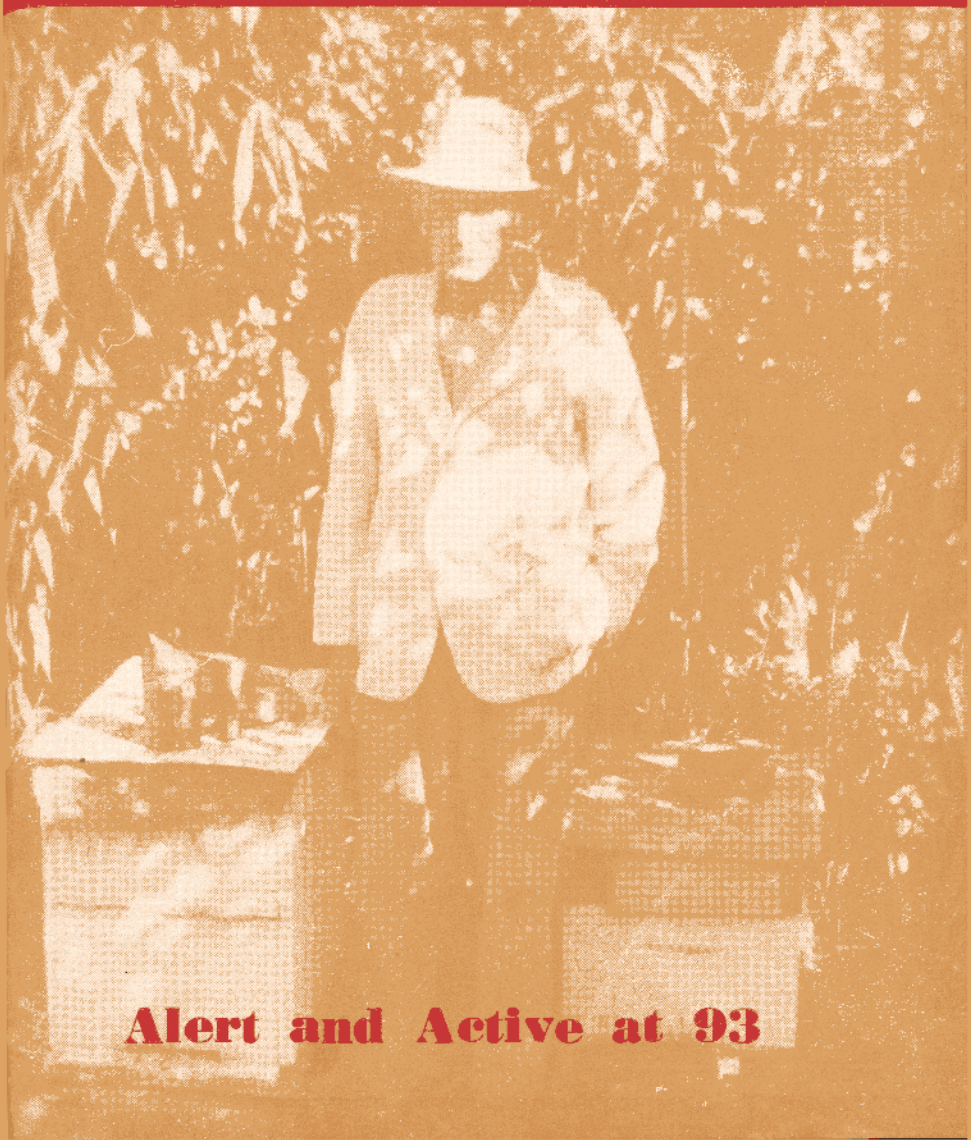
THE NEW ZEALAND

BEEKEEPER

MAY, 1968



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May, 1968

CONTENTS

N.Z. Queens to Canada

REPORTED ELSEWHERE in this issue is the possibility that queen bees may be exported to Canada, following the recent visit of Mr Russ Turner from Alberta, Canada, to queen rearers in this country.

The possibility is now fact, and the industry's thanks are due to Russ Turner for his enterprise and enthusiasm for our home grown product, and to Frank White, the Northland queen breeder from whose apiary the initial shipment emanated.

On Sunday April 21, R. S. (Bob) Walsh, the Apicultural Advisory Officer for the Department of Agriculture in Auckland, went down to Auckland International Airport and supervised the despatch of thirty queens and attendants in cages to the Dominion Experimental Station, Beaver Lodge, Alberta, by a Canadian Pacific Airline jet, certifying that the stocks were free from acarine and other diseases to comply with Canadian import requirements.

Travelling in a pressurised compartment, the bees were placed in plastic bags at each stop-over to ensure that spraying operations by airport health authorities did not kill the bees as well as the 'bugs', and the next step is to await news of our progeny's development and breeding habits under Canadian conditions.

The hope is, of course, that the initial consignment will be the forerunner of many other export orders to Canada, where stocks are gassed at the end of each season and replaced by package bees or nucs;, obtained from across the border in the South of the United States.

Without the enthusiastic support of the Department of Agriculture and the individual willingness of its officers to co-operate, the export of queens to Canada would never have been possible. The industry will be appreciative of this fast moving development as an example of what can be done when red tape is cut to a minimum on both sides; on national and international levels, co-operation is the key word to success.

POLLEN SUPPLEMENTS FOR HONEY BEE COLONIES

Trials During 1966

By I. W. FORSTER

Technical Officer, Wallaceville Animal Research Centre, Department of Agriculture, Wellington.

INTRODUCTION

Acute pollen shortages are not common in New Zealand but they may occur in certain areas in the spring, or during prolonged periods of bad weather (Forster 1966).

Investigations in New Zealand have shown soya bean flour and dried yeast to be a satisfactory pollen supplement when fed mixed with sugar syrup as a soft candy. The addition of skim milk powder does not appear to be an advan tage (Palmer-Jones 1947).

In the U.S.A. bee colonies have been maintained and have reared brood for six months while confined to an artificial diet planned as a complete substitute for honey and pollen (Weaver 1964). However, the provisions of this diet are too precise for practical use.

Work in Australia has shown that pollen supplements can be fed as a dry powder within the hive providing they are mixed with natural pollen (Langridge 1966).

Investigations at the Waite Institute, Adelaide, Australia, have resulted in the production of a pollen supplement which sells under the trade name of Krawaite (Doull, Purdie & Haydak 1964). The Krawaite of early manufacture had a tendency to dry out in the hive to an extent that prevented the bees from consuming it. This fault has been rectified in Krawaite of current manufacture.

For the New Zealand beekeeper, who may need a pollen supplement only occasionally, the inclusion of natural pollen in a supplement mixture could be inconvenient, as trapping and storing of pollen are operations which need to be carried out well in advance to ensure that material is on hand when required.

Various pollen supplements were tested in 1965 by Forster (1966). Results obtained during a continuation of these trials, between 18 October and 22 December 1966 in the Waimate district, are outlined in this paper.

EXPERIMENTAL

The two experimental apiaries were situated at Waimate and at Kelseys Bush near Waimate. This area has an abundance of mixed flora but protracted spells of overcast weather along the Hunter Hills at times reduce bee flight sufficiently to cause pollen shortages.

Tests were confined to pollen supplements fed in the form of soft candies. These were Krawaite; soya bean flour and dried yeast (designated S.B.Y.); and soya bean flour, dried yeast and dried skim milk (designated S.B.Y.M.). The two latter were mixed in the same proportions as for the previous season (Forster 1966), but from 18 November the added water was increased from 16% to 30%. Formulae for these preparations, which for S.B.Y. and S.B.Y.M. contain the proportions used in the mixture from 18 November onwards, are given in Table 1.

TABE 1 INGREDIENTS POLLEN SUPPLEMENTS

Supplement	Soya bean flour	Dried yeast	Dried skim milk	Sugar	Added water	Total protein	Price per pound (bulk)
	%	%	%	%	%	%	$
S.B.Y.M.	28	3	7	32	30	18	.10
S.B.Y.	34	4		32	30	20	.11
Krawaite				34*		13*	.25

* other ingredients not known.

TABLE 2 POLLEN SUPPLEMENTS 1966

AVERAGES OF TOTAL CONSUMPTION, WASTAGE, AND COST (18 OCTOBER—9 DECEMBER) BROOD INCREASE AND HONEY STORED KELSEYS BUSH (18 OCTOBER—22 DECEMBER).
BROOD INCREASE WAIMATE (18 OCTOBER—9 DECEMBER).

Kelseys Bush

Supplement	Amount of Supplement (oz)			Cost	BROOD (combs per hive)		Honey in hives 22 Dec (lb)
	Fed	Used	Wasted	($ c)	Increase	Total of counts	
S.B.Y.M.	48	45	3 (6%)	.30	3	33	5
S.B.Y.	45	39	6 (13%)	.30	3	36	10
Krawaite	85	84	1 (1%)	1.32	4	38	12
Sugar (dry wt)	272	272	0	1.20	4.5	43.5	33
Control (sugar)	26	26	0		4	37	10

Waimate

S.B.Y.M.	48	43	5 (10%)	.30	3	36	Not Recorded
S.B.Y.	35	26	9 (25%)	.29	3	36	
Krawaite	88	87	1 (1%)	1.20	3	35	
Control (sugar)	26	26	0		1	35	

Protein contents are calculated from figures given by Smith (1966). Costs, including an allowance for trade distribution, were assessed prior to devaluation.

Half pound pats, wrapped in paper, were placed over the brood and as near to it as possible. The paper was broken on the underside to give the bees

ready access to the supplement, while exposing a minimum of surface to the effects of drying and mould growth. Up to 24 November a grease-proof luncheon paper was used for wrapping but because of obvious shortcomings, on and after 1 December this was changed for a softer paper (paper bank for typewriter 45 q.s.m.).

