some of the nearby islands would probably prove suitable for use as isolated mating stations.

There is only one government-operated station in Australia which breeds and sells queen bees to beekeepers. This is situated at Hawkesbury Agricultural College, in New South Wales, and is not a research station, being run by officers with a practical beekeeping background. Australian bee research stations have no intention of becoming involved in bee breeding projects but are interested in work, as in New Zealand, on agricultural chemicals, pollination, bee diseases, and pollen supplements. The Australian beekeeping industry's main concern at present is in the effect on honey bees of agricultural chemicals. I obtained this information in a recent visit to New South Wales, Victoria and South Australia.

T. PALMER-JONES,
Scientist.

TIMARU
January, 19 1967

Sir,

Why is it that, just when major differences between sections in our Industry have been resolved, and everything appears to be in such a placid state that we producers could, perhaps, relax a little and start to encourage the growth within ourselves of a little faith that the selected people controlling our Industry have our well-being foremost in their thoughts;—why always at this stage does someone drop a verbal brick and so shatter our idea of a bright co-operative future?

I refer on this occasion to the shocking, (and I mean shocking because about 20 other producers and I received an outstanding shock), at the suggestion that the seals levy be increased by 2d. per lb, when I and a few other innocent producer-packers, were hoping for a rduction in this lop-sided tax!

For the normal peace loving honey producer this suggestion, as put forward in December at Christchurch by a member of the H.M.A. on his own behalf, (but still a member of our Governing Body) ,was a real shock, even if the reasoning behind it was, on the surface, sound. This reasoning as I understand it is:—

There is little likelihood in the foreseeable future of an advance in the H.M.A. payout, but if the seals levy were increased by 2d. per lb, the packers could fully recover this by advancing their prices by 2½d. per lb, and all would be well in our industry.

In actual fact this just would not operate. How could packers buy honey, if

the H.M.A. payout and the seals levy both advanced 2d. per lb? A packer would have to pay ¼ per lb to compete with H.M.A. prices, and also pay an extra 2d. seal making the total cost 1/6 per lb. All this would have to be recovered from the consumer and I suggest would result:—

in the South Island consumer paying, not 2/8 but 3/1 per lb and the North Island consumer paying, not 2/10, but 3/4 per lb.

Fortunately for the producer-packer minority in our industry, we now have the newly formed C.A.R.P. in Auckland which, combined with a similar organisation in Wellington, should be well able to protect honey consumers from paying any further subsidies to the honey industry.

Bob Davidson

NOTE: The Editor was unable to be present at this packer's meeting and no verbatim report was possible. From a report received, however, it was understood that the Manager of the H.M.A. was asked what effect a 1d. increase in the seal levy would have on the payout. When the answer was given as 2d, the suggestion was made that the meeting discuss a possible rise and its effect, but the suggestion was treated with derision and no discussion took place. The suggestion was made with a view to stimulate discussion and not as a serious proposal.

A point which would seem to be relevant is that there appears to be a miscalculation. A 2d increase in levy would surely result in an increase of 4d for payout.

January 17 1967

Sir,

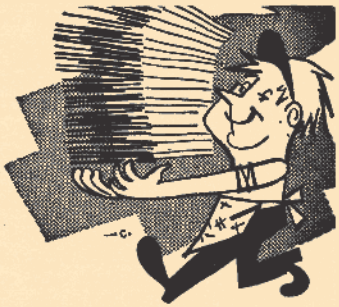
The report you published stating that this Board had appointed two sole selling agents in London for the purchase and sale of all Australian exports to the U.K. and Eire is correct.

It is confidently anticipated that the formal agreement will be signed before February 1st 1967 following an executive committee meeting of the A.H.M. in Sydney on January 18th and 19th. The scheme will then operate for 12 months as from February 1st 1967.

The minimum C.I.F. price for various grades of honey will be determined by the board on a weekly basis, based on market information provided to us by our agents and our knowledge of production in Australia.

K. A. H. READ,
Chief Executive/Secretary,
Australian Honey Board.

BRANCH NOTES



WAIKATO

About all that has gone well this spring was 10 days fine weather for the Barbary flow, hives in favourable localities gathering a super full. From then on until mid December there was no fine weather at all, heavy feeding being needed just to survive colonies. Quite a lot of supersedure took place, and some swarming even of young queens, weather conditions not allowing time to combat these.

