THE NEW ZEALAND BEEKEEPER

FEBRUARY, 1968

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Financial Wizardry

There can be few of us who really understand the intricacies of high finance and devaluation of our currency. Although we are told that we shall obtain greater sales overseas for our home produced products, the unpalatable fact remains that the dollar in our pocket now does not buy as much as it did last November. Government circles assert that there will be little difference in prices at home, but it would seem that most business firms expect and anticipate price increases for a wide variety of commodities. Alternatively, the posters and slogans advising customers to "buy now" instead of waiting until necessity arises are part of an incitement to part with our dollars under false pretences.

According to an economic survey recently published in England, the cherished assertion that home prices in the U.K. would not rise have been proved to be grossly inaccurate. Foodstuffs costing £1 sterling in November before Britain's 14.3% devaluation now costs £1/3/4 sterling, representing an increase of 16%.

New Zealand devalued its currency by 6% more than the United Kingdom and our problems in selling on the London market in open competition will be nothing to the problems of Australia, where the currency value remains unchanged, and has now lost the advantage of a 25% exchange advantage.

New Zealand White Clover stocks last month were making 180/- per ton c.i.f., Extra Light Amber 165/- per ton, against new white crop from the Argentine at 102/6. Australian Light Amber was making 115/- and Australian Medium 102/6. Mexican Light Amber fetched 110/- per ton c.i.f.

One thing that is certain in an uncertain economic situation is that the beekeeper with his assets in plant, equipment and bees, is much better off than the man with bank notes stuffed in his mattress.

PESTICIDES AND NEW ZEALAND BEEKEEPING

T. PALMER-JONES

Wallaceville Animal Research Centre, Department of Agriculture, Private Bag, Wellington

Summary

This paper traces the history of pesticides in relation to the New Zealand beekeeping industry, and describes protective legislation, precautions against misuse, and methods of testing the effect of pesticides on honey-bees.

INTRODUCTION

There are about 3500 beekeepers in New Zealand operating some 194,200 hives. Most own fewer than 30 hives and are hobbyists, but approximately 250 are commercial beekeepers. The yearly production of honey averages about five and a half thousand tons. Apart from the value of the honey produced, honey-bees play an important role in the New Zealand agricultural economy as pollinators of seed crops. Studies by the Wallaceville Apiculture Section have shown that white clover seed production depends almost entirely on honey-bees (Palmer-Jones et al., 1962). It has also been found that honey-bees are the major pollinators of lucerne, red clover, and apple trees (Palmer-Jones and Forster, 1965; Palmer-Jones et al., 1966; Palmer-Jones and Clinch, 1966, 1967). New Zealand's agriculture depends increasingly on aerial and ground application of pesticides, many of which are toxic to honey-bees. The problem is to protect honey-bees from pesticides without hindering normal farming operations.

PESTICIDES AND LEGISLATION

Every effort was made in New Zealand to warn those associated with the application of pesticides of the danger many of these constituted to honey-bees, and to secure their co-operation in preventing bee mortality, but it soon became evident that the beekeeping industry was not safe-guarded by a system that depended solely on voluntary control by many conflicting interests. However, it was only when these measures definitely failed that protective legislation was introduced.

Serious mortality of honey-bees in orchards occurred in 1947, through the indiscriminate use of lead arsenate during the blossom period. Nectar and pollen were contaminated in hives so that, in addition to heavy losses of foragers, developing bees died in great numbers, and it was necessary to sort out and destroy pollen combs. This disaster showed the shortcomings of voluntary control and led to the passing of the first protective legislation under the Apiaries Amendment Act 1953. The Act stated that preparations injurious to bees should not be applied to fruit trees during the period when trees were in bloom, unless most of the blossom had fallen. The definition of fruit trees has been extended to include strawberry, raspberry, boysenberry and loganberry plants. Subsequent to the passing of the Act, heavy hive losses occurred through increased aerial applications of insecticides, especially in dust form, to control aphids on cruciferous crops such as choumoellier, rape, kale, turnips, and swedes grown for seed.

A major disaster occurred in 1955 through aerial dusting with lindane of choumoellier *(Brassica oleraceae)* in flower. Several hundred hives were affected, the persistent nature of the lindane causing it to contaminate stored nectar and pollen and so poison developing bees and queens. It was evident that no policy that depended solely on warning and education was adequate for the protection of our honey-bees.

Finally the Apiaries Protection Regulations were passed in 1957. These provide that, during September 1 to March 31, sprays or dusts toxic to bees shall not be applied without a permit to any cruciferous or leguminous field crops when in flower, or when flowering plants which attract bees are present in these crops. Such permits are not given lightly. All applications must be lodged by the grower with the local office of the Department of Agriculture. Then the crop must be inspected and the position assessed and reported upon both by the Farm Advisory Officer and the Apiary Instructor. If the Fields Superintendent decides to grant a permit, the apiarists concerned must be given 96 hours' grace in which to take precautions. They may decide to remove those hives which are within a two-mile radius of the crop. Few permits are now issued.

Penalties for not complying with these regulations are low, consisting of fines not exceeding $40. However, an unco-operative pilot could have his licence cancelled. Also, if a grower were fined for not heeding the regulations and causing bee mortality, the beekeeper concerned would be very likely to succeed in a claim for compensation. So far it has not been necessary to invoke these penalties.

Contractors are responsible for applying insecticides to perhaps 75% of the acreage of crops treated, the remaining 25% being treated by farmers. Insecticides may be applied in the air or on the ground. Before pilots are permitted to apply pesticides, they must have a chemical rating. This entails taking a course and passing an examination set by the Civil Aviation Department. The syllabus includes legislation concerned with pesticide application, so pilots must be familiar with the Acts and Regulations passed to protect honey-bees. A similar instruction course has been produced by the Technical Correspondence Institute of the New Zealand Department of Education, at the request of the Agricultural Chemicals Board, for commercial ground operators. This course is not obligatory at present but is likely to become so before long.

The beekeeping industry has a permanent representative on the Agricultural Chemicals Board, a body which registers pesticides and controls their sale and use. The present representative is a prominent commercial beekeeper who in the past himself suffered serious losses of bees through the application of an insecticide. He presents a full report on activities of the Board as they affect beekeepers to the annual meeting of the National Beekeepers' Association.

IF POISONING OCCURS

When poisoning of bees is suspected, it should be remembered that the following factors may mask its seriousness:

(1) Symptoms of poisoning are usually very difficult to distinguish from those of certain diseases.

(2) Many poisoned foragers may die away from their hives, and

(3) Birds often pick up dead bees in apiaries.

If a beekeeper notices dead bees in front of hives in an apiary and suspects poisoning he contacts the local Apiary Instructor. The Apiary Instructor collects samples of dead and living bees and forwards them to the Apiculture Section, plus a case history which pays particular attention to recent local applications of pesticides. At Wallaceville the live bees (forwarded in queen cages with candy) are first examined for adult bee diseases that might have causd the mortality. Then,

if the bees are free from disease, and a particular pesticide is suspected, the dead bees are examined for it chemically. Chemical analyses cannot be undertaken lightly, as they are time-consuming and expensive. Several hundred dead bees are generally required for one chemical examination. Even if sufficient dead bees are available, it would not be feasible to examine them for the full range of pesticides that might cause mortality. It is essential to narrow down the field at least to a particular group of pesticides.

TESTING THE EFFECTS OF PESTICIDES ON BEES

It is not always advisable to assume that the results of overseas work apply locally, because climatic conditions, the type of crop to which the pesticide is applied, the method and scale of application, and the concentration, are usually different in one's own country. Flower structure may have some effect on the toxicity of pesticides to bees. Endosulfan (Thiodan) can be applied to flowering broad beans and flowering white clover without causing bee mortality (Palmer-Jones, 1959; Palmer-Jones and Forster, 1963), yet heavy bee mortality may occur when it is sprayed on choumoellier (Palmer-Jones et al., 1959). The choumoellier flower is much more open than those of other plants and sprays would enter it more readily.

Sometimes compounds are recommended as safe to honey-bees on insufficient evidence. It has been found, for instance, that the systemics demeton-methyl (Metasystox) and mevinphos (Phosdrin) (Palmer-Jones et al., 1957; Palmer-Jones and Forster, 1963), formerly claimed by overseas workers as safe to bees, are highly toxic under New Zealand conditions. The herbicide, 2,4-D, generally considered harmless to bees when applied in usual farm practice, may cause serious bee mortality when applied on a very large scale as in land development projects (Palmer-Jones, 1964).

Firms may wish to market promising new pesticides on which information is scanty. It seems reasonable to help them, where feasible, by conducting trials of their products. Such a policy also encourages good public relations between farmers, firms, and the beekeeping industry. In the writer's opinion, no beekeeping industry can afford to shelter passively behind protective legislation. For these reasons it is vital for a beekeeping industry to support an active experimental programme aimed at finding pesticides that can be used to control pests effectively without harming honey-bees.

Apart from exchanging information with pesticide firms and overseas workers, the Apiculture Section maintains a close liaison with local scientific workers engaged in pest control. This enables newly-developed pesticides, under test for control of clover case-bearer moth *(Coleophora* spp.), grass-grub *(Costelytra zealandica)*, etc., to be also screened for honey-bee toxicity. Results of tests enable the Apiculture Section to determine whether a compound can be applied without precautions to flowering crops, whether it can be applied only when bees are not flying, or whether it is unsafe to use throughout the flowering period.

Laboratory and field tests have been developed by the Apiculture Section for measuring the toxicity of pesticides to honey-bees (Palmer-Jones and Forster, 1958; Palmer-Jones, 1958, 1965). It must be emphasised that, when pesticides are applied in the field, their effect on honey-bees depends on repellency, method of application, weather conditions before, during, and after application, and other factors that cannot be duplicated satisfactorily in the laboratory. Such tests provide a means of rapidly and cheaply assessing probable field toxicity of pesticides, but their limitations render field trials necessary before a pesticide is finally judged safe to bees.

Pesticides may act on honey-bees as stomach poisons, contact poisons (wet or dry), and fumigants. Bees may also be sprayed or dusted during application. These effects can be simulated in the laboratory.

Laboratory Tests

Pesticides are usually applied in the early morning before bees commence to fly. Hence, in evaluating results of laboratory tests, their effect as stomach poisons, and contact poisons after deposition on the plant surface, are much more important than fumigant action, and direct contact effect during application.

Stomach Poisons

Bees may ingest pesticides in nectar, drinking water, or pollen contaminated by spraying or dusting. Nectar may also be contaminated within the plant by systemic action.