Pre-packaged Krawaite was used up to 18 November. From 18 November bulk Krawaite was wrapped in grease-proof luncheon paper, but from 1 December the softer typing paper was used.

The number of hives per treatment in each apiary was three. The rate of feeding was determined by colony requirements. Generally all colonies had a continuous supply of usable supplement available.

Three colonies at Kelseys Bush were each given sugar to the approximate monetary value of the dearest supplement (Krawaite) on the second, and all subsequent feedings, of pollen supplements. The amount fed averaged three and a half pounds of sugar. The sugar was given in division board feeders as a syrup consisting of two parts sugar to one part water by volume. Control hives were given an amount of sugar corresponding to that in the supplement fed to test hives on each visit. This varied from 2.5 — 5 ozs and was mixed with water and fed as a thick syrup, being rubbed into the combs.

Supplement which had dried sufficiently to render it unacceptable to bees was removed, and the weight recorded. When calculating wastage this was added to the weight of supplement remaining in the hives on 9 December. No corrections were made for moisture loss, and therefore wastage is slightly underestimated.

Brood area in experimental hives at Waimate and Kelseys Bush was estimated by inspection at intervals of from six to eleven days. Weight of honey stored was recorded when the trial ended.

RESULTS

Weights of supplement consumed and number of brood combs are shown in Figures 1 (a) and 1 (b). These figures also show the duration of the period when the quantity of natural pollen was considered insufficient for colony requirements. Results are summarised in Table 2.

The amount of Krawaite consumed was approximately twice that of other supplements. The disparity in rate of consumption lessened later in the trials when the soya bean mixtures were fed in a wetter condition and wrapped in softer paper. Wastage of up to 25% occurred with the soya bean mixtures, but was insignificant for Krawaite. Wastage occurred with Krawaite only when it was wrapped in the tough luncheon paper.

Pollen deficiency affected the Kelseys Bush apiary only slightly. Brood increased in the sugar-fed group, was maintained in the Krawaite-fed group, and showed insignificant losses of less than half a frame per hive, for the other groups and controls. The sugar-fed hives held 24 pounds more honey than the average for supplement-fed hives when the honey flow commenced.

At Waimate the brood pattern for all groups was similar, but brood areas in control hives were markedly depressed by the pollen shortage in late November and early December. Krawaite and S.B.Y.M.-fed groups gained in brood over this period, while the S.B.Y.-fed group maintained its brood area. Brood increased equally for all supplement-fed groups over the trial period, and was more than twice that of the control group.

DISCUSSION

All the supplements fed were acceptable to bees provided 30% water was added to the dry ingredients, and the pats wrapped in fairly soft paper. Supplements of this consistency tended to soak through the softer paper, and wrapped pats could not be held for more than two days. However, it would probably be more convenient for a beekeeper to carry sugar syrup separate from the dry ingredients, mix the quantity required in the apiary, and wrap each portion as it was placed in the hive.

Krawaite was particularly attractive, and wastage with this product was practically nil. However, bees consume supplements whether they require them or not, and maintaining a supply of supplement in the hive can be very expensive, particularly if it is sufficiently attractive to be used in quantity.

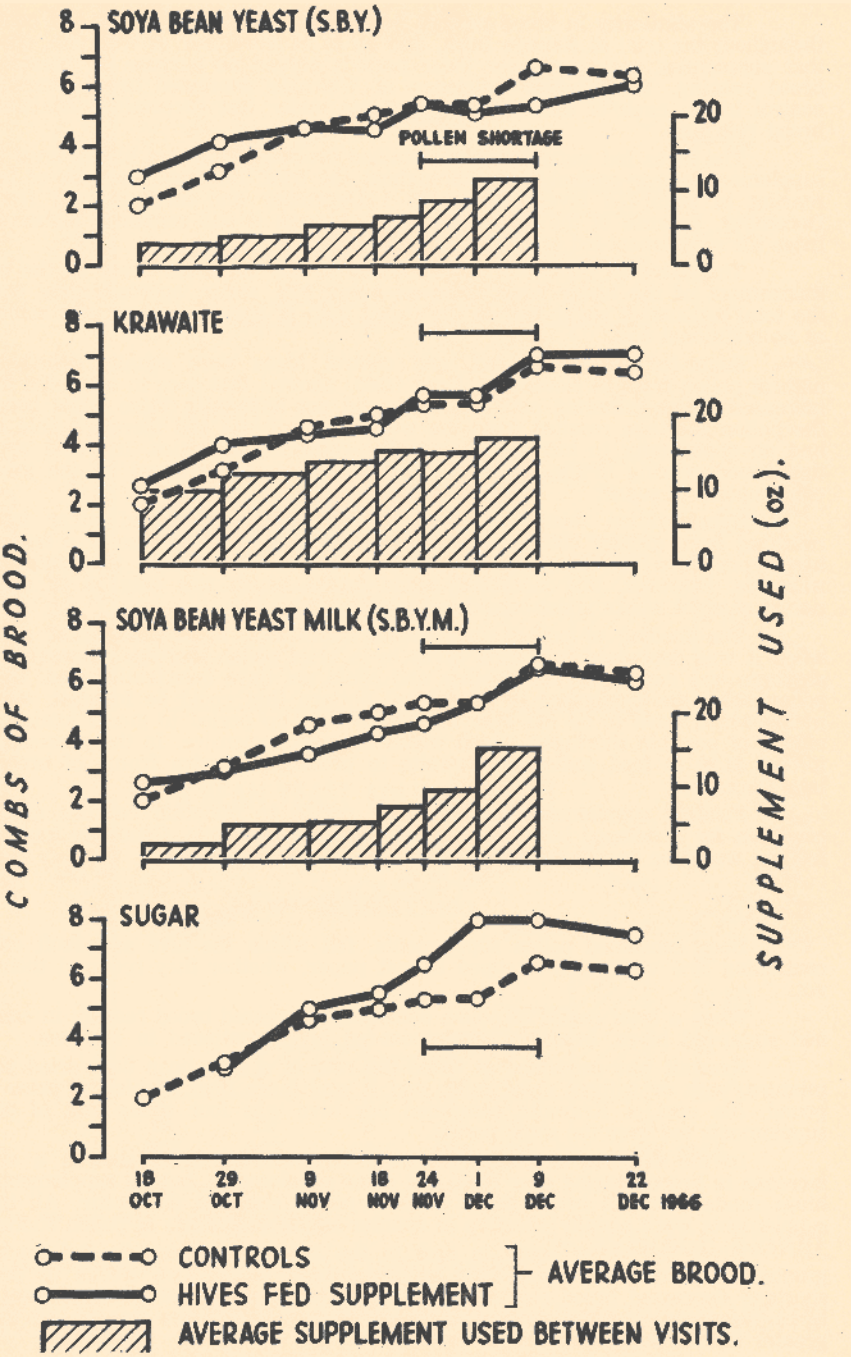


Fig. 1(a) Supplements used and combs of brood at Kelseys Bush.

The similarity in brood pattern between supplement-fed hives and controls throughout the trial at Kelseys Bush, and up to 24 November at Waimate, showed that supplement consumed over these periods served no purpose in maintaining brood rearing. When pollen deficiency at Waimate depressed brood rearing in control hives, each of the three supplements under test successfully maintained brood rearing.

The hives fed sugar syrup maintained brood rearing at a higher level than supplement-fed, or control hives, throughout the trial. However, the rate of brood rearing in sugar-fed hives levelled at 1 December and then declined from 9 December, because of the pollen shortage, although it still remained higher than those for supplement-fed or control hives.

The extra 24 pounds of stored honey in the sugar-fed hives at the commencement of the honey flow, taken as being 80% sugar, approximately equals the total amount of sugar fed, so the brood gain in sugar-fed hives was achieved at no additional cost.

Sugar-fed, supplement-fed, and control hives were equally deficient in natural pollen from 24 November. Free (1965) showed that bees in sugar-fed hives increased pollen-gathering activities. This did not happen in these trials because the pollen shortage resulted from the weather conditions and therefore field bees had no opportunity to increase their pollen-gathering activities. It would appear that brood rearing in the sugar-fed hives was directly increased by the greater consumption of sugar.

Consideration should be given to whether the increased sugar intake, resulting from greater consumption of Krawaite, gave the increase of a frame of brood per hive in Krawaite-fed hives, compared with hives fed soya bean mixtures. However, this increased sugar intake which was only 13 oz over a period of eight weeks is not considered significant.

The feeding of pollen supplements maintained brood rearing at a time when it was depressed in control hives by a brief pollen shortage. However, this shortage was caused by the weather and could not have been anticipated. Unless pollen shortages conformed to a seasonal pattern that could be forecast, supplements would have to be fed over the entire build-up period to guard against the effects of possible shortages, which would be most expensive. In the present trial it cost $1.30 to feed sufficient Krawaite to produce an extra frame of brood in late December.

Feeding supplements for a limited period to maintain colonies at peak condition for a delayed honey flow could well be worthwhile. Generally long-term feeding would be uneconomic.

CONCLUSIONS

Bees consumed pollen supplements, fed within the hive as a soft candy containing 30% water and wrapped in soft paper, whether they required them or not.

When a brief period of pollen deficiency depressed brood rearing in control and sugar-fed hives, brood in supplement-fed hives continued to increase.

Krawait was consumed at twice the rate of a soya bean flour/dried yeast mixture, with or without dried milk, and it was more than double the price per pound, the cost of Krawaite consumed per hive was four times that of other supplements fed over the same period.

In the absence of pollen shortage, Krawaite-fed hives showed a slight increase in brood rearing over those fed other supplements, but all supplement-fed hives made identical brood gains when a pollen shortage did occur. All three supplements were equally effective in counter-acting the effects of pollen shortage.