Colonies came to the flow weaker than usual and a week of fine weather prior to Xmas allowed colonies to gather a surplus. Then the rain and wind started again, and for the next month very little was gathered except in areas where rewa rewa or blackberry was available.

Tawari has been poor, and some areas where pasture sources only exist, very little has been gathered. Fine weather has come now and a light flow developed, but pastures have become very lush, and will need a lot of hot weather to produce much.

It has been noticed in most areas that plants are flowing 2-3 weeks later than normal.

The branch was favoured to have Mr Smaellie to address the December meeting and explain the new Regulations. Concern was expresed that as Legislation was passed in July 1965, it was not until mid November 1966 that forms were available. In answer to a question Mr Smaellie stated that the delay was due to a hold up in the Government Law Office.

Reported by Cliff Bird

WEST COAST

The past year has been both mild and dry 32". Rain for 1966 and early January 1967 just the same. Common to see County truck carting water to outlying households.

Though the mild winter favoured my breeding program (Aug. and early Sept.) we Coasters did have some doubts of sufficient stores as most of the nectar sources have been three weeks late this past season.

Only today I saw some Kamahi in the white. A month beyond time.

There has been a medium flowering of most plants common to this part of the land:

Rata: Not much of the tree variety though plenty of the white vine.

Pohutakawa: very prolific though bees seldom go near it down here.

He nau: and Mahoe, bees still working also the blackberry; this soon a source only in memory. 'Possum and some think a virus.

It is safe to say that most will take off two boxes of mixed source honey;—some three.

The November Field day was very enjoyable good weather—interesting—well prepared talks and a very happy audience.

Visitors were from Canterbury and Southland my only regret is that I have yet to devise ways of creating more interest among some near locals!

A point to think about. Could it not be that we do not give enough thought and time to breeding quality drones.

Many folk pay out good money for queens and though the first stock may be good they gradually deteriorate due to re-mating.

Would it not pay to deliberatly breed drone from selected colonies throughout the season.

Any comments Anywhere?

Reported by Tom Holland

NORTHLAND

Members are keenly looking forward to a visit from Mervyn Cloake next month and hope to benefit from his experiences in North America. Big honey crops are what we are all chasing.

The current season here can be termed eratic. We hope the good parts will overcome the others.

One member who found a wild pig within chains of one of his apiaries is considering adding a rifle to his equipment, not only for protection but to enable him to literally return home with the bacon at times.

Reported by L. G. Lovatt.

SOUTH CANTERBURY

Although the weather was dull and cool a good gathering of beekeepers met at. Peel Forest and enjoyed an interesting Field Day.

Mr H. Cloake demonstrated his method of operating hives at the bush, and in spite of a short hail shower, opened a few hives to show the amount of brood etc. He mentioned that he had fed all hives with 2 gallons of sugar syrup and still they had no surplus stores which meant conditions this season were no good for bush sites.

Mr V. Cook Apiary Instructor of Oamaru gave a demonstration of how to find a queen, and answered questions on the subject.

Mr I. W. Forster, Technical Officer of Oamaru demonstrated the use of an "Apidictor" which he said was still only in the experimented stage. However, great interest was shown and the gadget may yet prove a useful piece of apiary equipment.

After a break for lunch Mr Cook, drew our attention to the conditions of the new Apiary Regulations and answered questions.

Mr M. Cloake told us of his experiences during his recent trip to Canada.

This talk was indeed interesting and Mervyn is able to hold the interest of a group and make them want more. The trip was no doubt of great benefit to Mervyn and will be to the industry.

Mr R. Davidson Jnr. displayed his latest uncapping machine and answered questions.

Mr F. A. Bartrum, President of the Branch thanked speakers and welcomed visitors to the Field Day which concluded with afternoon tea.

In conclusion, the writer would like to draw attention to a situation that occurred while some speakers were giving their address.

Small groups were engaged in private discussions which were most disturbing to the speakers. I feel they are worthy of the loyal attention of every member of the audience.

Reported by
J. G. MacKenzie

Chattering in small groups at Beekeeper's meetings is not confined to South Canterbury. It is countrywide. Chatterers should realise that they are exhibiting the worst possible side of their personality; it is grossly discourteous and rude—Editor.

HAWKE'S BAY

Owing to the exceptionally wet weather, and bees mising the willow flow in most areas; Hawke's Bay beekeepers have experienced a difficult Spring.: However if the present fine, warm, spell continues most of us can hope to record an average crop; as following the recent rain, the pastures in most areas are showing a good cover of whiter clover . .