Feeders are charged with drops of a sugar solution containing a known strength of the pesticide. Then starved bees are fed the drops, individually, and kept under observation. A series of concentrations is dosed and the LD50 value is calculated. This may range from 20 millionths of a gram for toxaphene, say, to one half millionth of a gram for demeton-methyl.

Contact Poisons

Bees are confined with flowers sprayed with the pesticide at equivalent field rates, so simulating contact effect on a sprayed plant (Clinch, 1967).

Batches of bees are anaesthetised with CO_2 and sprayed or dusted with the pesticide, so simulating direct contact effect during application.

Fumigants

Fumigant effect is studied by using circular cages in the upper half of which bees are confined so that they are exposed to vapour ascending from the lower.

FIELD TESTS

When the effect of a pesticide on bees in the field is being tested, the maximum number of field bees should be exposed to the maximum quantity of chemical likely to be applied per acre of crop. Consequently, the aim is to apply the pesticide when flowers on the treated area are being visited by many honey-bees. It follows that the flowers of the crop must bear nectar attractive to bees, and weather conditions on the day of the experimental application must favour bee activity, because bees are most susceptible to the action of an agricultural chemical on the day of application.

Pesticides are generally applied in the early morning or evening, when bees are not flying, because conditions then are calm, and drift is avoided. Consequently, it is generally unnecessary to study the effect of applying them to pastures or crops actually being worked by bees.

Experimental Hives

Apiaries within bee range of the experimental crop are located and the condition of hives checked before and at intervals after the pesticide is applied. The beekeeper is informed of the trial and arrangements made to compensate him for losses of bees and potential crop should this be necessary.

Counts of Field Bees

It is essential to count bees on the crop to obtain a picture of bee activity before and after a pesticide has been applied, and also to assess any repellency it may exert. Bee counts are made in replicated 100 square yard strips of crop, and control fields, under climatic conditions suitable for maximum bee activity, and are expressed as bees per acre.

TABLE 1: TOXICITY OF PESTICIDES TO HONEY-BEES

Not Harmful	*Should not be applied directly on bees visiting flowers, but in early morning and evening when they are not flying.*	*Highly Toxic. Must not be applied to crops in flower at any time.*
Field Tested in New Zealand		
DNBP plus DNAP	‡Bromophos	Demeton-methyl
Endothal	DDT	Diazinon
PCP	‡Dichlorvos	Dimethoate
*2,4-D	†Endosulfan	Mevinphos
2,4,5-T (butyl & butoxyethanol esters)	Endothion	Phenthoate
	Strobane	Phosphamidon
	Toxaphene	
	Trichlorphon	
Tested Overseas		
Binapacryl	DDD	Aldrin
Bordeaux mixture	Endrin	Azinphos-methyl
Captan	Ethion	BHC
Chlorfenson	Methoxychlor	Calcium arsenate
CMU	Pyrethrum	Carbaryl
Cuprous oxide	Rotenone	Chlorthion
Dicofol	Ryania	Dieldrin
Ferbam	Menazon	Disulfoton
Kepone	TEPP	Fenthion
Maneb		Heptachlor
Nabam		Lead arsenate
Nicotine sulphate		Lindane
Sulphur		Malathion
TCA		Parathion
Tetradifon		Parathion-methyl
Thiram		Phorate
Zineb		
Ziram		

Notes:

*May cause serious mortality if applied on a very large scale as in land development.

†Must not be applied to brassicas in flower. Safe on other crops if applied before bees fly.

‡Must be applied only in the evening.

Caging and Observation of Field Bees

After the application of the pesticide, field bees are picked off flowers of the treated crop, and control fields, and kept under observation in cages with feeders of sugar syrup. These cages are maintained in a hive outside bee range of the treated crop.

Observation Hives

Sometimes it is advantageous to study the effect of pesticides upon hive activity and organisation directly. Two-frame hives are used for this purpose, one frame being above the other, so that all parts of the comb are open to inspection.

Foraging bees can be readily sprayed or dusted with pesticides, as they enter and leave such hives, and the effects observed (Palmer-Jones, 1960).

OTHER CAUSES OF POISONING

Occasionally animal pests may be controlled by compounds, such as 1080 (sodium fluoroacetate), that are dangerous to bees. The amount of 1080 in one ounce of poisoned jam used to control noxious animals is sufficient to kill up to 18,000 bees, and trials have shown that bee colonies are severely affected if field bees gather such baits. However, though a close watch has been kept during the last seven years for evidence of mass mortalities of bees, in association with nearby 1080 poisoning operations, no such evidence has been obtained (McIntosh et al., 1964).

Beekeepers should note that wood preservatives containing arsenic are poisonous to bees and their use leads to serious reduction of the honey crop. Arsenic-treated timber should on no account be used in beehive construction (Harrison et al., 1959).

CONCLUSION

The tests described have been used satisfactorily for eleven years, the results obtained being applied through the Agricultural Chemicals Board and Apiary Instructors.

Toxicity of the main pesticides to honey-bees is shown in Table 1, which gives recommendations for their use in such a way as to minimise the chances of mortality.

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WEIGH YOUR HIVES

ON A BATHROOM SCALE

AND GRAPH THE ENTIRE APIARY

By GENE HINSDALE,
Seattle, U.S.A.

Don't let the double title disturb you into thinking it is too scientific or tiresome, or unrewarding. It is none of these things.

First let me point out, most of us depend too much on guess work for the answers the graphs give us accurately, by weighing the hives.

And let me hasten to assure you the graphs we make are going to be far more scientific, and helpful, than having a single hive on a scale, great as its advantage is.

Like all good things it is simple. Take a sheet of paper. Make 12 horizontal lines across the page giving spaces for recording the weights of ten representative hives. Filling the page with vertical lines at ½in intervals will give spaces for each day weights. The top horizontal line is for the dates, progressing to the right. The next ten lines are for the ten individual hives, and the bottom line is for the total daily weight to be transferred to the Apiary Graph.

If you miss a day or two, or ten, it's all right, but of course your graphs won't be so accurate. The same is true if you use less than ten hives.

These weights are to be transferred to a sheet of graph paper at your convenience. You can make your own graph paper by ruling lines vertically and horizontally, say ⅜in square.

Starting at the left bottom edge, in the first column put down the lowest weight you find among the hives chosen. Each line above it to be five pounds greater to the top. The top horizontal space is to be filled in with the days of the month, progressing to the right.

To make your graph, take several days weights and transfer the information to the graph paper. This is how it is done. The ten hives can be numbered from one to ten. Take the weight of the No 1 hive and make a dot in the square for that date, at the proper spot to show the weight. Place a dot for the next weight you have for No 1 in its proper day column and connect them with a line. Continue for all the weights for No 1, being sure the dots are placed properly for both weight and time. The line connecting these dots is the Graph for No. 1, and should be so marked. Follow the same procedure for the rest of the hives.

The Apiary Graph is made by taking the average weight of all the hives at each weighing to place the dots on the Apiary Graph.

You will find a great variation in the individual graphs that will be levelled off in the Apiary Graph.

The list of things we can learn from these graphs is very long, but to mention a few, they show clearly and accurately if the bees are gaining or losing weight, and whether slowly or rapidly. During a honey flow they tell you whether to put on on or two supers

at a time. When a flow is starting, and also when it is ending. Maybe nectar has been coming in rapidly, and you plan to put on some more supers, but the graph shows the flow is slowing up and will be over in a few more days!

In the Spring the Graphs show which hives need feeding, and how much. Which hives may be in danger of starvation. If a hive has swarmed, if a hive is being robbed. A sudden increase in weight may show the hive up as robbers in a dearth.

The fact this article did not start out telling how to get the weight of your hives, reminds me of Will Rodgers' famous recipe for Rabbit Stew.—First catch your rabbit!

Well, here's how to get the weights. Take a short piece of ½in pipe, a block of wood, and your wife's bathroom scale (when she isn't looking!). Place the scale at the back of the hive with the block of wood on the platform of the Scale, and pry up the hive with the piece of pipe. Have a mark on the pipe so the distance from hive to block is the same each time.

The half weight of the hive has to be balanced with the proportionate weight exerted by your hand, so the Scale records the full weight of the hive. Mark it on your chart and go on to the next hive.

If your hives vary in height from the ground take a board 6 x 10, make 1in steps at one end . This gives you fulcrums from 1 to 6 inches lying down horizontally and 6 to 10 inches standing vertically.

If the Mrs keeps a watchful eye on her scale after you bring it back with mud, grass or propolis on it, you probably can get one from the Salvation Army or St. Vincent de Paul. That's how I got mine. Paid 50 cents for it, cash!

Another highly interesting record can be made up as a complement to the weights. This is a meteriological record as described by a contributor to "Gleanings". Take a sheet of ruled paper and make five columns, vertically. The first will be the date, the next mark "sky", the third mark "air", (wind or calm), the fourth is "nectar" (in pounds), and the last is "temperature" (highest). You may use symbols to save time and space. Cr-Clear, P.C. Partly Cloudy, BB Breeze (5-10 m.p.h.), W. Wind (15-20 m.p.h.), S.W. Strong Wind (25-30 m.p.h.).

You will find clouds and wind have their effect on the bees' collection of nectar, as well as on its secretion.

This works fine for single queen hives, but for four queen Compacts the nectar comes in so fast (50 to 150lbs or more per DAY) you soon over-run the capacity of one Scale and have to use two or three simultaneously, prying over a board that rests on all platforms, and adding their totals. By choosing the right spot to pry, no scale will register its limit.

AN EVUALATION
of the
VARIOUS RACES*

By BROTHER ADAM
Buckfast Abbey, England

*** This is an extract from a book just published in German by Walmer Verlag, 7601 Zell-Weierbach, Germany on the journeys Bro. Adam has made all over the world observing and studying the races of honey bees and was first published in the "American Bee Journal". The full text in the book is entitled "Evaluation of the Races".**

An evaluation of the characteristics of the various geographical races of the honey bee may appear to many a matter of academic interest. However, a precise knowledge of the hereditary qualities and dispositions, as manifested by a particular race, is an elementary necessity if we wish to make any worthwhile improvements in the bee.

The improvements in the cases of livestock and plants has been achieved either by way of line-breeding, viz., the intensification of the good qualities present to the detriment of the undesirable characteristics; or by cross-breeding and the utilization of hybrid stock; or lastly by the more advanced method of breeding: the synthesization of a series of good qualities, derived from a number of races, into fixed new combinations.

The real value of pure stock, whether formed by Nature or the influence of man, is only brought to light in cross-breeding. But in the case of the honey bee the best economic returns are not necessarily secured in a first cross, as normally happens in livestock and plants, but more often in a second or back cross. In the third method of breeding, involving the synthesization of the good qualities possessed by different races, we have the means to form, from races of little or no practical value, fixed new combinations of outstanding economic importance. This last method of breeding enables us to utilize the immense fund of valuable qualities which Nature has placed at our disposal in the individual geographical races of the honey bee.