Hives fed sugar equal in cost to the amount of Krawaite fed made a greater gain in brood area than supplement-fed hives. Two weeks of pollen shortage depressed brood rearing in sugar-fed hives while that of supplement-fed hives increased, but the amount of brood in sugar-fed hives was at all times greater than in supplement-fed hives.

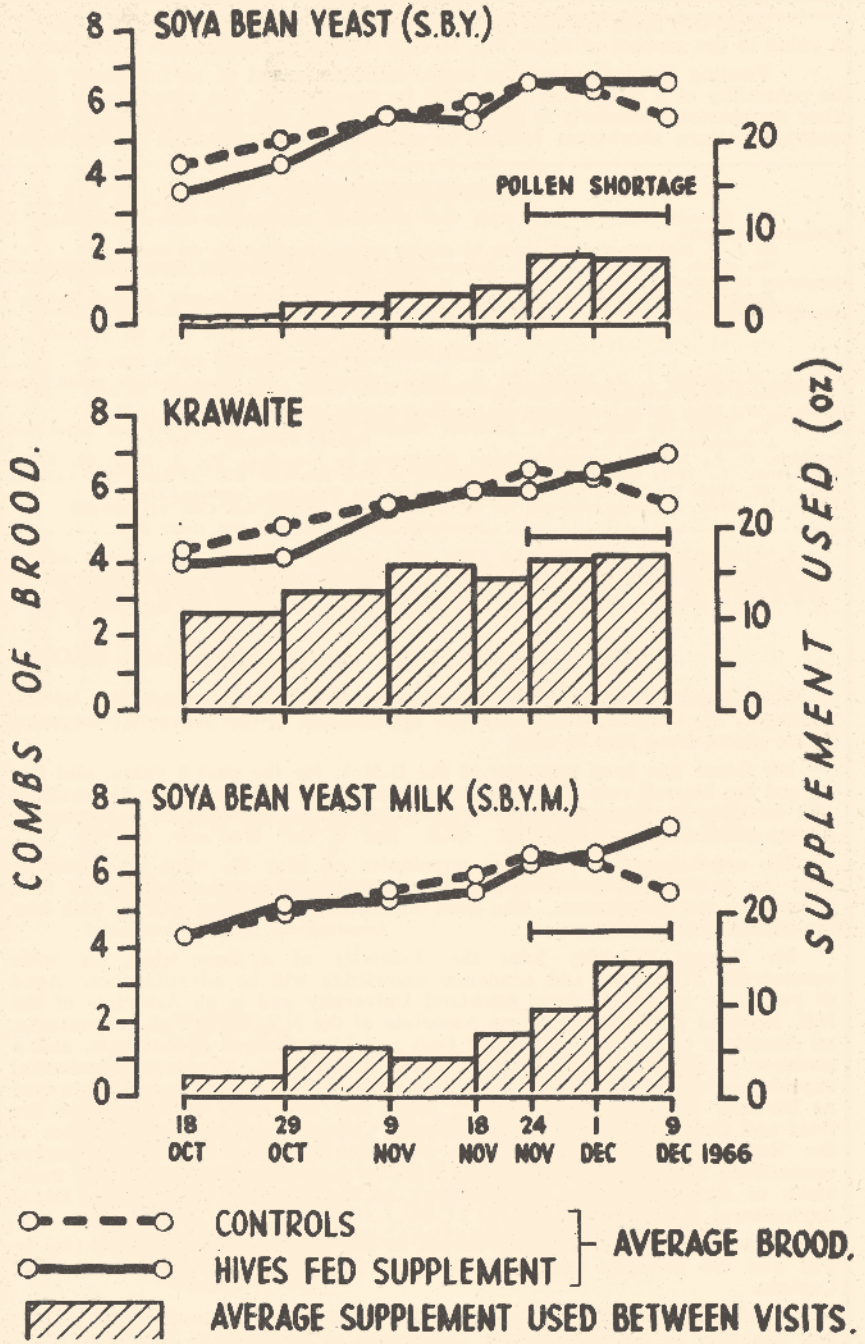


Fig. 1(b) Supplement used and combs of brood at Waimate.

Sugar-fed hives finished the trial period with extra stored honey equivalent in value to the amount of sugar fed, so this treatment incurred no additional cost.

Feeding Krawaite over the entire build-up period as an insurance against the possibility of a pollen shortage would be uneconomic. The soundness of feeding other supplements similarly is doubtful. When pollen shortage is part of a regular seasonal pattern short-term feeding of pollen supplements could be worthwhile.

ACKNOWLEDGMENTS

The Krawaite used in these trials was generously supplied by Messrs Kraft Foods Ltd, Melbourne, Australia.

Mr J. G. McKenzie assisted greatly by making apiaries available for the trials.

The author is grateful to Mr T. Palmer-Jones, Scientist, Wallaceville Animal Research Centre, Department of Agriculture, Wellington, for help in presenting results.

Thanks are due to Mr A. W. Barkus, also of the Wallaceville Animal Research Centre, for drawing the figures.

REFERENCES

Doull, K. M.; Purdie, J. D.; Haydak, M. H., 1964: "Kra-waite", the Waite Institute pollen supplement. **Aust. Beekeeper 66:** 301-308.

Forster, I. W., 1966: Pollen supplements for honeybee colonies. **N.Z. Beekeeper 28:** 14-21.

Free, J. B., 1965: The behaviour of honeybee foragers when their colonies are fed sugar syrup. **J. Apicultural Res. 4:** 85-88.

Langridge, D. F., 1966: A successful protein supplement for honeybees. **Vic. J. Agric. 64:** 27-31.

Palmer-Jones, T., 1947: Use of pollen supplements in New Zealand. **N.Z. J. Agric. 75:** 147-150.

Smith, F. G., 1966: The cost of protein in pollen substitutes. **Apiculture, Summer:** 132-133.

Weaver, N., 1964: A pollen substitute for honeybee colonies. **Glean. Bee Cult. 92:** 550-553.

HONEY MARKETING AUTHORITY

NEW MANAGER APPOINTED

The Honey Marketing Authority have announced the resignation of the manager, Mr Colin T. Gosse, and the appointment of Mr Trevor R. Edgerley in his place, from May 31 next.

Mr Gosse has been manager of the H.M.A. for the past 8 years, and has earned for himself respect and popularity amongst beekeepers for his realistic and business-like approach to marketing problems, and for his readiness to advise and assist members.

His appointment as manager terminates on May 31, when he leaves to take an executive appointment with an Auckland based company of food processors and distributors. The good wishes of the industry will go with him for success in his future.

Mr Trevor Edgerley joins the Authority at a time when his wide commercial experience and academic knowledge will be advantageous. Aged 49 years, he graduated from Auckland University and is an Associate of the N.Z. Institute of Management, an Associate of the N.Z. Society of Accountants, an Associate of the N.Z. Society of Cost and Management Accountants, and a member of the N.Z. Sales and Marketing Executives. Previous commercial experience has been as accountant to a firm of motor vehicle importers and as Director of the Auckland Easter Show and with such promotions as the Boat and Caravan Show, Outboard Boating Club etc. He is a Life Member of the Royal Agricultural Society of New Zealand and has had extensive connections with other primary producers' organisations, including four trade visits to Australia during the currency of the Brisbane and Sydney Royal Agricultural Society shows.

During the war Mr Edgerley served in the armed forces from 1940-1944 in Fiji and the Solomon Islands as Brigade Supply Officer with the rank of Captain.

Members of the industry wil have the opportunity of meeting the HMA's new manager at the Associations' Conference at Hamilton in July next.

AN EVALUATION

of the

VARIOUS RACES

Part II by Brother Adam, Buckfast Abbey.

A further extract from the book published in German by Walmer Verlag, Zell-Weierbach, Germany on the journeys of Brother Adam all over the world observing and studying races of honey bees. The full text in the book is entitled "Evaluation of the Races". Reprinted from the American Bee Journal by arrangement.

The Greek Bee

The native bee of Greece undoubtedly belongs to the same family group as the Carniolan, yet she is rightly regarded as a special race since she differs from the accepted prototype in a number of essential characteristics. However, even within the frontiers of Greece itself are a number of distinct varieties of the one race. Our evaluations are restricted to the varieties found east of the Pindus, from Attica to the northern confines of this country, for they are economically the most promising.

Until I drew attention to this race, at the International Congress in Vienna in 1956, little or no value was placed on this bee—though it is one that could be used either pure or crossed with great profit in a wide range of countries. Indeed, in my view the Greek bee possesses many advantages over the Italian.

Here again there are no marked differences externally between this race and the Carniolan, apart from the tendency for an occasional leather-colored band to show up more frequently. In gentleness the Greek bee does not differ materially from the average Carniolan; in fecundity she surpasses her; in reluctance to swarm a good Greek strain will surpass all races.

In the matter of effective colony strength, few races can compete with the Greek particularly when the queens have been crossed with Italian or Carniolan drones. The strength reached by such colonies is truly astonishing. But the actual strength is not determined exclusively by the fecundity of the queens, but is in part due to the longevity of the bees. Although Greek queens are prolific, they are not more so than the common Italian. More-over, the Greek bee is very thrifty and will not breed out of season to excess. Indeed breeding is severely restricted at the conclusion of the main honeyflow and in some strains this tendency manifests itself more than we would wish. Due to the exceptional thrift of this bee, a trait which she shares with the Carniolan, Greek colonies will as a rule demand far less feeding than Italians in identical environments.

Exceptional fertility and colony strength when not allied with a reluctance to swarm, as is unhappily so often the case, would be of no real advantage. A proclavity to swarming renders useless any gain from an above average colony strength. Get the two together and you have the basis for a highly productive and profitable beekeeping. In the fact that these two most important qualities are linked in the Greek bee, I see the real value of this race both commercially and from the breeding point of view.