There has been little or no Branch activity, during the holiday period.

Reported by
F. D. Maultsaid. (Mrs)

Mervyn Cloake writes on . . .

Beekeeping in Alberta

When the snow thaws there are a few weeks of barren land, but about the third week of April spring arrives and the countryside turns from brown to green in a few days. It is at this time that the beekeeper begins the spring work.

Packages are arriving from California. Beekeepers, knowing when to expect them, have hives set out, usually in apiaries of up to 250 in sheltered locations with good acess, and always near early pollen and nectar sources.

The hive used is standard Langstroth, although a few prefer a Langstroth jumbo for a single broodnest hiv. with an excluder and standard honey supers. With the exception of jumbo hives excluders are seldom used. All use telescopic lids, but few use inner covers or mats. Hive equipment is in very good condition and well kept.

Most beekeepers like to have the equivalent of three frames of honey in the brood nest with plenty of pollen when they install the packages. Installation of packages is simple. The most common practice is to remove four centre combs, dump in the bees and at the same time spraying them with a weak solution of sugar syrup. The queen is allowed out of the cage to mix with the bees immediately.

When installing packages there are a few important rules to be remembered and which would also apply in New Zealand. They must never be installed in temperatures above 55 degrees otherwise the bees will drift; the operation must be done quickly and bees are best left alone for about ten days. Hives are then checked to see that the queens are laying well. Poor queens are replacd by using spare queens supplied with the packages, usually four spare queens per 100 packages. Spare queens are kept in queen banks. Installation losses are usually about 6 percent but this depends upon the operator.

On the first inspection bees are given a feed of syrup, usually with a Boardman feeder. It is common practice to include Terramicyn in this feed, as a preventative against European F.B. and Bacillus Larvae. Some also include Fumidil B in the feed to combat Nosema since these bee diseases can be transmitted by packages, and in Alberta these drugs are used as protection against an outbreak. Those who use Fumidil B have had marked success and increased their production.

Throughout spring hives are visited regularly once a week to keep a check on feed and buildup. Hives building up normally are left alone but weaker hives are either doubled together or brood from stronger hives added. Hives are better evened out early as this saves a lot of work later in the spring. With packages costing nearly 35/- each plus feed used during buildup period, beekeepers cannot afford to have non-producing hives.

All through May bees have a dribble flow from willow and towards the end of May, about a month after installation, hives are moved out to sites where the bees will eventually work sweet clover, rape, alsike, red clover, alfalfa (lucerne), or fire weed.

By the end of May the second super is put on and the bees given a second feed of Terramicyn. The dandelion flow follows shortly afterwards and usually takes care of the feed problem. This flow usually lasts two weeks and the bees are in condition to gather a surplus to carry them through the dearth period until the main flow starts. At this point colonies gather strength quickly and in two or three weeks the third super is required. A further dose of Terramicyn is given at this time.

First crop to flower is rape, grown exclusively for oil in the manufacture of margarine. Flowering begins about the middle of July, and bees can work

this crop for about three weeks until sweet clover flow begins, closely followed by the other crops attractive to bees. The honey gathering season extends from the beginning of July untill the end of August but varies with local conditions. On a suitable day a hive will gain up to 30 pounds of honey but remember that in northern latitudes the bees work about 3 hours a day longer than in New Zealand.

The longer day, with an abundance of available bee pasture is the reason why Alberta has a 135 lbs per hive average. The New Zealand average is 60 lbs per hive.

Equipment and methods used by Canadian beekeepers is standard. Honey is removed by using carbolic, and boom loaders are the only mechanical devices for loading honey onto the truck, except for two or three fork lifts used by very large operators. The Kelly is the most popular loader in use, but the majority hand load the supers onto trucks which are usually flat decks with no sides. French beekeepers in one area of Alberta all use large vans built on the truck.

Commercial outfits range from 800 to 2,000 hives with a few up to 4,500. Ample labour is available and is usually calculated at 500 hives per man. At extracting time extra labour is employed.

In the extracting plants one again finds a similarity. Honey houses are quite large and including super storage, three feet of floor space per hive is standard size. Various types of materials are used in construction. Wooden framing with plywood or asbestos sheathing is probably most common. Plywood is used extensively and is one of the cheaper building materials available.

Large hot rooms, heated by natural gas central heating units, hold up to 1,000 supers and in winter are used as work or storage rooms.