As you will see, we keep all these viewpoints in mind in our evaluation, for without doubt all three breeding methods will play an important role in the future progress of beekeeping. They are indeed complementary.

The Intermissa Group

I will deal first with the most widely distributed race, namely, that of the common black or brown bee. We are in fact dealing here with a group of races, whose range of distribution extends from North Africa via Western and Northern Europe and the northern half of Asia to the shores of the Pacific Ocean. The English native bee was a member of this group.

My observations and experiences with this group leave no doubt as to its origin. The North African bee, known in scientific literature as *Apis mellifera intermissa,* commonly termed "Tunisian," "Punic" or more correctly "Tellian bee," is clearly the primary race from which the entire group evolved. In this

Tellian race we find all the good and bad characteristics, manifested by the entire group, in their most intensive form of expression.

The North African bee is jet black in colour, extremely prolific, bad tempered and aggressive, nervous under manipulation, given to a swarming beyond all measure; it is a marvellous comb builder, but seals the honey with watery cappings and covers the interior of the hive with a coat of sticky resinous propolis; it is endowed with incomparable stamina, hardiness, longevity and wing power. But notwithstanding its great vitality, it is most susceptible to every known disease and abnormality of the brood, in part due to its poor housekeeping ability. Queens laying infertile eggs are common — a defect which to my knowledge does not occur in any other race or group of races. The Tellian bee is also highly susceptible to diseases affecting adult bees, particularly acarine and paralysis, but seems in some intances more resistant to Nosema and to the detrimental effects of unsuitable winter stores. An unusual tolerance of the wax moth is merely a further consequence of the poor housekeeping ability. In connection with the extreme aggressiveness and nervous disposition I must also draw attention to the extreme hostility of this bee towards the queen when a colony is disturbed for any reason. These characteristics of the primary race persist throughout all the sub-varieties, but in a wide range of variation and modifications, as Nature and the needs of particular environments determined in the course of time.

In the Iberian subvariety we can already observe a number of modifications, notably in the fecundity of the queens and swarming tendency. In place of the wanton extravagance a decided measure of thrift is manifested. In the French varieties a tendency to construct white cappings makes its appearance; and in the northern and northwestern sections, a substantial reduction in the brood rearing propensity and a more orderly arrangement of the brood nest. This tendency is perhaps best typified in the Swiss variety. Very remarkably, in one of the Swiss strains, appropriately named "Nigra," we meet again the jet black colour of the primary race: In the German heath bee, known in England as the Dutch bee, the extreme swarming tendency of the Intermissa reappears.

The old English brown bee had all the defects and good qualities of the North African, but distinguished itself from the primary race and the Continental subvarieties foremost by an extreme moderation in fecundity. The brood area of a native colony rarely if ever extended beyond eight combs of British Standard size. The swarming tendency was by no means as strongly developed as in the present-day Continental varieties, which superseded her. She was extremely thrifty and could eke out an existance in the worst of English summers. Her cappings had a perfection unmatched by any variety of this group of races or by any other race known to me.

The old native bee was pre-eminently suitable for cross-breeding. But this holds good in some measure for a number of the Continental varieties, foremost in some of those found in France, Spain and Portugal. Indeed the Intermissa group of races embodies a honey gathering ability — linked, unfortunately, with many undesirable traits — as found in few other race groups. There is one quality which the entire Intermissa group lacks, namely, the ability to collect nectar from the red clover, due to the short tongue reach.

You will have noted, that I referred to the old English bee in every case in the past tense. All the evidence points to the fact that this bee does not exist any longer. We must not forget, there are very few people alive today who possess a first-hand knowledge of the characteristics of this bee. I made every endeavour during the past 40 years to get hold of this race again, but without success. The late Mr Tinsley, while in charge of the Beekeeping

Department at the West of Scotland Agricultural College, thought at one time that he found the true native on one of the remote islands west of Scotland. After further tests he came to the reluctant conclusion that the bee in question did not possess the characteristics which distinguished the true native from the Continental varieties imported subsequent to the First World War.

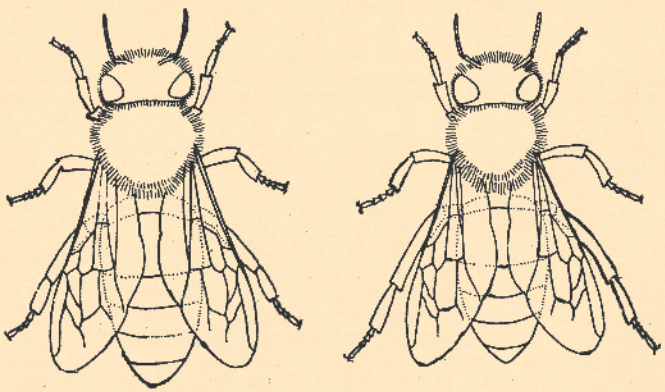
The Italian Bee

There is no need for me to say much on this race. Everyone is familiar with its main characteristics, at least as manifested in the present-day strains developed in Italy and North America. But I should perhaps point out, these modern strains have little in common with the dark leather-coloured variety imported at one time from Italy.

The Italian bee is unquestionably endowed with a whole series of valuable economic qualities and which have been the cause of her world-wide distribution and near universal favour. Her foremost good qualities are exceptional industry, good temper, fertility, reluctance to swarm, rapid comb building, white cappings, good housekeeping, resistance to disease, tendency to take to the supers readily and her ability to gather nectar from the red clover. Her outstanding defects are lack of stamina and thrift, which form the root of her other weaknesses. She also tends to drift more than any other race, which makes her quite unsuitable for the central European way of keeping bees in house apiaries.

In one characteristic the Italian bee seems to surpass all other races, namely, in its resistance to acarine. It would however be wrong to assume that all Italian strains possess this quality in equal measure. As a matter of fact many of the present-day bright yellow strains have lost this resistance completely. Indeed they often show a high susceptibility to acarine.

I have the impression that the queens which were imported from Italy 40 or 50 years ago gave proof of greater vitality than those imported in more recent years. Furthermore, the defects of the race have been in the meantime seemingly intensified at the expense of its good qualities. Today too much emphasis is laid on bright yellow colour, but my experience with this race indicates that the less attractive leather-coloured Italian is by far the better bee commercially.



Differences between bees with large bodies and relatively short appendages (A. M. MELLIFERA, left) and bees with small bodies and relatively long wings, legs, and tongues (Italian and Carniolan, right). Schematic. From "Races of Bees," by F. Ruttner in "The Hive and the Honey Bee."

This race can produce hybrid stock in a first or second cross, both on the maternal and paternal side, possessing outstanding honey-gathering ability. Moreover, it combines well with almost any other race. And there is no doubt, in the creation of fixed new combinations, by way of synthesization, the Italian will play an essential part, precisely because of its all-round suitability.

The Carniolan Group

The Carniolan bee has been described by one authority as a greyish-black version of the Italian. In my view it would be more correct to say, that the Italian bee is a yellow version of the Carniolan. For all we know, the Italian may well be a subvariety of the Carniolan. There are many resemblances between these two races.

The first importations of this race came from Upper-Carniola, a section of northern Slovenia which now forms part of Yugoslavia. But in the adjoining Provinces of Austria, in Carinthia and Styria, this bee is found in equal purity. Indeed the distribution of this race extends almost to the whole of the Balkan Peninsula and possibly to the Ukraine.

In the days before the First World War, and for some years thereafter the Carniolan was very popular in England. At the present time hardly anybody keeps this bee. On the other hand, on the Continent, particularly in the German speaking countries, the Carniolan is well on the way to supplanting completely the native varieties belonging to the Intermissa group.

The main external markings, which distinguish this race from the common European black bee, are the dense grey overhair and short and wide tomenta of the same colour, which combined give this bee a greyish appearance. The basic colour of the body is black, but not infrequently leather-coloured bands or markings will make their appearance on the first and second dorsal segments. The queens vary from all the way from black to yellow.

The most striking characteristics of the Carniolan are her exceptional docility, absence of any nervousness, great industry and stamina, freedom from brood diseases, outstanding thrift and ability to winter on a maximum of stores, keen sense of orientation, disinclination to propolize, white cappings, and last but not least her ability to work the red clover.

Among her undesirable traits her extreme swarming tendency must be classed as the greatest; next an inadequate fecundity and susceptibility to Nosema, paralysis and acarine. She is also a poor comb builder.

In the Carniolan we have a bee with many valuable good qualities linked to a small number of the undesirable kind. But as is often the case, the few bad traits exercise a dominant influence on the economic value of this race.

There is no doubt, the Carniolan is the bee par excellence for districts with an early honeyflow but it is next to impossible to bring about a harmonious balance between her twin tendencies of rapid spring development

The hairs on the abdomens of worker bees: Tomentum (band of hairs in the middle of three abdominal segments of workers) and "overhairs" shown in profile. Left, MELLIFERA, right CARNICA. From "Races of Bees," by F. Ruttner.

and excessive swarming for her to make the most of a main flow in mid-summer. Where there is a late flow, such as from the heather, she falls far short of most other races we have tested.

With the majority of races, swarming can be kept within certain bounds. Moreover, when the swarming fever takes hold of a colony, the normal activities proceed, although to a lesser degree of intensity. In these circumstances there is always a good likelihood that the swarming fever will subside without any further action on the part of the beekeeper, and with few exceptions this normally happens. But with the Carniolan at the onset of swarming all useful activities cease, and unless the swarming urge is given full rein or measures are adopted, which we do not regard as economical, there is little hope of a good crop of honey even in the best of seasons.

At one time the Carniolan had the reputation of being prolific. But fecundity is something relative, dependent on the standard one sets for evaluation. At the turn of the century Cheshire and Cowan judged the Carniolan by comparison with the old English native bee. According to our experience a Carniolan colony will rarely if ever have more than seven combs of brood of Modifield Dadant size. Furthermore, this bee reacts with great impetuosity to spells of unfavourable weather and will in times of dearth reduce or stop breeding altogether, even in the presence of an abundance of stores. This stop-go tendency in breeding, combined with the limited fecundity, has a very adverse bearing on the effective colony strength.

One of the most desirable qualities of this bee is its extreme gentleness and complete lack of nervousness. In behaviour she represents the extreme opposite of disposition to that of the common European black bee. The same is true in regard to the use of propolis; the real Carniolan will use wax in place of propolis. Unfortunately, in the present-day commercial strains this unique quality has been largely lost, as also the disposition to cap the honey white.