In regard to her less agreeable qualities, the Greek bee closely resembles the Anatolian and Caucasian, especially in her excessive use of propolis and con-

struction to brace comb as well as watery cappings. But these failings are far less prominent in the Greek bee, indeed there are strains in which they hardly appear at all. In certain crosses these defects disappear altogether and rather astonishingly a type of capping of identical pattern and perfection as made by the old English bee will now and again make its appearance.

Regarding disease, the Greek seems much less susceptible to Nosema than the Carniolan, probably because of the great colony strength with which she comes through winter and a less impetuous and precipitate brood rearing in the early days of spring. I have so far not had a case of acarine among Greek colonies, though there have been some instances of paralysis. This last susceptibility shows itself particularly where inbreeding has taken place.

The Greek bee has from every standpoint a great future. Indeed I value this race more highly than the present-day Italian strains.

The Caucasian Bee

The Caucasian bee closely resembles the Carniolan externally, particularly in the grey overhair and tomenta. Also in some other qualities, such as exceptional tongue reach and good temper. Indeed in regard to these two qualities there are strains that surpass the Carniolan. On the other hand, we have in the Caucasian the most extreme instance of the use of propolis and tendency to build brace comb. As a matter of fact, these two dispositions are so highly developed in the Caucasian bee as to make her use in modern hives undesirable, notwithstanding her other good qualities.

She is reputed to be exceptionally productive, but all the many strains we have tested, of which a number came to us directly from Russia, have not substantiated this claim. However, as there are seemingly a great many strains, of varying disposition and qualities within the native habitat of this race, we may well not have been lucky in our choice—though they were derived from the most reliable sources. There is however no doubt, some of the commercial strains do not represent the true Caucasian.

The Anatolian Group

In Asia Minor, whose northeastern limits border on the habitat of the Caucasian bee, we have a further distinctive group of races, confined within a relatively small area. Along a section of the Black Sea is found a bee resembling the Caucasian, but in no way identical, as is clearly revealed in cross-breeding. The same holds good for the very bright orange coloured variety, found along the Mediterranean shores, and in sections of eastern Asia Minor, which resembles in many ways the Syrian bee. In central Anatolia we have a race of intermediary colour, viz., a smudge orange.

In spite of the wide variation in colour, manifested by the different races found in Asia Minor, there exists a basic similarity in regard to the physiological characteristics. They are all very thrifty, but the Cilician variety least so. In the case of temper the variety of the Pontus region leads the way, while the Cilician is at the other end of the scale. But strains can be found of either race which can be described as good or bad tempered, which holds true for all the varieties of Asia Minor. They have one disposition in common: an unusual sensitivity to low temperatures, which shows itself in an inordinate hostility when such conditions prevail. This susceptibility is found in all races, but never as marked as in the Anatolian varieties.

This unusual sensitiveness to cold has no bearing on their wintering ability and hardiness. Indeed in this respect the Anatolians have shown themselves superior to most races. In the unusually severe winter of 1962-63 we wintered miniature colonies of pure Central Anatolian stock on six combs 7¼ x 5¾ inches with complete success—a feat which seemed scarcely possible in the circumstances.

By comparison with other races, pure Anatolians are below average in fertility, excepting the Cilician variety. None of the others come up to the standard set by the Carniolan. But unlike this race, when suitably crossed, Anatolian queens prove amazingly prolific. However, when crossed, they develop a marked tendency to swarm—excepting the Central Anatolian, which is not thus affected by heterosis. First and second generation crosses attain extraordinary colony strength, but this is also in part due to the exceptional longevity of the Anatolian stock. This is clearly exemplified by the queens of which a high proportion attain a lifespan of four years in full vigor.

Another remarkable characteristic of this group of races is their highly developed sense of orientation. Apart from an absence of drifting this quality is manifested in a most striking way in a low loss of queens when returning from their mating flights. Over the years the losses in the case of our own strain average about 22 percent, in the Carniolan 10 percent, but in the Anatolian and Middle Eastern races only 5 percent.

In the performance or honey gathering ability of a colony or race a whole series of characteristics is involved. In the Anatolian races we have a high concentration of the required qualities such as is found in few races. But there is nevertheless a wide variation in actual results amongst the Anatolian varieties, especially in first crosses, in great part due to the difference of the tendency to swarm. As already stated, the Central Anatolian variety is, according to our experience, not given to swarming and we have consequently secured the best results from this race.

Of the many factors that have a negative influence on production, the chief one, apart from the swarming tendency, is susceptibility to diseases. Curiously enough, the Anatolian group of races is particularly prone to paralysis. The northeastern or Armenian variety is in addition highly susceptible to acarine and Nosema. Another troublesome defect, with which this group is affected, is an inability to ripen the nectar of Calluna vulgaris effectively, with the result that the honey will ferment in the comb after being sealed, sometimes even before it is capped. This inability is found in all races but, with one exception, shows up most in the Anatolian group.

Our evaluations have left no doubt: the pure Anatolian is of no practical value to beekeepers. It is only when suitably crossed that all the good qualities of this race can manifest themselves; and, as experience has shown, a hybrid of this kind can surpass in honey gathering ability and economic importance almost every other cross or race.

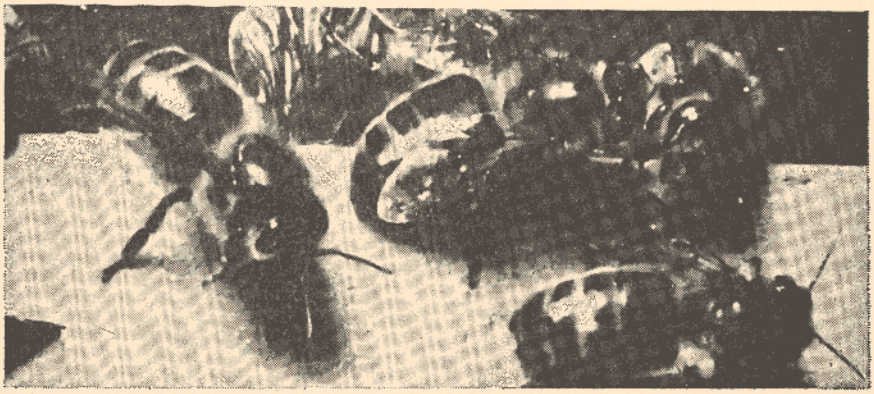
The Middle Eastern Group

I shall only very briefly discuss the merits and demerits of the Middle Eastern races: the Egyptian, Syrian and Cyprian. My findings have led me to the conclusion that all three are closely interrelated and that the Syrian and Cyprian have sprung from the Egyptian race.

All three are of little value to the practical beekeeper, but of great interest and importance to the progressive breeder. All are noted for their beautiful markings, their orange bands and white or near white overhair and tomenta. Both these characteristics are most conspicuous in the Egyptian bee, which is the smallest in size of the Mellifera races and the most charming in appearance of them all. In addition, the Egyptian is the only race, apart from the Indian varieties, that does not gather any propolis—a quality which should prove of great value in breeding. The Syrian and Cyprian bees propolise, but only sparingly. And, as far as my observations would indicate, none of them will build brace combs—a tendency manifested in all the other races of the honey bee. A most acute sence of orientation and smell are two more noteworthy qualities possessed by these races.

Extremes of bad temper are commonly accepted as the most serious fault of the three varieties under consideration. However, this assumption calls for some qualifications. These races can indeed use their stings with unequalled ferocity, but only when aroused by a disturbance of some kind. They possess none

Four Well Known Races



Mellifera

Ligustica (Italian)

Carnica

Caucasica

The four races of well-known economic value. The individual bees are approximately three times life size. (Photos courtesy of F. Ruttner except the one of Ligustica which is by G. P. Piana, Bologna, Italy.)

of the spontaneous unprovoked aggresiveness, which is a marked characteristic of the Intermissa group.

It is often assumed that a race coming from the subtropics would necessarily lack hardiness. This holds good in some instances, foremost in the Egyptian bee. But rather surprisingly the Cyprian, either pure or crossed, will surpass in hardiness and wintering ability every other variety of the honey bee. In the severest of winters and most adverse spring conditions, as experienced over a period of almost fifty years, we have never had a colony of this race that failed us in regard to wintering. This is all the more remarkable in view of the fact that the Egyptian bee will not survive even a moderately severe winter in our northern latitude. But this inability in the Egyptian is caused by a dual deficiency, namely, a want in stamina and an absence of a disposition to form a winter cluster.

When suitably crossed the offspring of Syrian and Cyprian queens can be very good tempered and highly productive. But chance matings to drones of unknown origin usually result in unmanageable colonies. The queens sold in this country about fifty years ago, under the trade name of "White Star," were in fact of Cyprian origin crossed with Italian or Carniolan drones.

The Sahara Bee

In conclusion I come to a little known race, whose very existence was questioned up to a few years ago. The Sahara bee is not only interesting from the point of view of its origin but also from that of its economic and breeding value. The origin of this bee may well forever remain a mystery, she differs so greatly from every other known race. In external markings and general behaviour she comes probably closest to the Indian variety—**Apis indica.**

The pure Saharan is not particularly prolific. In behaviour she is quick and nervous, but could not be described as bad tempered. She is endowed with great wing power and unusual foraging abilities—qualities without which she could not have survived in her native habitat. Prompted by her restless energy she tends to go foraging in winter when weather conditions are clearly too unfavourable, resulting in an undue loss of bees. The pure Sahara bee has clearly no real economic value in our temperate climate.

When suitably crossed she shows great promise. Random crosses must, however, be completely ruled out. We have had outstanding results from Saharan queens mated to drones of our strain. In 1964, which in our area proved an average season, our crop amounted to 81½ lbs. per colony and that of the Saharan cross 231 lbs. This past summer, a poor season, the Saharan cross has again come out on top in production.