Extracting plant of the larger outfits usually consist of an uncapping machine, either a Fox-Harrison, a Borganshultz or a McFadgen, a Canadian machine most popular as it is cheaper and is designed to handle the simplicity frames most commonly used, and two to four large radial extractors. Cappings are handled by either two Whirldrys, a Cook and Beal centrifuge, or two Brand melters. In larger outfits a tank, holding up to 20 tons and placed in a heated room kept at 80 degrees, is often used. Only a coarse strainer is fitted as these large containers act as a settling tank. Smaller outfits have one or two Superior Lifetime or radial extractors with a Brand melter and hand uncapping knife. Larger plants handle up to 400 supers a day during extracting period.

These beekeepers must have an efficient and fast extracting plant because once the flow is over, bees must be killed off to prevent them consuming too much honey. Most is removed and extracted before killing commences. The bees are killed by Cynogas in a gas gun, and after gassing are shaken from supers and brood chambers prepared for the following spring all in one operation.

All honey houses have the unloading bay at deck level and all use hand barrows and pallets for unloading and moving stacks of supers of honey, empty brood chambers and supers of combs. The small trolley common in this country is unknown in Canada. The pallet used for honey is of the flush type and has the drip tray incorporated. All equipment and plant is simple, efficient and standard.

Every beekeeper in Canada is geared to use drums, which is a great advantage, and it is estimated that up to a cent per pound is saved in handling honey.

Beekeeping in Alberta appears to be an easy occupation but it has its problems. Considerable time is spent in spring scouting for bee pasture and suitable sites, so that apiaries can be placed to best advantage. It does not necessary follow that the same site is used each year. Travel to apiaries in the spring can be difficult, even unsealed roads can be impassible through breakup following the thaw or wet

weather. Some problems are unusual, and perhaps the worst in some areas are bears. The havoc they can create is unbelieveable. I saw 35 out of an apiary of 70 hives scattered about, some being completely demolished. Bears eat brood and pollen and will stamp over the honey combs while getting at the brood combs. Sturdy electric fences will not always stop them once a bear has been at the hives. Beekeepers shoot or trap a number of them each year. If a troublesome bear cannot be killed then the apiary must be moved. Skunks can also be a nuisance, for they eat large numbers of bees at the entrance to the hive and several working in a bee yard deplete bee strength considerably. They are usually poisoned.

There are eight major packers in Canada, five co-operatives and three, privately owned. About 1/- a pound is paid for all honey and packers supply containers and pay freight. The Co-operatives operate a profit sharing system in the form of either a deferred payment above the purchase price, or an accumulating sum which is payable on retirement of the beekeeper from commercial beekeeping. These deferred payments form the working capital.

It is generally agreed that it requires a 100 pounds of honey average return per hive to meet normal operating costs; therefore it can be seen that a high return per hive is necesary to make beekeeping in Alberta a profitable venture.

Hotel Facilities for CHRISTCHURCH CONFERENCE JULY 12-14

To assist fellow members, Block Bookings have been made at the following hotels which hold good until June 10th. This accommodation can be recommended:—

COKER'S HOTEL: £4 per person all meals included.

EMBASSY HOTEL: £2 7s. 6d. single £5 double including breakfast. All other meals a la carte.

*AVON MOTORLODGE: (Licensed) single £2 15s. double £4 a la carte dinner 8s. 6d.

FEDERAL PRIVATE HOTEL: Full tariff £2 17s. 6d. £2 10s. D.B.B. B.B. £1 19s. 6d.

*STONEHURST PRIVATE HOTEL: Full tariff £2 7s. 6d. D.B.B. £2 1s. 6d. B.B. 30s.

One pound deposit required on booking. Dearer and cheaper accommodation available at other hotels.

*Within five minutes of Conference Hall.

COMBS TREATED WITH P-DICHLORBENZOL

Dr. G. Vorwohl, State Bee Research Institute, Stuttgart-Hohenheim (West Germany) describes several tests made with P.D.B. (p-Dichlorbenzol) and its effects on bees.

1. Bees were exposed directly to fumes of P.D.B. After several minutes movement disturbances set in; finally the bees fell on their backs. Light tremors of wings, legs and antennae appeared for several hours before final death. If the substance was removed when marked effects have already appeared, most of the bees recovered. P.D.B. in direct contact with bees causes paralysis first, after an extended time it causes death.