Notwithstanding the many sterling qualities and the undoubted popularity this race enjoys in parts of Europe, we find it does not lend itself to the beekeeping as practised in this country. In cross-breeding a first generation hybrid will invariably prove useless from the economic point of view. The heterosis intensifies the swarming tendency to an even greater degree than is the case in pure-breed stock. On the other hand, when Carniolan drones are crossed with queens of other races, excellent hybrids will usually result. Indeed, I have no doubt that this race will contribute an invaluable share in the breeding of new combinations.

Subvarieties of Carniolan Bees

As already stated, the Carniolan bee extends virtually over the whole of southeastern Europe. In this large area, with its great variations of climate and environment, a number of subvarieties are found, of which two come at once to mind: the bee of the Banat and the variety that has its habitat in the Carpathians.

We have tried out the Banat bee. Externally she is hardly distinguishable from the typical Carniolan, but differs somewhat in other respects. For example, she propolizes more freely, constructs a large number of queen cells when preparing to swarm, which the true Carniolan does not do. Also she is not so prone to swarm, but apart from this she possesse no characteristics of value not already present in a more highly developed form in the Carniolan.

As far as the bee of the Carpathians is concerned, I am not yet in a position to give any definitive report.

THE BEES THAT NEVER MISS THE BUS

By R. D. YEO JENN, writing in "Bee Craft"

MY COMPANION on the coach was a young Manxman. When he told me that he was looking for a site in the north of the Isle of Man on which to establish a vineyard, I thought he was pulling one of my legs—and when, later, he remarked that someone on the island kept bees in a bus, I felt sure he was gently pulling the other!

But he seemed so sincere that it was difficult really to believe that he was having a quiet laugh at my expense, and, in any case, bees in a bus seemed to be such an intriguing idea that I decided to find out.

In such a quest quite naturally I went to the local bus office to inquire. Alas, 'twas just as I thought for no one there, drivers, conductors, nor the inspector had ever heard of such a phenomenon (though the thought of a "b— bus" certainly made them all smile) but they assured me there were no such buses on their routes and they nodded their heads in thoughtful sympathy. As I was about to leave them, however, one suggested that I should try the Police Station and then I was convinced that I had landed right in the centre of some gigantic Manx leg-pull.

The Sergeant on duty looked up with a merry twinkle in his eye as if to say, "Here's another of them!" and busied himself with the routine details of a wayward motorist's driving licence.

"Well," he mused, as he listened to my unusual request for a bus load of bees, "one of my colleagues is a bee-keeper, he might be able to help you." And then, almost as an afterthought he added, "But he's on leave."

He gave me a quiet grin when I asked for his friend's address and I am sure he gave a chuckle as I set off on foot to find the house, a long way from the Police Station.

Fate — or fortune — smiled only gently on me and but for a grim determination to find out whether or not bees were kept in buses instead of hives, I should have given up the search. One glance through the window and my spirits dropped even further for at the address which I had been given, something was definitely "up"—or upsidedown, for when I finally located him, Police Sergeant Trevor Rimmer of the Isle of Man Constabulary, Honorary Secretary of the Manx Federation of Bee-keepers and his wife were in the middle of spring cleaning and awaiting the arrival of the sweep, only two doors away.

No one could have chosen a more in-opportune moment to call, and I regretted that I had not abandoned my bee hunt earlier — but when I had explained the nature of my visit to Mr Rimmer, domestic chores, the sweep, spring cleaning, the lot were cast aside whilst we talked bees for here, in person, was the owner of the only bee-bus, the only bee house, on the island.

As I left, the sweep arrived.

Resting after a lifetime of roaming around the winding and narrow lanes of the island, the old motor coach—the pride of its day, the very latest in luxury travel had come to rest. In a corner of a farmyard some four miles from Douglas it has been transformed into an ideal bee-house-cum-storeroom for an out-apiary.

Bereft of all its luxurious fitments, but looking proud and dignified in its retirement, the bus now holds up to 12 hives spaced on runners placed along the length of the interior. On each side of the coach, six openings have been cut for the hive entrances and each small alighting board affixed to the entrances has been painted in a different colour to facilitate location and to minimize drifting. The large glass windows have also been painted to help the bees find their way into their novel home.

In the bus there is adequate room for the hives in full production as well as plenty of space for storing surplus supers and other impedimenta of the craft. Light and ventilation are provided through the sliding vents over the large windows—and here, in peace and comfort, Mr Rimmer spends many happy hours.

True the coach's engine has been removed and the entire chassis is encased in a girdle of wire-netting as a protection against rats; perhaps the exterior coachwork isn't as highly polished as it was in the vehicle's heyday, but in the quietness of the dimmed interior we listened to the contented hum of its many "passengers" and discussed the merits of this unusual bee house. Mr Rimmer was full of enthusiasm as he explained the signs and sounds his bees revealed — the happy hum of the bees at work, the piping of the queens, etc. (and, to ascertain the state of his colonies, Mr Rimmer is about to use an "apidictor" at his apiary). The bus has all the advantages of the more traditional bee-house. Manipulations can be carried out even when outdoor conditions are not really suitable, consumption of stores is less than in the hives outside; the spring build up is more rapid and damp in hives is a thing of the past. Even that errant bee, so intent in wreaking vengeance in the garden does not think unfriendly thoughts as it makes for the light shaft and vanishes to rejoin its hive mates through the entrance below.

We spent a couple of hours together in the apiary, both with the hives inside the bus and without as my host carried out a rapid and expert appraisal of the state of the colonies; but we spent most of the time discussing bee matters for all the colonies were in good heart. Those requiring attention for one reason or another were noted, and the dried wood smoke gently subdued even the most lively colony. Time passed, the door of the bus was locked and as I had just one last look, one stung!

But now I know that Manx cats have no tails and now I really have seen the bus that had bees (almost) in its bonnet, but as for my friend Naboth of the coach trip. I often wonder if he really wil lestablish that vineyard at the Point of Ayr?

BEES STOP A CITY'S WATER SUPPLY

By R. H. BROWN

The capital African city of Zanbia was without water; not from drought or earthquake, or even a strike at the waterworks, but because a large and very angry colony of bees had taken over the switchgear control box on top of the huge water tower. A float fixed to a long cable should automatically switch the pumps off or on as the water level rose or fell, keeping the tank full all the time. Today the darn thing was nearly empty and still the pumps weer not working, so an unsuspecting electrician came to put matters right. As he slowly climbed the 60 ft. fixed iron ladder he was stung once, then again, and ran for has Land Rover parked 50 yards away. Egged on by a workmate he wrapped an old shirt around his head and tried again, but was driven back before he even reached the foot of the ladder.

African bees have a well-earned reputation for viciousness, and at that time there were only two beekeepers in Lusaka. Ebden Carlisle was a member of Parliament (in session at the time) and I was the other, so of course I was asked to remove the bees before the town ran dry.

At three in the afternoon on a hot, cloudless September day, I drove as close as possible to the tower. As I jumped out I was met by bees rattling against veil and chest like peas from a mechanical pea-shooter. I slowly climbed the ladder and well before I reached the top there were several bees inside my veil. Stings coming right through the boiler suit reminded me that in the tropics one only wore vest and shorts underneath. On the flat roof in full sun was a metal box about 2ft. 6ins. square by 3ft. 6ins deep, the centre of a roaring, angry cloud of wild African bees. I crawled over to the box and started to puff smoke into one or two openings as I would have done into one of my hives at home. Unfortunately these bees knew nothing about beekeeping, and instead of sobering down they just poured out in their thousands and the whole colony went really berserk. With stings all over and a red-hot feeling around my neck I gave up. All things are relative and 20,000 people without tap water now seemed a good deal less important that it had an hour ago. I clumsily felt for the rungs of the ladder with my feet, and fear of falling fought with the pain of dozens of stings. Those bees followed me down the iron ladder, chased me into the car and all the way home to Zomba Road there were 30 or 40 bees with me intent on my destruction!

Once home I stripped down, surveyed the damage and yelled for help. My patient wife pulled out 85 stings, mostly from by neck, and provided what I needed most, lots of sympathy and a glass of whisky. Those 85 stings were from bees that had got under my veil and many other stings had been through the boiler suit, with the barbs remaining in the material, so the tally was well over 100 with several hundred more embedded in the suit, not having gone right through. Now what? I hate the very idea of gassing bees, but the job had to be done, so I collected a siphon of liquid sulphur dioxide, a torch and a few tools and waited.

The tropical sun sank below the horizon about half past six and by seven it was dark. The air was cooling and the night was still. As I climbed those iron rungs again the peaceful

sounds of the evening carried from far away. Talk and laughter floated up from a group of Africans gathered around their evening fire. I could hear drumming from a distant village, the shrilling of countless nocturnal insects and the clanking of railway trucks as a copper train going south crossed a coal train on its way up to satisfy the great mines of Nkana, Roan Antelope, Mufulira and Nchanga.

The metal box was still warm from the sun and fanning bees were still roaring at the slits as I pushed the rubber tube in and turned on the gas. Slowly all noise died away. I prised the side off with some difficulty and in the torchlight saw the biggest mass of combs I have ever seen in any nest. To make a thorough job of it I pushed the rubber tube right in between the slabs of comb and turned on the gas again.

After scraping a mass of burr comb and propolis off a large pulley wheel I saw the steel cable free itself with a jerk, and deep below there was a splash as the float dropped back into the water. The motor cut in and the pumps started up. Lusaka would have water tonight.

In the morning my neck was a couple of sizes bigger even if my head wasn't. I went back to the scene of my crime after breakfast with a couple of pails and began cutting out the comb. There should have been a sticky mass of soft melting wax and honey, but those adaptable bees had fixed the combs to the top of the metal box with a dark mixture of propolis and wax of very high melting point and there was no disorder even in death. From the slabs of sealed brood young bees were already emerging. I filled one pail completely with the cleanest sealed honey combs and the other pail with combs of sealed brood wrapped all over with half an old blanket. For the rest I'm afraid I just cut it out and pitched it over the side, and in no time at all a dozen African children were shouting and laughing as they retrieved the spoils. I scraped the last traces of wax off the box and then sprayed everything thoroughly with a solution of DDT in paraffin, to discourage further occupation.

Later on I filtered out 20 lbs. or more of clear honey from the sealed honey combs, and I suppose several thousand young bees successfully emerged from the brood combs propped up in supers over Waldron excluders in two of my colonies. I felt much better when these emerged; with the soft, furry friendliness of day-old bees they showed no malice and were soon helping to fill my own supers with honey.

My neck was soon back to normal, and as I lay in my bath that night I pondered on the skill and adaptability of those bees, who could exist in the tropics in a virtual oven, when all the books stress the need to prevent overheating in hives in an English summer.