When thus crossed the resulting hybrid behaves rather differently from any other cross. With few exceptions heterosis produces in a first generation hybrid a great tendency to swarming, often so great as to make certain first crosses valueless economically. The desire for drones and instinct for building drone comb is in addition usually so highly developed as to render an undue proportion of foundation given to such colonies a dead loss. In the Saharan cross under consideration we have an almost complete absence of swarming and tendency to raise drones. Foundations are drawn out with amazing rapidity and perfection.

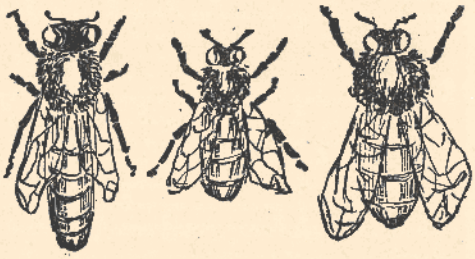
The queens when crossed develop an unusual fecundity. Combined with an exceptional longevity and absence of a disposition to swarming such colonies attain an immense strength, which accounts for the surpassing performance.

But the Saharan bee is not without its faults. Apart from the fidgety behaviour she is rather subject to paralysis and afflicted with the inability to ripen heather honey effectively. Fortunately, as experience has shown, in this case as in others, these defects can be eliminated with careful selection and cross-breeding.

The results of these evaluations have shown that Nature has provided us with a wide variety of races, each possessing advantages and disadvantages in a greater or lesser degree. Also that we can never hope to obtain the greatest possible economic returns from any individual race. Where this is the object, cross-breeding is the answer.

MERVYN CLOAKE concludes his assessment

# of CANADIAN BEEKEEPING



How long will it be before we find a way to make a large profit from bees? Some beekeepers believe there is an easy way, but most of us realize that the days of large profits and easy beekeeping have gone. Profitable beekeeping can only be achieved through knowledge of bees and their behaviour and hive management, with particular attention to detail and a lot of hard work.

This applies not only to individuals but to the beekeeping industry as a whole.

Soon after my arrival in Canada I wondered just what there was to learn which would be of value to New Zealand beekeepers. The Canadian system of beekeeping centres round packages and their development, extracting, and gassing operations, and in particular, we can learn from their technique of package bees.

About the time when a package bee movement could have been developed in New Zealand, tests were made to determine the practicability of a North to South package bee industry. These tests were not wholely successful; possibly because of two factors.

FIRST. The packages were installed too late and not given sufficient time to build up.

SECOND. Lack of specialized attention.

This does not in any way reflect upon those connected with the work, as more knowledge is available now, and the comments also apply to those beekeepers who tried packages but were not successful.

Whilst in Canada I soon realized that there were two fields where knowledge of great value could be gained and I have learned more in these fields since my arrival back home.

The first field where we have most room for advancement is ECONOMICS.

How many beekeepers in New Zealand are running unproductive hives?

How many are running hives producing only half a crop?

Canadians make sure that every hive is a producer—a maximum producer. If a few hives do not reach the required strength they are united to take fullest advantage of the combined bees strength. This is because the productivity of the bee increases with the strength of the hive, and the capital outlay for the bees each spring must be recovered. Each unproductive hive means a waste of five dollars capital investment each spring. You may think this does not apply to you—but it does.

How much capital is tied up in your unproductive or passenger hives?

How much labour has been wasted on them?

How many miles of extra running is required to do the rounds which include passenger hives. And in fact how many rounds of running are made which have no productive value anyway?

How often are hives visited which need certain attention such as requeening, brood addition or feeding, and nothing can be done about it. That is wasted effort, and you would have achieved more by going fishing or indulging in your favourite pastime.

The first thing we have to do is analyse our costs and eliminate unnecessary waste. Much will be gained by doing so. Very little can be done about fixed costs, such as containers, hive parts and other items which are

necessary, so this leaves us with labour and mileage to work on.

Labour should be divided into two classes; — productive and unproductive, and the unproductive labour eliminated or turned into productive labour. In other words, eliminate passenger hives by improving management or by cutting hive numbers to a point where all hives can be made to produce. Far too many beekeepers in this country have increased their hive numbers in an endeavour to produce more honey with the same labour instead of intensifying their management on a smaller number. We have to channel our labour in the right direction.

Hives Per Man

It would appear that the universally accepted figure would be about 500 hives per man and with good management 60,000 bees per hive. Remember we must produce a higher average per hive; — this is the only way to reduce the cost per pound of honey. This can be done and it will have to be done. Canadian beekeepers work along these lines.

Don Peer of Nipawin, told me "We are looking at 200 pound averages and calling it normal. We have to look at 300 pounds soon because of rising costs." He is right and we have quite a way to go to get to those figures. Local conditions may not allow us to do so.

We have always kept bees to get the big crop, and as a result the poor ones slip by. We must learn to keep bees to get the last pound of honey in the poor years—we will still get the big ones when they come. If you all think and act along these lines your averages will go up. Poor crops are made even poorer by the hives not being in condition to gather what is available, quite often arriving at peak strength too late. All operations must be worked to a timetable, and the critical period when the queen must be made to produce maximum brood is about five or six weeks before the flow is about to start.

Three things were impressed on my mind when in Canada which are most essential for obtaining a maximum crop each year. They are (1) feed, (2) lots of bees and, (3) an understanding of the hive and bee behaviour. These three things which are tied in with good management, are essential all over the world including New Zealand.

Let us look at extracting plants as a means of reducing time. If extracting time can be cut in half, — and I believe it can, — this would give us up to a month in the autumn to relieve the strain of some of the spring work by carrying out more autumn requeening. The spring work can then be devoted to more intensive beekeeping.

Time can be cut down in the honey house by thinking bigger. More floor space, bigger extractors, uncapping machines and for those producing straight lines of honey, bigger tanks and packing into drums. Actually if we had any sense at al we would favour and develop co-operative extracting plants thereby reducing the total capital outlay of each beekeeper.

The second field of thought is related to our approach to beekeeping.

Some of our more adventurous beekeepers are always trying out all sorts of weird and wonderful ideas in both mechanical and management methods. Quite often, considerable time and effort is spent in trying to perfect a gadget, usually to the detriment of the honey crop. I was impressed, while in Canada, at the standardisation of the plant and equipment used. The only variation was to suit the size of an outfit. I asked why this was and was soon told, "Why not?, it all works, it is fast and efficient and besides, why waste time and money trying to think up a better set up."

Standardisation

I believe there is one factor which holds us back more than any other single thing. A lack of standard equipment and plant and let's face it — a determination to each develop his own ideas.

A visitor to this country would see very few extracting plants that are similar. Each beekeeper visited would proudly present his particular case for having his special need for a certain

item of equipment or gadget that he invented himself and which he really does not need. We appear to have in our makeup a strong outlook of individuality and because the fellow down the road has his plant set up in a certain manner, ours must be different.

This is wrong. Fortunately we have a standard hive and the "Alliance" hot-top has done a little to standardise plants. We have reached a crossroads in our development where we need more efficient and more expensive equipment and what is going to happen?

Take for instance the handling of cappings from an uncapping machine. All who have these machines have this problem. Each one is going to follow his own thoughts on this and will finish up with something costly, or inefficient —probably both—instead of following along the lines of proven thought for cappings disposal.

In my opinion, two modified Alliance hot-tops are as good as any and probably the cheapest. Ihe two would have a capacity of thirty supers an hour. This ,incidentally, is a proven method— the Alliance substituting for the Brand melter—a melter similar in principal— as used in Canada. Lets co-operate on this one and come up with something good.

How often do we read or are told of a proven idea, decide to try it, then add our own pet theory before we start. What happens? — failure. Too often a good idea is wasted because of this common fault among us; — I am no exception. It is a fault we can very well do without.

We often see or hear of a beekeeper in a neighbouring area who appears to get a better crop of honey than we do. This is passed off on the grounds that he is in a better area. So what happens? We get envious and the unscrupulous move in. This attitude is wrong. The successful beekeeper was probably a better beekeeper.

The Canadians readily admit that their neighbour may be a better beekeeper and endeavour to rectify their own management. They discuss their own hive averages freely, co-operate with one another over sites and generally get on well together.

They are interested in success, and devote their energies entirely to produing honey, producing in Alberta an average of 135 pounds per hive.

I did not like admitting that the New Zealand average is about 60 pounds. I liked their philosophy towards their work. There is an air of quiet determination, and they believe that when a job has to be done, it must be done. They do not believe in making work just to keep working as is often the case here. As a result, each move was aimed at profit.

The attitude of the officers of the Department of Agriculture in Alberta, especially to disputes between beekeepers and disease control, is a little different to here. I admired the Provincial Apiarist for Alberta. He would not tolerate ill feeling between beekeepers. He was unafraid to speak his mind and the beekeepers respected him for this. If two beekeepers started a range war and fell out they would be given some sound advice, told to get together and discuss the matter, be sensible and come to an agreement. This usually worked and everyone settled down peacefully.

Disease Control

Their approach to disease control would be totally unacceptable here. I would strongly advise N.Z. beekeepers not to use drugs to control Bacillus Larvae. This practice would spread the disease right through the country and every hive would require treatment if we were to stay in business.

It must be understood that Canadians buying packages have no control over the hives from which these packages originate, so in order to protect themselves from having a serious outbreak of disease, pactically every beekeeper is forced to feed drugs. The Department of Agriculture has a burning policy but it is only used when a beekeeper fails to control the disease.