2. P.D.B. eaten by bees has practically no poison effect on them. It was found that the qunatity of P.D.B. soluble in honey and water (2 parts honey-1 part water) is so small that it can hardly be tasted. The P.D.B. saturated honey and water fed to the bees for three consecutive days did not effect them. Later, combs moistened with honey and exposed to the P.D.B. fumes proved also harmless.

3. Combs exposed to fumes of P.D.B. Inserted into a saturated atmosphere of P.D.B. fumes (crystals or balls used in great excess than the usual amount used in praxis) concentrations vary: 1½ spoonsful and 30ozs. to a 10 frame box; 150 g. (approx. 5 ozs.) to 1 cubic meter and 2 kgrams. to one cubic meter, etc., pieces of comb (10 x10cm.) were after 20 hours immersion transfered to small boxes, which were only slightly ventilated and contained counted numbers of bees. (Bees were treated with carbon dioxide first for easy counting).

If the combs were transfered immediately and without aerating them into the test boxes with bees, they kept away from the 'poisoned' comb. In 45 minutes all bees were heavily paralysed. As the time progressed and new batches of bees were introduced (after one hour, 2 and 3½ hours, and 24 hours) the effect of P.D.B. fumes on the bees was less and finally (24hrs.) nil.

Combs with open honey were treated for 7 days with P.D.B. Before introducing them they were aerated for 3 hours and 24 hours respectively. Even on a 3 hours aerated comb, the bees behaved normally at first and ate the honey; later on, they accumulated in the corners and away from the contaminated comb and showed occasional signs of sluggishness. Mortality however was not higher than that of the control. It proved that the comb looses most of its P.D.B. content within the

first 3 hours already. The exposure of combs to P.D.B. fumes, whether 20 hours or 9 days, is hardly of any consequence. The absorption capacity of the combs is obviously limited.

The aeration of combs is quickened by higher temperature and more efficient air circulation. Combs 12 days in P.D.B. and stored 24 hours in a roomy refrigerated space at—7°C, caused the death of all experimental bees. On the other hand, the same storage under 30°C. (plus) and while the air inside was kept in motion, produced a comb completely harmless to bees when given to them after 3 hours. They behaved completely normal and also no 'aroma' of the P.D.B. was noticeable by the nosee.

Conclusion: Combs treated with P.D.B. are harmless to bees if aerated well before use. Loose stacking in or outside the hive bodies and exposure to warm air and draft are essential. That the fumes of P.D.B. are poisonous to bees was known for long. Yet, during the 30 years of its use against the wax moth, various authors reported different experiences. In most cases the bees in the hive vacate all passages near the contaminated comb and provide by vigorous fanning for aeration themselves. It must, however, be considered a dangerous practice to insert a great number of P.D.B. treated combs at once.

(from the German Beekeepers Journal)

The National Beekeepers' Association

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

'Better Beekeeping—Better Marketing'

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	minimum			360 colonies	3	0	0
90 colonies		15	0	390 colonies	3	5	0
120 colonies	1	0	0	420 colonies	3	10	0
150 colonies	1	5	0	450 colonies	3	15	0
180 colonies	1	10	0	480 colonies	4	0	0
210 colonies	1	15	0	510 colonies	4	5	0
240 colonies	2	0	0	540 colonies	4	10	0
270 colonies	2	5	0	570 colonies	4	15	0
300 colonies	2	10	0	600 colonies and over (maximum)	5	0	0

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

THE N.Z. BEEKEEPER

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

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

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

ADVERTISEMENT RATES

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

Front Page Story

The Order of the Bath . . .

Who ever heard of such a job as official bath attendant to bees?

It's fact, not fiction and the exalted position is held by attractive Gizella Zverke, employed as a technician at Messrs. Sutton's seed growing trial grounds at Reading, Berkshire, England.

Everyone who has travelled on the main railway line to the West of England or driven down the main highway admires the neat and orderly rows of the seed growers proving ground, covering acres and acres of land.

W.B.C. hives, the traditional and most popular double walled type of hives used in the United Kingdom, are kept for experiments in cross-pollinating flowers. Bees are kept adjacent to glass houses, and prior to release within the glass house to carry out their cross-pollination work, are bathed by Gizella in warm water using test tubes as baths.

Our cover picture shows two of the bathers within their glass cage about to be immersed to wash away unwanted pollens which would otherwise interfere with pollination.

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