IT DOES NOT PAY HONEY FARMERS TO BLEND DIFFERENT CLASSES OF HONEY

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

Suppliers to the Honey Marketing Authority have long been advised NOT to blend MARKEDLY DIFFERENT honeys together if they can easily be kept apart. Juding by the honey presented at the honey floors, beekeepers have yet to be persuaded. Some figures might convince them?

Example 1

At Ruakura Seminar this example of financial loss due to blending was expressed:—

Honey Farmer "A" supplies 10 cases of Clover Honey worth	$153.35
and 1 case of Buttercup Honey worth	8.79
	$162.14
Beekeeper "B" supplies 11 cases of the identical honey but blended together worth	$145.36

If "B" had thrown away the dark honey instead of allowing it to become incorporated into the clover honey he would have been $8 (5%) better off and in addition would have saved himself 1/11th of his handling, packing and freight costs!

"A" however, by taking a little trouble to separate the Buttercup from the Clover has qualified for the title of "Honey Farmer" because he has earned $16.80 more **profit** from identical goods.

News

The Victorian Department of Agriculture's Apicultural Research Unit has just produced scientific evidence to QUALIFY our practical knowledge and the advice we have given regarding the foolishness of blending "melter" honey with "extractor" honey. No one can now refute my second example, which is an ordinary, every day one.

Example 2

Honey Farmer "A" supplies 4/5 ton "extractor" honey grading:—	
Colour: 75 (Light Amber)	
Flavour: Delicate.	
Condition: 100.	
Source: MXD.	
which is worth	$198.22
Colour: 65 (Light Amber).	
Flavour: Mild.	
and also 1/5 ton "melter" honey grading:—	
Condition: 95 slightly overheated.	
Source: MXD.	
which is worth	$44.62
	$242.84

Beekeeper "B" supplies 1 ton of "extractor and melter" blended honey identical in origin to above, grading:

Colour: 70.
Flavour: Mild.
Condition: 100.
Source: MXD Faint taint (derived from melter).
which is worth $234.82

Simply by running his "melter" honey into a separate tank, "A" from identical goods has made $8 more profit than "B." This would amount to $200 of a 25 ton crop. Of course, a less efficient melter (or operator) would instigate even greater financial losses from subsequent blending of such honeys.

.....**Conversely,** water white honeys like Lucerne and Thistle could prove an exception to example 2. Technically, these honeys in a melter could deteriorate say 10 to 15 points and render them below top grade (and therefore below top price) yet if blended with the extractor honey, the lot could conceivably grade out above 99 points. With these exceptional honeys, the wisdom of blending or of separation would depend entirely upon the efficiency of the melter and its operator.

Beekeepers should note that the recent Victorian research has confirmed that regardless of the **type** of melter in use, the most significant and altogther too common factor responsible for loss of quality was the **abusive mode of operation** of melters rather than their design.

Today, for reasons of economical daily output, melter appliances are tolerated as "necessary evils" in honey houses, yet it would be progressive if they could be replaced by something less ruinous to the honey.

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How to make

"THE NECTAR of THE GODS" and not "PLONK"

By ROGER L. WELSCH, of Lincaln, Nebraska

Early English and Scandinavian beekeepers had a problem. They had no extractors, no convenient hive frames. So they scraped honeycomb from box hives and from hollow trees and crumpled comb. Most of the honey ran from the draining boards and was poured into pottery containers. But the problem was, what could they do with all the honey-soaked wax that was left? There was too much honey in it for the wax to be used conveniently and there was too much wax in the conglomeration for the honey to be eaten.

The pleasant matter was mead, the drink of the gods, the ambrosial Anglo-Saxon and Norse drink that has been the subject of many ancient songs and poems. Even the word "mead" has a legendary and heroic sound.

Again today, in the 20th century, mead has become a topic of conversation and contemplation. For two reasons more and more people are trying their hand at preparing mead: many amateurs are enjoying beekeeping as a hobby—with perhaps only one hive—and at the same time beekeeping is becoming increasingly an efficient industry. The amateur, one-hive beekeeper like me finds himself in the same situation as the Viking bee man. And like him, we too find it a simple matter to throw our wax-and-honey amalgam into a crock or plastic bucket, add a little water and yeast, and anticipate the pleasant results. And the growing bee industry has made pure honey an inexpensive commodity for the general public—a fact that has put mead making within the province of anyone. Mead can now be made as cheaply and easily as virtually any other kind of wine.

The recipe is ridiculously simple. The wax-and-honey mixture or pure honey is mixed with water to a 10% sugar concentration, which is best measured with a hydrometer (a fancy name for a "beer tester"), which can be purchased for about one dollar. A teaspoon of dry yeast (brewer's yeast is even better) is added for each two or three gallons of liquid, and the whole is mixed thoroughly. After about three days the wax and scum can be ladled from the top of the brew.

Some mead-makers like to add a pinch of Calgon water-softener to encourage the hardy growth of the yeast. Others enjoy experimenting with special flavours by adding a few peppercorns, raisins, cloves, cinnamon sticks, or other herbs.

When the most violent working is over—usually after about three weeks, depending on the temperature of the mead (about 70° is best)—the liquid can be siphoned or poured into gallon jugs or larger glass carboys or even barrels. The trick is to see than any further gases can escape but that no

air can get to the finishing mead, for air can quickly turn the mead into gallons of vinegar.

The jugs can be stoppered with cloth plugs, or even better, balloons can be stretched over the mouths of the jugs and occasionally the pressure can be relieved by letting some of the gas out. For larger containers it is best to insert corks into the necks, drill holes through the corks, insert short lengths of hose and run the hose into glasses of water; this permits the gas to bubble through the water while preventing air from reaching the mead. However, commercial water seals can be purchased.

Mead works much slower than most wines because of the antiseptic nature of honey: it discourages bacteria. But within a few months the yeasts will slow and only an occasional bubble will rise to the surface of the wine, and the brewer has a delighttful choice to make. If sparkling or crackling mead is desired—that is, mead with just a touch of effervescence—it should now be siphoned off into bottles meant for effervescent beverages and capped tightly with a standard bottle capper. If straight "quiet" mead is desired, it should be permitted to work out for another three or four months until no more bubbles appear. This means that the alcohol level has reached the point where the yeasts can no longer work, about 12 per cent.

After about two more months, during which the yeasts and residues settle to the bottom of the cask or jar, the mead should be siphoned into clean bottles and permitted to rest for another several months—a year is even better. A stronger and tastier mead can be made by adding brandy to taste when bottling.

It is often said that the most important ingredient in good wines is patience, and that is certainly the case with good mead. The longer you can resist the tempation to open the bottles of clear yellow nectar the better. But once you do, you will never again look with dismay at the glob of honey and wax left after draining honey from chunk; you will begin to wish that there were even more!

CROP ASSESSMENT for 1967-68

Reports from Apiary Instructors indicate that this season's total honey crop will be much below average. The following is a summary of the seasonal conditions and honey crop prospects in districts as at mid-January: supplied by the Department of Agriculture.

NORTHLAND

A mild winter was followed by an almost perfect October. Swarming was not a problem and early conditions indicated an above average crop.

Manuka yielded heavily and in many areas the flow was so rapid that bees crammed the brood nests with honey. This left the colonies with small brood nests and dwindling numbers of field bees. In November, brood rearing suffered a further setback by a sudden detoriation in the weather. This lasted for six weeks when practically no honey was gathered.

The weather remained unsettled during the early summer and colonies consumed their surplus stores in building up and maintaining colony strength.

Clover is flowering profusely. Good crops of honey could yet be secured from this source, and from pohutukawa which is still blooming abundantly in coastal areas.

AUCKLAND

The month of October opened up well with a very fine and hot month and the bees made the most of it.

November and the first half of December deteriorated and bees used up all surplus stores that were gathered in October.

From the middle of December and up to the time of writing, the weather has improved but hives are too weak to take advantage of the profusely blooming clover. The pohutakawa which had one of the best bloomings for years has finished now on the mainland but is still flowering on Rangitoto where a heavy crop of this honey is being harvested. Strong hives on the mainland have a good crop of this honey also.

Some beekeepers report light crops but in the main most hives will be fortunate to secure any surplus.

WAIKATO

Mild winter months kept the bees flying, consequently on opening up in August it was found that many hives had died of starvation and very many more were in a very weak state, however, reasonable weather during August, September and part of October and much feeding with sugar had the bees in reasonable condition by this time and prospects looked good.

By mid-October no swarms had been reported and hives were showing no signs to do so. As from this date weather conditions changed completely to strong winds, heavy rains with temperatures generally below average.

These conditions prevailed until near the end of December and reduced the hives to a weak state with many colonies again on the verge of starvation. Sugar feeding was again necessary to keep many of these colonies alive.

Although much warmer, late December and January conditions have remained unsettled with colonies making very little headway to producing any surplus honey.

Although clover is flowering a good crop may still be obtained from this source, the total crop for the district will be far below average.

TAURANGA

A mild winter was experienced but the bees generally came through in a much weaker condition than normal.

October weather was fine but deteriorated during November and December. Rainfall for these two months was above average. Swarming was light and colonies generally remained backward.

The weather in January has continued to be unsettled and most hives have not as yet sufficient honey for wintering.

Virtually no honey has been harvested in the Rotorua, Tauranga areas and returns for the Gisborne area are below average.

If the weather does not improve in the next 2-3 week period little honey can be expected and the prospects for good wintering of hives are not bright.

HASTINGS

In the Hawkes Bay area (Wairoa to Takapau Plain) extracting of honey is under way but the season is later than usual and a light to medium crop is expected. From Norsewood and in the Wairarapa generally no surplus honey has been gathered and beekeepers are pessimistic. A larger amount than usual of manuka honey has been taken off in Hawkes Bay.

Pasture is in fair condition, and prolonged hot weather is necessary to improve the present crop prospects.

The main features of the season are the lateness of the crop coming to hand, and the greater amount of manuka honey in the Hawkes Bay area. A smaller crop of section-comb honey is foreseen, compared with last year.

PALMERSTON NORTH

A period of settled weather from mid December until mid January has resulted in quite good crops, especially from the lighter coastal country. A short, unsettled, windy period in mid-January may have caused some dwindling in hive strength but has stimulated clover flower growth in most areas. If the current fine spell holds above average crops should also be secured from inland areas which are typically later yielding.

An above average crop of honey should be secured from hives in the Palmerston North district this season.

HAWERA

Colonies wintered well. In October early nectar sources yielded heavily and conditions generally were ideal for beekeeping. November weather was unsettled with high winds and cold periods of rain. These conditions made sugar feeding necessary in all but Barberry areas. With unfavourable weather during December and early January honey crops at this time are light. However, with fine weather an average crop in some areas could be harvested.