Although the Canadian producer does not pack at all he does have some measure of control over this phase of the industry. In Alta., Sask., Man., and Ont. the beekeepers have their own co-operative honey packing plants, where each plant is controlled by a

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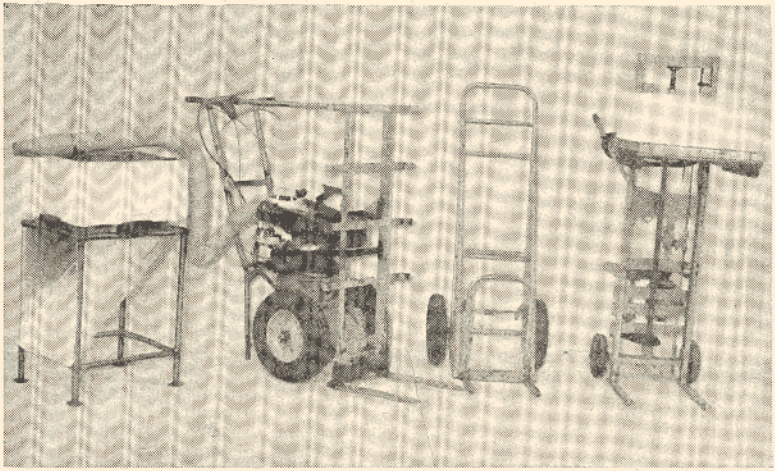

"WARD" BLOWER, LOADER, HAND BARROW & HONEY HOIST

MOTORIZED BARROW. Still the same Barrow that has been in use for a number of years. Reduced weight by use of tubular steel. .Extra attachments available. Simple friction drive reverse fitted, also choice of 2 speeds for loading bees or honey. Blower for removing bees from honey fits neatly within frame of loader making very compact unit. This means you have a blower and have not lost any valuable space on your truck. The blower hose is removable. Just push it on and you are ready for business.

All those who are already using **"WARD"** motorized barrows can purchase the reverse and the blower as extra attachments.

HAND BARROW, Light tubular steel hand barrow with adjustable forks on 16 x 4, 14 x 3 or 12 x 2 tyres. Ideal in the honey house or field.

ELECTRIC HOIST. Automatically raises supers to a pre-set level for uncapping (save that back!). Can be used as fork lift for stacking honey on pallets in hot room or to conserve space in honey house. Will lift 400 lbs.

BLOWER UNIT separate from loader with 3 h.p. Briggs & Stratton motor mounted on tubular steel stand with bee chute and 2 wheels for moving about. Complete ready for work $180.

TUBULAR STEEL stand and chute for those using blower on loader $30.

DUDLEY WARD

KINTAIL APIARIES 47 GUY STREET, DANNEVIRKE

Useful Notes on

PUMPING HONEY

C. G. Rope, Honey Grader, Auckland.

Flow Rate:

The effect of temperature and specific gravity upon the rate of flow was explained in an earlier article "The Straining of Honey" to which the reader is referred.

Liquids which are slow to pour are termed viscous, and viscosity is due to internal friction within the liquid. When thick liquids like honey flow through a pipe, the layer of liquid in contact with the pipe remains more or less stationary while the adjacent layer rides over it. Throughout the pipe one layer is flowing over another. For this reason, it is difficult to heat honey in the centre of large pipes.

Honey FLOWS INTO a pump and is FORCED OUT of it. If the intake can keep pace with the output all is well; but if the output momentarily overtakes the intake a vacuum will be created inside the pump which will draw air in through the joints and the honey will become impregnated with bubbles, which is most undesirable. Bubbles in honey reduce the specific gravity, promote fermentation and shorten the shelf life. They also make honey dull and lifeless in appearance and detract from its inherent flavour, making it insipid.

1. It is better to run a large pump slowly than to run a small pump fast.
2. The difference in price between a large and a small pump is slight, the difference in performance is considerable.
3. Locate the pump as NEAR to the honey in-flow point as possible.
4. Mount the pump BELOW the honey in-flow point if practical.
5. The intake pipe should be LARGER in diameter than the output pipe. Neither should have lesser diameter than the openings in the pump.
6. The intake pipe should be of rigid material which cannot collapse inwards.
7. A cheap vacuum gauge may be mounted in a T fitting connected to the honey intake side of the pump. The gauge will disclose the presence of any vacuum within the pump and indicate the need for some adjustment.
8. Few pumps should run faster than 40 to 50 R.P.M.
9. Bends and angles in the pipeline increase the resistance to the flow of honey and should be eliminated or eased if practical. Transparent plastic food hoses are available and are recommended.
10. A gentle, continuous flow of honey increases the efficiency of equipment further down the line, such as heaters and strainers.
11. Pumps must not be run empty. This problem can be overcome by installing in the honey tank or sump a simple float switch of the type activated by mercury. These can never wear out.
12. The outflow of honey should be directed down the wall of the tank or vessel into which the honey is being pumped. Honey permitted to trickle or pour directly into a tank becomes infused with bubbles.
13. It is not hard to keep fine air bubbles OUT of honey, but once you've put them in they are practically impossible to remove.

Letters to the Editor

Ohio State University
February 26, 1968

Sir,

May I express, through the courtesy of your Journal, our thanks to the state officials and beekeepers for the wonderful time shown to my wife and myself when we visited New Zealand in October.

Our trip had been arranged so as to spend the greater part of our time in Australia. Some of your beekeepers, I think, wondered why this should be so since New Zealand has so much to offer. Really now we are convinced that we should have spent much longer in your beautiful country. The plans that were made for us and the hospitality which we were shown were superb. The time we spent in New Zealand was all too short. Our interests were aroused to such an extent that we definitely want to visit your country some time again.

Those of your beekeepers who were able to attend the International Beekeeping Congress in Maryland last summer were very well received by the beekeepers in this country. I am sure that others who may wish to visit us will find a hearty welcome. We look forward to reciprocal exchanges of ideas and experiences through these international visits.

Again let me say thank you to all who gave us such a wonderful time.

W. A. Stephen (Professor)
Extension Specialist, Apiculture

☆ ★ ☆

No. 1 R.D.
Geraldine N.Z.
8/3/68.

Sir,

Beekeepers throughout New Zealand will be delighted to know that our General Executive has made good and effective use of the remit that we passed last Conference concerning co-opration with the Farm Forestry Assn. and the planting of nectar secreting trees. The February issue of the Farm Forestry Journal carries a full page message from the President (Mr. Niall Alexander), a full cover page photo of bees and a five page article and list of suitable trees for various districts. Altogether a very worthwhile contribution to our cause.

Most readers will appreciate my personal interest and satisfaction in this and our General Executive is to be congratulated on the outcome of its endeavours: however, do not let us now assume that our goal has been reached, we have only just started on the job and it behoves each and every one of us to use every possible endeavour to achieve the results that we hope for. — Join your local branch of the Farm Forestry Assn., attend its meetings and field days and foster the spirit of co-operation and mutual aid! — Don't leave it to the other chap, — he may be leaving it to you!!

George Gumbrell.

COMMENTARY

from the Editor's Desk and Mail

HAWKES BAY AREA apiarists have a new address to call upon their apiary instructor. The Department of Agriculture have shifted location to a new five storey NIMU building. For exercise a stairway is provided to the fifth floor but for the sedentary a lift is thoughtfully provided.

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A JAPANESE research scientist, Dr Hachiro Shimanukin has had encouraging results with the use of ethylene oxide on supers infected with spores of bacillus larvae. Initial tests give encouraging results of disease free stocks given the frames after eight months of use.

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A RUSSIAN METHOD of introducing young queens is described in a report which explains that four to six hours after removal of the old queen, a replacement is put in a container of tepid water until she becomes immobile; when this stage is reached she is carefully placed on the alighting board of the queenless hive. Partially exhausted from her first ever experience in trying to swim, the queen placidly crawls along the alighting board and worker bees immediately conduct her to their hive. Reduction in activity due to contact with the water and the fact that her individual odour is temporarily removed is thought to be the reason for success.

Another method involving immersion is reported from Germany, in which the queen is immersed in water sweetened with honey. The young queen becomes languid and gives off more substance ten minutes later and is immediately accepted by the colony who hurriedly lick the queen substance from her. 28 test cases all resulted in positive acceptances, inluding a drone laying stock.

★ ★ ★

TWO BEEKEEPERS in Devon were surprised to find that their respective colonies were working like mad on a fine day in October, sallying back and forth with even greater fervour than might be expected in the clover flow of mid summer, and apparently storing nectar at a surprising rate. With the realisation that most active gathering stopped in late July and early August last year, the unexpected but welcome source was a matter for conjecture; — although they were apparently in no drastic hurry to ascertain the location of the Eldorado. Enlightenment came a few days later when a third beekeeper ruefully admitted that he had started to extract and had been called away from his honey house on urgent business. There is now one more beekeeper in the world who has found the necessity of using a bee proof building for extraction, particularly when there is a dearth.

A CANADIAN BEEKEEPER has been in New Zealand visiting queen breeders and seeing the country and the methods used here for honey production. Mr Russell Turner of Manning, Alberta, is working hard to find ways and means of having present restrictive legislation amended in Canada to permit the importation of New Zealand queens, and to prove to the authorities there and the Canadian Veterinary Council that they can be safely imported as disease-free. His estimate is that between 5,000 and 10,000 queens could be used annually from New Zealand to re-stock hives for the spring build-up. Ready co-operation is being given by our own Department of Agriculture and scientific officers to try and open the door to an entirely new export for New Zealand. The United States and Canada are, of course, wise to be highly selective as to prohibition of entry to possible disease carriers, and for this reason, the two countries are at present 'closed shops'. It may well take a considerable time to convince America and Canada that there is no acarine disease here.