NELSON

The district experienced a cold, showery November with the West Coast having the wettest November for 40 years. Most of the Kamahi had finished flowering by the time the weather improved and with the indications of a fairly good flowering of rata the honey crop should be a little above average.

In Nelson and Marlborough the honey flow was late in starting and has since been very slow. However, this should improve as both areas have had rain at appropriate intervals which has increased the availability of the main nectar sources. Average crops are expected.

CHRISTCHURCH

Canterbury experienced a warm dry winter with less than half the normal rainfall. July had the second lowest rainfall in 100 years and on the last day of the month the temperature of 73.3°F. was only two degrees below the highest ever recorded. August completed the winter with the warmest month on record.

Spring started with a cold unsettled September with more rain and less sunshine than normal. October was a warm month with high sunshine and low rainfall. November was cold, wet and windy, with unprecedented falls of snow in inland districts and in the southern part of the district from the coast to the ranges.

December was a better than average month, with mainly dry sunny conditions and warm temperatures; also a good rain of up to two inches or more in most areas towards the end of the month.

The willow flow was again affected by weather conditions, and the season which earlier on, was normal, finished up about a fortnight late. Feeding had to be carried out in most areas until the clover started to yield in December.

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NATIONAL BEEKEEPERS' ASSOCIATION OF NEW ZEALAND INC. — COST OF PRODUCTION SURVEY

NOVEMBER 1967 — in accord with Remit 3 at Conference

	Gore/Southland	*Oamaru/Sth. Cant.*	*Northland*	*Auckland*	*Hawkes Bay*	*Other Areas*
Number of Returns	5 (Note 1)	7 (Note 1)	1	2	1	5
Direct Expenses (Average)	1048	3099	*	*	*	1814
Indirect Expenses (Average)	448	623	*	*	*	512
Interest on Capital 5%	335	606	*	*	*	571
Total Cost	1831	4328	*	*	*	2897
Average Honey Crop	28939 lbs.	57963 lbs.	*	*	*	49352
Cost per lb. — excluding owner's wages	6.3 cents	7.4 cents	10.96 cents	12 cents	8.8 cents	5.8 cents
Sale Price	13.5 cents	12 cents	*	*	*	14 cents
Hours Worked	1875	2098	*	*	*	1982
Return per hour (Note 2)	$1.11	$1.25	*	*	*	$2.02
Number of Hives	410	602	*	680	*	624
Production per Hive	70.6 lbs.	96.3 lbs.	64.3 lbs.	33 lbs.	92 lbs.	79 lbs.

* Because of the few returns received from this area this information cannot be included.

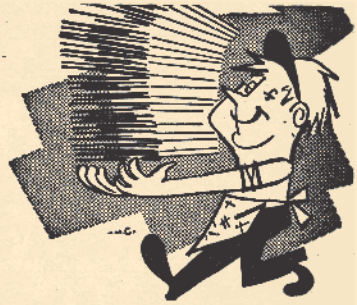
NOTE 1: Three returns were omitted from the summary as the information given was not sufficiently complete.

NOTE 2: This has been assessed on the basis of hours worked divided into the balance of income remaining after deducting total cost from sales income.

COMMENT: Because of the few returns forwarded, the value of this survey is very limited. It is quite clear that not all who supported the remit at the 1967 Conference for a Cost of Production Survey took the trouble to assist the Association in carrying out this Conference decision.

More detailed summaries will be made available to the Gore/Southland and the South Canterbury Branches.

BRANCH NOTES



OTAGO

Our next Field Day will be at Mr. R. N. Hume's apiary, Roxburgh, on Saturday, February 24.

Jack Fraser will report on matters affecting the H.M.A., and Jack Glynn on the work of the Executive. Other specialist speakers will be R. Hobbs, David Penrose from Leeston and R. Hume, our host.

Visitors will be cordially welcomed and tea, milk and sugar will be provided.

Reported by Mrs. A. Dale.

NORTHLAND

The festive season is again behind us and with the best weather we have had for many a season. Bees are working hard and to their limit, whilst the more fortunate beekeeper is relaxing by the seaside, lapping up the sun whilst the slaves work.

One of our members is on a working holiday in Australia, and he writes to say that the heat of Queensland is pretty terrific. On his return, a report will be filed of his experiences with Australian beekeepers.

Next meeting of the branch will be in mid-February, when decisions will be made on a joint Field Day with the Far North.

Swarms have been particularly scarce this year, and only five or six have been reported for the whole district. There must be a logical reason, but what is it?

Reported by Arthur Tucker.

WAIKATO

The annual Field Day of the branch will be held on Saturday, March 2, at the Opal Springs, Okauia, Matamata. Everyone welcome to join us. Bring your swimming togs with you.

After a near perfect October, November and early December were a beekeeper's nightmare with heavy rain and near gale winds. Heavy feeding was needed just to keep the hives alive and, by mid-December, when a little honey started to appear, hives were showing the effect and were down in brood and bee strength.

Bush sources with the exception of Kamahi in inland areas were a failure, hives in some bush areas having no honey at all at the end of December.

Clover flower was nearly non-existent until New Year, blackberry a very light flowering, and Manuka while it flowered well in most areas did not always yield anything.

Some settled weather in early January has given a flow of sorts, depending on locality, but the crop prospects are poor, some areas not having winter stores yet. There is quite a good flowering of clover and lotus now, with capeweed and thistle starting to flower, so let's hope for some fine weather so that we can all survive until next year.

A feature of this summer has been the difference between two queen hives and those run with standard methods. The two queen hives still have a good field force while others are very weak, and with very little honey gathered compared with the stronger two queens.

Preliminary notice is given that the branch will hold a Coloured Slide Competition to be held during Conference. Entries to be of six best slides pertaining to beekeeping. Further particulars later.

Reported by H. N. Tuck.

AUTUMN REQUEENING

One of the problems with autumn requeening has been how to cope with robbers and not get everything robbed out, and having robbers smothering around you as you work.

We have found an efficient way to allow you to combat this robbing problem and have used it with great effect. It enables requeening to be done in February and March, no matter what the conditions.

The main thing is to put out a decoy to take the robbers away. First find which way the wind is blowing, then set out about 30 supers of extracted combs two or three chains from the apiary so that the wind blows to the apiary from where the combs are, so that all hives get the smell and start to work. Next, wait until the bees are well at work on the combs, then you can set to work to find queens. If you can put in an excluder a week previously, it is a big help, as you know just which box the queen is in, then shake through an excluder to find. It pays to do all hives in a yard. The ones with queens left sometimes prove troublesome afterwards. If you find any young queens, cage for the present and prepare the hive to make a nuc: on top over a dividing board. When the bees have settled down slip in the board and block the entrance with one thickness of newspaper pierced through with a nail hole.

If robbers start where you are working stop, as they are not on the decoy properly, or you may need more combs put out to hold the robbers away. You will soon notice a shake out in the

It is advisable to reduce the entrance though not necessary, and young queens can be put in as you go. When you are finished, put lids on the decoys and pick up later as they are needed to keep the bees away from hives just worked.

We always start away from the decoy and work towards it. If robbing starts, stop and start again in another part of the yard.

It is lovely next spring to have an apiary with all young queens and maybe two or three spares. The work required to prepare them for the honey season is so much easier.

C. Bird,
Manager, Bates Apiaries.

Vehicle Costs in Beekeeping

Vehicle running costs are the largest single item of expenditure in commercial beekeeping. It is logical, therefore, to keep visits to out-apiaries down to a minimum.

Efficient management should be possible with no more than seven visits during the year. These are:

In January—one, or possibly two, visits will be necessary to remove surplus honey and to give further comb space.

In late February or March—reduce colonies to two brood chambers, making certain that the top chamber is full of honey. Also make a final check for disease, requeen where necessary, and reduce entrances.

At the end of August or early September—feed where necessary and unite weak or queenless colonies. In late September or early October—check food supply, examine the brood for signs of disease and note the condition of queens, reverse the brood chambers and add a third box for brood or honey if necessary.

In mid-October or later, according to the season and location— take necessary swarm control measures. Add queen excluders, if used, and requeen where possible, noting colonies to be requeened later in the season. Also check food supplies and add additional honey supers.

Mid-November to end December—standardise colonies by equalising the brood and remove any early surplus honey of poorer quality, and super-up for the main honey flow.

—Apiculturist, Auckland.

A GUIDE for BEGINNERS

By R. A. Walsh

Apicultural Advisory Officer, Auckland

While amateur beekeepers in the Auckland district are admiring their excellent honey crops, the professional at the time of writing is looking ruefully at his rather weak colonies, the prolific growth of clover and the poor honey flow. Amateurs very frequently secure good crops of honey whilst his professional brother is hard put to make ends meet. This, of course, is no reflection on the commercial beekeeper. Often he does not have the variety of sources available to the amateur. Nor is he able to keep such a close watch on his hives and give them the same individual attention. Weather conditions that affect pasture sources in country areas are not so severe on similar plants in the city and there is in addition many shrubs and trees not available to the professional beekeeper. Hives are also more sheltered in the city than in open country.

When to extract the honey crop is to some extent a matter of choice. If one has sufficient combs to supply the bees' requirements it is not essential to extract until the honey flow has ceased. It pays, however, to wait for a couple of weeks after the end of the flow before commencing extracting to allow the bees to settle down. Stinging and robbing are thus minimised.

For those with a limited number of combs or who wish to extract as soon as the honey is fully capped, there are few problems whilst the honey flow continues. At this time wet combs can be returned to the hives at any time during the day, but if the flow is seen to be on the wane, combs must be returned in the evening.

It is important to keep brood nests clear of honey so that the queen is not restricted in her egg laying activities. Colonies that are slow to build up in the spring often show a marked increase in development and activity at the beginning of the main honey flow which results in some hives having the brood chambers filled with honey. Where such conditions prevail, the brood combs that have been filled with honey should be removed, and if the flow is at its height, replaced with sheets of foundation, or if on the decline, drawn combs.

Beware of Robbing

Robbing can be more easily prevented than cured but if every precaution is taken to prevent an outbreak when the end of season crop removal is undertaken, the robbing nuisance should not get out of hand. Adequate preparation should be made to complete the removal of surplus honey as expeditiously as possible.

Trays should be placed on the apiary barrow to catch any drips from the combs and ample sacks and cloths provided to cover the supers. If the honey is being loaded on to a truck, care should be taken that no drips fall from the supers in the process. They should be stacked on trays in as bee tight a manner as possible, and well covered. When the honey is being wheeled directly to the honey house, this should be done without delay, and all hives closed up immediately the honey is removed. It is important that the honey house be perfectly bee proof, otherwise all other precautions taken to prevent robbing will be of little avail. If there are any weak colonies or nuclei in the apiary, it is advisable

to contract the entrance to each of these hives before opening up other colonies. Should signs of robbing become evident, the entrances of the hives being attacked must be contracted, and wet grass heaped up in front. A further effective contrivance is to place three ¼ inch thick blocks of wood on the alighting board in contact with the contracted entrance so as to form a tunnel. The baffling effect of this diversion causes the robbers to desist in their attacks. These control methods would be useless, however, if robber bees had other means of entering the hives than by the regulation entrance.

Ways of Taking Off Honey

One must be careful not to take away the bees' share of the honey when removing the season's harvest. Ample stores must be left if the hives are to winter successfully. Unless there is an excluder over the bottom brood nest, the second one may contain mainly bees and brood. In this case, little honey will be found in the bottom brood chamber. The only thing to do is to place the second brood chamber on the bottom board and give the bees the first super of honey. It would be unwise to leave the bees with less than 45lb of honey on which to winter.

Smoking

The oldest and perhaps still the most popular way to remove honey is by smoking. If properly carried out, it is a good method especially with only a few hives. The fuel used in the smoker must be carefully selected. Only clean grain sacking, pine needles or the slightly dried leaves of the Lawson cypress should be used. Smoke can taint honey so moderate amounts should be puffed across the frames. Smoke should first be applied to the entrance of the hive, then under the lid which is removed with the mat. Using the hive tool the top super should be prised from the one below. The outside comb is then removed, and the bees dislodged at the hive entrance by giving the frame a sharp downward jerk, the remaining bees being brushed off. A suitable bee brush can be bought from a bee equipment shop but a small bundle of manuka twigs tied together is just as effective. In the days when disease was much more prevalent than it is today, manuka was nearly always used as it could be burnt and the risk of spreading unsuspected disease avoided. Colonies should, of course, be briefly examined for disease when taking off honey. The first frame removed after brushing is placed in a super on the barrow and covered with the sacks provided. The remaining frames are then spaced, more smoke applied, and the bees brushed off the frames inside the hives. The complete super of honey, if desired, can then be lifted on to the barrow and the frame first removed replaced. If it is intended to remove more honey than is contained in the top super, it is advisable to remove each frame singly, shaking and brushing the bees before the hive entrance, and lifting the frames into the empty super. When removing honey early in the season, none that is not three-quarters capped should be taken, and in the event of any honey shaking from the uncapped portion of the combs, the frames should be returned to the hives for further ripening.

Bee Escapes

This is a popular and effective method of removing honey but it takes time. It is a clean way to clear the supers of bees and interferes little with bee activity. Hodgson ventilated bee escape boards do a very good job. It is a wire gauze screen with a wooden rim in the centre of which a "Porter" bee escape is fitted. Two escapes are better than one. Some beekeepers fit the escapes into boards but screens are better as they allow ample ventilation and in cold weather assist hive heat to reach the honey, after the bees have been cleared. There is no better method of taking off section honey than this. No more than two supers of honey should be removed at one time by the bee escape method or th bees may not leave the supers. Usually the escape boards are placed under the supers of honey in the late afternoon and the honey removed the next morning.

Other Methods

Chemical removal of honey has gained some favour in recent times. An older method of this type is the use of Phenol or carbolic acid. The Department does not recommend it, however, and for good reason. A drop on the skin can cause a severe burn and it aggravates the bees. It will taint delicate flavoured honeys, especially in the hands of an amateur and it is not on the list of chemicals approved for use with food products.

Benzaldehyde

This is a synthetic product similar to bitter almonds. It is a clear colourless liquid, the smell and taste of which suggests almonds. It oxidises quickly when exposed to the air and must be kept tightly sealed and away from the light. It can ignite, so all material that has come in contact with Benzaldehyde should be kept outside or in a closed metal container. This is not a sufficiently serious defect to discard the use of this excellent repellant, but normal care must be observed. It works well in cold weather and is non-corrosive. Tests have proved that it does not taint honey. Soft board cut to fit exactly on top of honey supers makes excellent repellant boards and insulates the bees from heat. This is important, at temperatures above 80 degrees F. In very high temperatures a half super could be used beneath the soft board.

Th amount of benzaldehyde required should be measured according to temperature. Only a few drops are normally required. When temperatures are around 80 degrees F an additional 50 per cent of the chemical may be required. The quality of benzaldehyde varies but a suitable type is B.D.H.

Weak Colonies

No attempt should be made to carry weak colonies through the winter as they tend to attract robbers and wasps. The most effective method of dealing with such hives is to unite them with other colonies by placing a single sheet of newspaper over a strong colony and lifting the weaker one on to it. Where possible the poorer queen should first be killed.

Autumn Increase

For one reason or another, it may be deemed necessary to make some increase at this time of the year. This can be done successfully provided the new colonies when prepared are moved to another apiary, or at least a mile or so from their original site. Using standard equipment, prepare the number of hives desired by cleating full depth supers to bottom boards and blocking the entrances with wire gauze. In order to form these colonies, the work should be carried out in the evening, and frames of brood and bees taken from a number of hives. The procedure is as follows:—

Take a frame of brood with adhering bees from a strong colony, place in the prepared hive body and cover with a sack or lid. Go to the next strong hive and repeat the operation, placing the frame of bees alongside the one already removed, but be careful that the combs are not actually touching. Remove five or six frames of bees and brood in this manner taking care that in no case are any queens removed in the process, and finally add two frames of honey placed on either side of the brood. Frame nails should be lightly driven through the ends of the top bars to hold the frames in position whilst in transport. The new colonies should be moved the same evening and the bees released. Young queens should be introduced after 24 hours. A supply of comb honey should be kept on hand for their winter and early spring requirements. If it is necessary to feed the bees sugar, the syrup should be thick, say two or three parts of sugar to one of water. Also add one tablespoon of tartaric acid to every 50lb of syrup to prevent granulation. All syrup should be fed to the bees at the one time so as to prevent any likelihood of brood rearing being stimulated by feeding over a period.

Continued from Page 27

Although with feeding, the bees built up well in the early months, strong nor-west winds in December and early January took off most of the foraging bees in many parts of the district. This has affected the honey crop to a considerable extent.

To date, only colonies on the light soils have secured any surplus honey, but these areas are now finished.

Colonies on medium and heavy soils have not much more than winter stores at present, but given reasonable weather conditions could still secure a surplus crop.

The honey crop for the district will be below the six year average.

OAMARU

Drought conditions exist in coastal South Canterbury, throughout North Otago and in parts of Central Otago. In these areas there is a poor to nil flowering of white clover and other nectar sources.

There is a good flowering of white clover, vipers, bugloss, catsear and thistles in most other parts of the district where fair quantities of surplus honey have been gathered.

Present indications are that the overall crop will be below average.

GORE

Spring conditions were generally good, except for periods when cool north westerly winds were experienced.

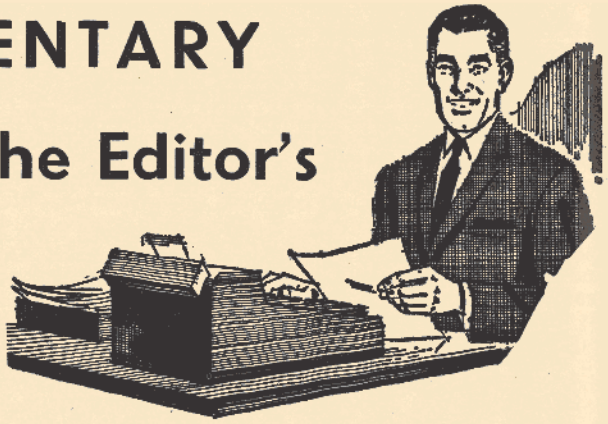
Colonies built up well on early nectar sources, with the willow flow being the best for several years. Severe weather conditions prevailed for several days during mid-November. Extreme cold, shortage of pollen and in some cases stores, caused queens to stop laying completely. In some districts colonies have not recovered from this setback.

In December much needed rain brought away a good growth of clover. Clover is flowering well in all districts but unsettled conditions have restricted bee activity and very little surplus honey has been gathered.

Unless warm weather prevails in the near future the prospects are for a light to average crop.

COMMENTARY

from the Editor's Desk and Mail



ACCORDING TO A GERMAN PUBLICATION, New Zealand per capita consumption of honey is well above that of other countries, although the admission is made that the figures given are an approximation only, and are derived from noting the average population for the period defined, divided into the average amount of honey available:

Country	Pounds per head per annum Average 1955-1959	Average 1960-1965
New Zealand	3.9	3.7
Australia	1.7	2.1
West Germany	1.6	2.1
Canada	1.8	1.8
U.S.A.	1.4	1.5
France	.9	.8
U.K.	.4	.6
Argentina	.6	.5
Mexico	.4	.4

II II II

GOVERNMENT SPONSORED programmes to eradicate bollworm in cotton has led to fantastic losses of honey bee colonies in California and Arizona. Notification was given to all bee farmers that Sevin, a material highly toxic to bees was to be used in eight treatments six days apart. The Miller Honey Company, of Colton, California, moved 2,000 hives located within a one mile radius of cotton fields but left 1,000 that were more than one mile away from the spraying operation. The whole lot were killed, which will mean that there will be few bees to pollinate the alfalfa and melons in the Palo Verde Valley. An estimate places losses at 75,000 colonies of bees killed by cotton pesticides, causing total disaster to beekeepers in some areas. At very considerable personal expense, beekeepers are moving their entire plant and stocks to Hawaii and other areas where such death dealing insecticides are not used. We certainly have our problems with insecticides, but nothing in comparison to this mass destruction.

II II II

MINNESOTA BEEKEEPER MAGAZINE quotes "It is not such an easy matter to explain how a black cow eating green grass produces white milk containing yellow butter. Membership in your bee association and the Federation is much easier to understand." Some of our 'thirty and over' boys would do well to think over that one.

SMUGGLERS OF BEES into New Zealand should be shown no mercy by the authorities or be given the slightest encouragement from other apiarists. The risk of diseases apart, the lesson from Brazil is more than sufficient to vindicate the restrictions imposed to keep out importations. The "Financial Times," of London, commenting on the price rise for beeswax from £495 to £820 a ton in 12 months, comments that the primary cause is the large-scale bee conflict in Brazil, where the imported African variety took a cannibalistic dislike to the established native species and instead of producing wax and honey, stalked and devoured their competitors. Other contributing factors include the civil war in South Sudan and distributive problems in East African countries.