★ ★ ★

UNITED STATES BEEKEEPERS have been hit hard by insecticides, and efforts are being made to lobby their congressional representatives to have some constructive action to stop the slaughter. In the West, Arizona and California lost 75 thousand colonies from cotton pesticides used to control the bollworm. In the Northwest, losses have been heavy in the State of Washington where sevin on sweet corn has cost hundreds of thousands of dollars in poisoned bees. Some Congressmen are in favour of introducing legislation to compensate beekeepers for financial loss in the same way that dairymen are compensated when milk is found to contain residues of chemicals which have been approved by the Federal Government for agricultural use.

★ ★ ★

A NEW CODE of conduct for the use of pesticides has been published in Britain by a committee which represents the interests of manufacturers, users and distributors of pesticides, the Ministry of Agriculture, Britain's Nature Conservancy and voluntary conservancy organisations.

The President at the recent conference on pesticides, Dr. Kenneth Mellanby, of Monks Wood Experimental Station, explained that without turning the clock back they had shown that the use of pesticides and pest control was not an intractable problem. The interests of the farmer who aims for maximum high quality crops with the aid of the industrial chemist could be reconciled with the interests of country lovers and conservationists.

The solution to the problem of pesticides lay in research aimed at producing safer chemicals and discovering safer methods of using them. Ecologists and naturalists were working on a parallel course of research about wildlife and practical methods of conservation.

Copies of this 'Pesticides Code of Conduct' are available from the joint A.B.M.A.C./Wild Life Education and Communications Committee, Alembic House, Albert Embankment, London, S.E.1. Price one shilling.

★ ★ ★

HASTINGS APIARIST G. F. R. Gordon lost sixteen of his hives in a fire last February. The hives had been requeened and comprised half of an out apiary on the main road south at Pukawa. No buildings were endangered.

★ ★ ★

PRICE CUTTING is not the prerogative of the New Zealand beekeeper, and in the United States, the price cutter is active in a field which we have never seriously exploited. USDA apiculture scientist S. E. McGregor at Beltsville, Maryland, told members of the Texas Beekeepers' Association that pollination services offer the greatest opportunity for beekeepers to increase their income in the future. Some of the new hybrid oil crops developed by agronomists are entirely dependent upon insects for satisfactory yields of seed, and Mr McGregor declares that beekeepers are foolish to offer free pollination services for exclusive rights to honey sources. US$10 is a reasonable basis per acre for pollination services, and price cutting down to US$5 and even US$3 is deplored because neither grower or beekeeper can produce an economic service. Another scientist,

Dr Murray Kinman has been working on flax hybrids dependent on bees for pollination, and he believes that sunflower oil crops will replace the vanishing crops of cotton, and that there will be a 10-million acre crop nationally, with 3 million acres in Texas. Oil yields from present varieties are low, but some hybrids double the yield and bee pollination improves the prospects.

★ ★ ★

ON THE SUBJECT OF POLLINATION, "Gleaning in Bee Culture" carries an informative article by Harry Morris Jnr on cucumbers and refers to the fact that the female carries the fruit before the flower opens, but that unless there is pollination from a male flower, the fruit drops off. Pollination must be by insect transference for which the honey bee is particularly adapted. Asking apiarists not to sell their services too cheaply, he states that his own charge is US$8 per hive but that next year his fee will be US$10. An editorial footnote points out that some beekeepers in the Midwest have been paid US$15 per colony for cucumber pollination services.

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THERE HAVE BEEN a number of reports in the English press that honey is the best 'antidote' to take for over indulgence in the cup that cheers. Some motorists are exhibiting back window signs reading "Down with Barbara's Bags"; the allusion being, of course, to the "Breathalyser" bags into which motorists suspected of having one too many for the road are compelled to exhale into at the command of patrolling police officers. The story is that the honey defeats tests on blood, breath and urine which may or may not be true. If honey genuinely reduces the effect of alcohol, well and good, but if it reduces the symptoms and permits dangerous drivers to be on the road who should be in bed or being driven by someone more capable, it will not be a good thing at all.

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THE IRISH BEEKEEPER carries a pithy, sardonic para for its readers under the heading "HOW TO KILL A BEE ASSOCIATION":—
1—Stay away from meetings. 2—If you do come find faults. 3—Decline office or appointment to a committee. 4—Get sore if you are not nominated or appointed. 5—After you are elected or appointed don't attend meetings. 6—If you do get to one, despite your better judgement clam up until it's over. Then sound off on how things should be done. 7—Do not work if you can help it. 8—If everything is strictly business, complain that the meetings are dull and the officers a bunch of old sticks. 9—Do not rush to pay your dues, let the directors sweat; after all, they wrote the budget.

There could be some red faces among New Zealand beekeepers.

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THE NEXT TIME your feet ache and the skin between the toes is sore through perspiration, it may serve as a reminder that your bees have sweaty feet and that they use the condition to good purpose. A Dr. Butler, addressing a national gathering of beekeepers in Britain explained that the scent assists other bees to locate the entrance to their hive. The soiled entrance path and the surface of combs has always been accepted, but it is new to think of bees with sweaty feet. On second thoughts, there must indeed be a difference with **homo sapiens.** Who, in their wildest moments, would refer to perspiring feet encased in sox as 'scent'?

★ ★ ★

SOME INTERESTING transparent plastic containers are beginning to make their appearance as holders for sections, providing a convenient, hygienic and eye-appealing pack.

★ ★ ★

IN AMERICA specialised marketing of round sections is developing. Two plastic rings are pressed together with a piece of foundation in between. Eight such rings fit into a frame, and when filled, a transparent cover snaps over one face of the comb and an opaque plastic cover on the base. Weighing between 9-10 ozs, with the addition of a label, the pack is ready for market. The labels are wrap-around so that the top and bottom lids are secure. The bees cap the circular

section clear to the edges in a much shorter time than they take to cap a square section, and in a poor season one beekeeper claims that a single colony filled 368 sections which sold at a wholesale selling price of US$4.00 per dozen. Called "The Cobana", the plastic sections are slightly more expensive than wood but have the virtue of being usable over and over again. Credit for the invention is given to Dr. Zbikowski a physician and hobbyist beekeeper in Michigan.

★ ★ ★

THE EASTER SHOW was a wash out in Auckland and many a stall holder 'did his dough' through the absence of expected crowds. Show grounds are no fun in the pouring rain. Barry's Honey Bar struggled manfully to put on and keep up a show of honey of varying flavours to tickle the palate of the visitor, but unfortunately, rain was more prominent than people. One 'exhibition' of bee keeping activity comprising a dirty extractor, an empty 4 tier hive and an observation hive, tucked away in a corner of the show would have been better off covered over with a tarpaulin and hidden from view. The Honey Marketing Authority arrived with a static display of various packs, but rightly and understandably declined to leave valuable stock completely unattended, for it would certainly have vanished on the first day as 'samples'. Nobody seemed to know who placed the equipment in position or who was responsible, but it was no advertisement for the industry.

★ ★ ★

PLASTIC BOXES have to be adequately secured and this difficulty can be overcome by using special adhesive tape known as Vinyl 12. Obtainable in most colours and transparent, the tape is waterproof and resistant to alkaline substances and is available in widths from ½" to 1" in 75 yard lengths. A roll of ¾ tape costs $1.00 but in quantities it is cheaper.

★ ★ ★

THE RUMANIAN BEEKEEPER reports success in requeening by the use of an onion! Procedure is to rub the floorboard with crushed onion, then add the bees with their new queen. Presumably, confused and stupified, the colony could not differentiate twixt the odour of the new and the old, and by the time the reek of onion had evaporated, they all smelt the same.

★ ★ ★

CONGRATULATIONS to beekeeper and queen raiser E. D. Bryant of Huntly, the lucky, lucky winner of a sweepstake prize to the extent of $25,000; — a haul really worth having in a good or bad year of beekeeping. Evan has been 'in the game' for many years and has been a regular exhibitor at the Waikato Winter Show, often taking championship awards with his excellent entries.

★ ★ ★

MOVING DAY for 300 hives from North Otago to Cheviot belonging to G. L. Jeffery has taken place because of consecutive poor seasons, and the new location is in a partnership with the existing stocks of Messrs Smith and Silcock. Transportation was by truck and trailer.

It is interesting to read the Otago Daily Times reporter's version of the impending move in which he wrote that the estimated 9,000,000 bees would be sufficient to sting the entire population of Oamaru 643 times. Constructive thought on the loss to the district of valuable pollination services was entirely overlooked. It is extraordinary how some people associate a bee with its ability to sting. By the same token, every motorcar could be labled a killer.

HONEY MARKETING AUTHORITY

Chairman Jack Fraser explains

AMENDED BUYING POLICY

In view of the low intake expected this year resulting from the disastrous season experienced in some production areas the Authority has had to adjust its policies to meet the situation confronting the industry.

On a short term basis it may be considered that the Authority would have few problems in disposing of its stocks in such a year. This is so and it could be quite a temptation to exploit the situation at the expense of the customers of the Authority both in New Zealand and overseas. A marketing organisation such as the Authority cannot operate with such a shallow outlook but must adopt a policy that will preserve good relations with its customers who have been built up over the years. These are the customers to whom the Industry must look in subsequent years when normal supplies are once more available.

Brand names and marketing images are not built up without considerable expense. They represent an investment of industry funds and it is the responsibility of the Authority to protect this investment by ensuring that in a short year the goodwill of its customers is maintained. A brand or pack only has goodwill while there are customers wanting to buy it. This is the basis of the reasoning behind the decision of the Authority to deviate from its normal buying policy and adopt a policy declaring a minimum final payout as early as March. Such a move must not be regarded as an indication that the Authority intends to adopt this policy in subsequent years.

The conditions of supply submitted to producers next October will most likely be along the same lines as usual but the Authority, if it is going to be an effective force and carry out its functions of assisting in the orderly development of the Industry, must reserve the right to vary those conditions of supply to meet any extraordinary circumstances that may arise which would affect stability.