II II II

LEAD COSTS MONEY and its high resale value is a great temptation to light-fingered gentry with strong arm muscles to remove as much as possible in the shortest possible time from church roofs. The Rev. Leslie Wilkinson, parish priest of Eastchurch, England, had three visits in a period of 10 years when lead to the value of $400 found its way into a 'fence's' melting pot, and decided that something must be done to prevent a repetition. Accordingly, he sited a hive and a nucleus on the roof as a deterrent. It can only be hoped that some errant apiarist will not pinch the bees as well.

II II II

EMIL SCHULTHESS has written a book entitled "Africa," published by Collins of London, in which reference is made to a bird which has formed a liaison with man to indicate the whereabouts of wild honey colonies to their mutual advantage. The following is an extract of great interest to all apiarists.

"One of the seven wonders of the animal world is to be found in Africa, and it is not concerned with animal behaviour alone — and in this it is unique — but also involves man, making of man the servant of the animal by which he in turn is himself served. A symbiosis thus develops which really sounds like a fairy tale, but thoroughly critical scientists have established its truth. It is about the partnership between a bird about the size of a starling, known as the honey-guide, and man.

"Beyond all other things the honeyguide (Indicator indicator) loves the larvae of bees and the wax of the honeycomb, yet owing to the weakness of its beak, it is unable to uncover these titbits. All it can do is to locate the hives of wild bees; it must then seek a partner who will lay the desired dainties bare. By emitting certain peculiar sounds and making certain movements, it makes known to the latter that it is about to lead him to a source of honey.

"Usually the partner is a honey-badger, a small predator about as big as a cat, whose long powerful claws enable it to pull the 'hive' to pieces, while its thick skin guards it from stings. If no honey-badger is in the neighbourhood,

the little creature turns towards some man — a native — who shares the badger's partiality for honey and who, like the honey-badger understands the bird's signals. An unwritten, but generally recognised law, provides that the larvae and wax shall generally be left to the bird. Delightful legends act as a warning against letting the honey-guide go empty away. The bird will certainly have its revenge and on the next occasion will lead the man to some dangerous animal, or disturb the quarry he is stalking!

"In 1955 Herbert Friedmann, head of the bird department of the U.S. National Museum in Washington, made this bird and its habits the subject of an extensive monograph. On 23 occasions he was himself guided by the bird to a place where honey could be found. Many other observers had had similar experiences before him. This, incidentally, is the only case in which an animal can be useful to man for only so long as it enjoys full freedom.

"There is a peculiarly tragic quality in the fact that this strang symbiosis with its rather special fairy-tale atmosphere, is slowly but surely disappearing, its disappearance being in step with the progress of civilisation in this continent. Wherever the natives earn a lot of money and can buy cheap confectionery at some outlying store, the bird calls to them in vain."

II II II

THE SCOTTISH BEEKEEPERS' ASSOCIATION are hopping mad with some retailers who foist off imported honey labelled as Scottish produce to unsuspecting consumers. Proof of the deception is obvious by the amount on the market in comparison with known production figures — quite apart from analysis. Representations made to the Secretary of State for Scotland brought forth a buck-passing reply from the Scottish Home and Health Department advising them that the Food and Drugs (Scotland) Act 1956 is enforceable by local authorities and that the Merchandise Marks (Imported Goods) No. 3 Order 1928 deals with imported honey enabling action to be taken by the local Sanitary Inspector's office.

II II II

BRITISH BEE JOURNAL reports a letter received by a queen breeder who beseeches immediate attention:

"Would you please send a queen at your earliest convenience. This queen is required for a vicious colony — a colony which has changed my wife's gardening activities into nocturnal potterings and has endowed even the most aged passer-by with energy and speed hitherto unheard of."

II II II

INCREASING USE IS BEING MADE of honey in manufacturing proprietary branded items of food and many advertisers are emphasising the content in their advertisements. This, of course, is excellent publicity for the industry and the more that television and other media spotlights "Honeypuffs" and the bear that just loved honey in his ice cream, the better for the industry.

An Auckland manufacturer of honeycake is exporting his product to San Francisco in the face of other overseas competition and is making good progress. Dutch born Hans Klisser says that honeycake is the oldest cake known to mankind, consisting mostly of rye flour, honey and spices. Honey is a natural preservative and the cake will keep fresh for six months. The cost of honey in Holland is around 50c per pound, making honeycake an expensive luxury, so that Mr. Klisser hopes to be able to compete and beat rivals in his home country at their own game by exporting honeycake to Holland from New Zealand.

II II II

INSTEAD OF BABYSITTERS beekeepers can avail themselves of the services of a 'queen minder' in Germany. The German beekeeping magazine "Biene" carries an advertisement from Herr G. Schmidt of Auenstein-Wusterhausen inviting beekeepers to send up to 20 queens each with 20 workers and candy in autumn. Mr. Schmidt undertakes to winter the queens, 30 or so to a colony, and return them to the beekeeper when he needs them. Queens should have been laying for at least three weeks and be marked for identity. The queen minder is prepared to undertake the marking for a small sum if preferred. A guarantee has to be given that the queens are from disease-free stock, and payment for the care of the queens is made when they are returned to their owner. Not a bad idea!

A U.S. NATIONAL BEE GENETIC STOCK CENTRE has been organised at the University of California under the direction of Dr. H. H. Laidlaw following a grant of financial assistance from the National Science Foundation. To assist bee breeders who have to maintain increasing numbers of colonies to preserve the desirable characteristics from their breeding stock, facilities are to be offered for the storage of frozen semen which may in time offer great economy as far as genes carried by drones are concerned, but it cannot solves the problem of genes inherited through the female parent. Maintenance of genes is a very real problem that has defeated many breeders and has not yet been solved. The U.S. Government is tackling a related problem; that of maintaining mutations needed for genetic studies.

II II II

BEEKEEPING IN THE UNITED STATES is the title of a lengthy handbook published by the United States Department of Agriculture at the very modest fee of U.S.$1. A detailed survey is given of beekeeping in various locations and emphasis is focussed on the need for extreme care in handling pesticides and of their danger to bees and all other useful forms of life. Profusely illustrated, handbook 335 has a most useful glossary, and should be available to beekeepers wishing to extend their knowledge. The copy under review has been sent to the Association's librarian and may be borrowed by any member on request.

II II II

THE H.M.A. ELECTION RESULT to which reference was made in our last issue, is to stand unaltered. It is understood that the Minister has decided that there are insufficient grounds to declare the election null and void or for a new election to be held.

II II II

APIMONDIA, the international federation of beekeepers' associations, announce that the complete volume covering proceedings of the 20th International Beekeeping Congress in Bucharest, Rumania, has now been published. Editions are available in English and total over 800 pages of reports, papers and illustrations. Cost per volume is $10, payable to the Association at 101 Corso Vittorio Emanuele, Rome, Italy.

II II II

NOVEMBER 9 was a red letter day for Allan Bates and his family at Matamata when a surprise party was organised for Allan's 80th birthday celebration. Sprightly, hale and hearty, Allan celebrated with 30 relations and friends and his physical condition would be the envy of many a man 20 years younger. Formerly of Kaponga, Taranaki, Allan moved to Matamata 22 years ago to specialise in queen breeding, and still takes an active part in his business.

II II II

MOST BEEKEEPERS are aware that only starch free icing sugar should be used in the manufacture of queen cage candy. Bees have difficulty in assimiliating starch, particularly when confined, and if it is present in the icing sugar used to make candy will not sustain the bees for long. No starch free icing sugar has been available for some years but an Auckland firm is prepared to meet beekeepers' requirements and it is to be hoped full advantage will be taken of their offer.

BUY

Tenders are invited for the Supply and Delivery on an Annual Basis of Package Bees or alternatively, Nucleus Hives. For further particulars, apply:

"PACKAGE BEES",
C/o N.Z. Beekeeper

4-FRAME REVERSIBLE EXTRACTOR
4-FRAME REVERSIBLE EXTRACTOR
4-FRAME REVERSIBLE EXTRACTOR
in reasonable order wanted.

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Maungaturoto.

If you are considering selling as a Going Concern, and have an Economic One-Man Outfit or potential, then I would like to have discussions with you. Anytime before the Spring.

Reply "PURCHASER",
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HIVES — HIVES — HIVES

Within 200 miles of Auckland in lots between 50 and 300. One to Four Stories.

Must be Sound, Standard Equipment. Hoffman Frames, Young Queens and a minimum of Three Frames to Feed Honey.

Quotations to:

DOUBE & UINGS, Accountants,
MORRINSVILLE

Before March 7th, 1968.

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Capable of Expansion.

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

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

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P.O. Box 44, Foxton

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If you will let your Librarian know the Subject your want to study this Winter he will send suitable books in April in time for the long evenings. A list of books sent free on request. Beekeepers Technical Library Books available to all members

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The National Beekeepers' Association

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

'Better Beekeeping—Better Marketing'

SUBSCRIPTIONS

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

JOIN YOUR NEAREST BRANCH AND DERIVE FULL BENEFITS

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Free Cover for Association Members

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

THE N.Z. BEEKEEPER

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

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

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

ADVERTISEMENT RATES

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

THREE CHEERS FOR THE IRISH who have produced a pure linen wiping-up cloth of tremendous value to the beekeeping industry all over the world.

Measuring 30" x 19½", the colourings are shades of brown, gold, black, white and blue, with five honey jars dispresed among 12 pop-eyed bees, the central figure of which is the queen complete with regal crown.

Each jar is boldly labelled HONEY and carries the following captions:

HONEY is a sweet viscid, yellow fluid, the nectar of flowers collected by bees—OXFORD DICTIONARY. The word is derived from the Arabic "HAN" this became "Honig" in German and "Hunig" in old English.

HONEY in England is harvested from the clover which yields 5 lbs of pure honey per acre in full bloom. Bees will often fly two or three miles for nectar from the right flower.

HONEY Skin Lotion. Mix 1 dessertspoon honey, 3 ozs glycerine, 1½ ozs lemon juice, ½ oz of red lotion, 1 oz alcohol, 2 oz rosewater. Put all into a bottle and shake well together.

HONEY Lemon Cheese. Mix ½ pint honey, beaten yolks 3 eggs and the whites of 2, juice of 2 lemons, grated rind of 1, and 1½ ozs butter. Stir over a slow fire until thick. Pour into warm jars and seal. Will keep a year.

HONEY Mead, a wine brewed from honey and water, fermented with yeast was the traditional English drink in the Middle Ages. Today, only best quality honey is used, mixed with cold, boiled water.

Readily obtainable in New Zealand for a modest sum and handed to the man of the house as a reminder of his calling, it might well be productive of menial labour.

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