The Authority has a definite role to be played and in such role it is expected to give a lead both in the field of selling by establishing prices to be charged to the trade, and in the field of buying by establishing prices that would be paid to supplier/producers for their product.

This year the Authority has given the lead in both these directions. The results of these policies on the overall stability of the industry is not entirely in the hands of the Authority. Both packers and suppliers have their part to play and on the extent to which they take advantage of the leads given by the Authority depends the success or failure of honey marketing in New Zealand.

It pays to brand 'em

Don't sell your honey blind! If you want people to buy **your honey** — not just any honey — you must mark it with your brand or name.

- **Branding pays, especially in CARDEA cartons because you can get bold striking designs which make your name stand out.**
- **With a distinctive design and a boldly displayed name, customers will be able to pick YOUR honey out AGAIN**

Frank M. Winstone (Merchants) Ltd.

71-79 Customs Street East, Auckland

SOUTH ISLAND REPRESENTATIVE: P. G. COLLINGS

33 Charlcott Street, Christchurch **Phone 516-062**

DOMINION CONFERENCE

at HAMILTON — JULY 10, 11 & 12

CONFERENCE ARRANGEMENTS

Venue for Conference this year will be Hamilton and the proceedings will be held in the Red Cross Hall, London Street, on July 10, 11 & 12. Speakers at the opening ceremony will include Mr D. Carter, M.P. for Raglan and Dr. Denis Rogers, Mayor of Hamilton.

In addition to the work of Conference dealing with the vitally important problems of the industry, the host branch has organised a number of recreational and educational functions, including a film evening, a colour slide competition and addresses by recent overseas travellers to beekeeping centres. A social evening at the WALDORF LOUNGE, Showgrounds, Claudelands, on Thursday evening July 11, will provide everyone with the opportunity of relaxation and getting together with friends and associates.

Members everywhere are urged to support Conference by their attendance. Decisions taken during the business sessions might well effect your pocket for a long while ahead, and if you are not there to voice your opinion and point of view, the work and responsibility must be left to others.

The host branch has compiled the following information to assist you with the early selection of accommodation and for you to make the reservation of your choice. Visitors are reminded that hoteliers are entitled to expect deposits to be made at the time of reservation, and they are recommended to ensure that a confirmation of booking is received, together with a receipt for deposit.

HOTELS

Commercial. Victoria St. 94 beds. $6.50 daily.

Hamilton. Victoria St. 80 beds. B.B. $4.80. Lunch and dinner optional and extra.

Riverina: Cnr. Clyde & Grey Sts. Ham. East. 49 beds. B.B. $5.50. Lunch and dinner optional and extra.

Royal. Grey St. Ham. East. 19 beds. $5.20 daily.

Frankton. Commerce St. Frankton. 31 beds. B.B. $4.55. Lunch and dinner optional and extra.

Waikato Motor Hotel. Gt. South Rd. Te Rapa. 40 beds. B.B. $7.50 single. $13 double. Meals optional and extra.

PRIVATE HOTELS

Abbotsford House. 6 Anglesea St. 23 beds. D.B.B. $3.50.

The Pigeons. 100 Clarence St. B.B. $2.75. Meals extra.

Grand Central. Hood St. 24 rooms. B.B. $2.50.

Maryland Lodge. Ohaupo Road. 8 beds. B.B. $2.75.

Parklands. 24 Bridge St. 40 beds. B.B. $2.75.

Willows Travel Lodge. 1190 Victoria St. 10 beds. B.B. $3.50.

Bridge Private Hotel. 2 Bridge St. 22 beds. D.B.B. $3.15.

MOTELS

★★★★ Chequers Motel. Ulster St. $3.50 per person.
★★★★ **Kingsfield Lodge Motel.** Ohaupo Rd. $3.50 per person.
★★★★ **Driftwood Lodge Motel.** 71a Ulster St. $3.50 per person.
★★★★ **Palm Lodge Motel.** 820 Te Rapa Rd. $3.50 per person.
★★★★ **Motel Mariner.** Ulster St. $3.50 per person.
★★★★ **Fairfield Bridge Motel.** 522 River Rd. $3.50 per person.
● ★★★★ **Classic Motels.** Ulster St. $3.50 per person.
★★★★ **Country Club Motel.** Great South Rd. $4.00 per person.
★★★★ **Tamahere Motel.** Cambridge Rd. $3.00 per person.
★★★★ **Beerscourt Motel.** 299 Ulster St. $3.50 per person.
● **Mahana Motel.** Gt. South Rd. $3.50 per person.
● ★★★ **Edgewater Motel.** 31 Opoia Rd. $3.25 per person.
Fully ● **Motel Whitiora.** 39 Ulster St. $3.75 per person.
● ★★★★ **Hamilton Motel.** Cambridge Rd. $3.75 per person.
★★★★ **Motel Thackeray.** 6 Thackeray St. $3.50 per person.

● **Serviced** ★ **Star Rating**

CANADIAN BEEKEEPING

(from page 18).

board of elected producer members. All the profits are distributed back to the producer either as a deferred payment or as an accumulated fund which is paid out to the producer when he retires from active beekeeping. It is these producer controlled Co-operatives which have a stabilizing effect on the industry which keeps the price of bulk honey to a realistic level.

We have a similar control here with the H.M.A. and producer packers. While I believe there are beekeepers who would be better off financially not packing their own honey, the beekeeper must never lose control of the packing side of our industry as has Australia and to a lesser extent, the U.S.A. In these countries large organizations have taken over control and beekeepers have become underdogs who have no say in fixing the price of bulk honey.

I have endeavoured to place before you thoughts I have developed as a result of being awarded the National Beekeepers' Association Bursary enabling me to visit Canada, to live and work with the beekeepers, and discuss all problems associated with their industry. I feel optimistic about our future. I was brought up with beekeeping, have a stake in it and it is up to us to work together co-operatively with a view to become better beekeepers.

I sincerely thank our Association, and in particular those who sponsored this bursary, for giving me the opportunity to travel overseas to study beekeeping in other places.

BEEKEEPERS TECHNICAL LIBRARY

The following donations have been received with thanks:-

From the Editor, N.Z. Beekeeper,
"Beekeeping in United States" Agriculture Handbook No. 335, 147 pages, 1967.

From an Anonymous Donor:
"Introduction of Queen Bees" 205 pages, 1940.
"Dadant System of Beekeeping" by C. P. DADANT, 117 pages, 1932.
"Anatomy and Physiology of the Honeybee" by R. E. SNODGRASS, 340 pages, 1925.

From Mr G. Gumbrell,
An assortment of past Beekeeping Magazines.

From an unknown source:
A carton of past beekeeping leaflets and booklets.

Chris Dawson.

NATIONAL EXECUTIVE
holds two-day meeting

Executive met for two full days on industry business at Wellington on March 6 and 7 from 9 a.m. until 11 p.m. on the first day and from 9.30 a.m. until dispersal time on the evening of the second. Members travelling by ferry to the South Island were fortunate in that transportation was sure if saltatory, whereas travellers by air had the uncertainty and discomforts commonly experienced with entrance and departure from Wellington in dubious weather. All elected members were present under the chairmanship of T. S. Wheeler, comprising G. Winslade, D. A. Barrow, F. Bartrum, T. Gavin, J. Glynn, the General Secretary K. E. Moody and the Editor, L. W. Goss. Considerable time and thought was devoted to problems facing the industry, and the following is a synopsis of the more important items.

DEPARTMENT OF AGRICULTURE. Items to be discussed with Messrs Greig and Smaellie were reviewed, and the following listed for discussion:

FOOT & MOUTH DISEASE. No reply had been received from Dr. Jamieson on the situation which might arise in the event of the disease becoming a reality in New Zealand and a follow-up would be sent. Executive required information to formulate future policy and the question of compensation for loss of production if attendance to apiaries in an area was prohibited.

STAFFING. Mr Greig indicated that the Apiary Instructor at Nelson, Mr Marshall, was to be transferred to Hastings on the retirement of Mr S. Lines, and that there were vacancies at Palmerston North, Nelson and Christchurch. Mr L. A. M. Griffin had retired from Christchurch.

TRAINING SEMINAR. Proposed agenda had been perused by the Department, which would be happy to arrange for Mr R. A. Walsh to lecture on a subject to be determined.

DIPLOMA IN APICULTURE. The Association had made representations that the Public Service Commission recognise the Diploma by examination as an entitlement to a salary increase for Department employees. Mr Greig explained that the Commission recognised University qualifications and that the Association would have to convince the Royal Commission of the need for alteration to existing arrangements. (In later discussion Executive decided to make representations to the Royal Commission that holders of the Diploma be given recognition by salary increase. Otherwise, the years of study involved could hardly be justified, and personal satisfaction did not buy bread. In the course of debate, comment was made that there might well be advantages in the Apiary Section being transfered to Livestock Division and not to remain as part of Horticulture, and that the suggestion was worthy of further thought.)

PRESS REPORTS. Mr Greig undertook to draw the attention of Apiary Instructors to the need for care when providing reporters with information and particularly in regard to honey prices. It was not departmental policy for Apiary Instructors to make such statements.

TEST SAMPLES. Verbal reports only had been made of tests taken from closed areas over recent years. Mr Greig undertook that a summary in writing would be available.

LEGISLATION. Confidential information was made available to the Executive of proposals for redrafting and consolidating the Apiary Act 1927. Careful study by members resulted in a number of alterations and recommendations being made to the Department. In due course draft proposals will be available to the Association and branches will be asked to give closest attention to them so that Executive may be enabled to act accordingly.

CANADIAN ENQUIRY. Mr Greig commented that a Mr Turner was in New Zealand appraising the possibility of exporting breeding queens to Canada. Canadian Government permission would be required for such importations, and the Department here would readily assist in providing information needed on freedom from specified diseases.

HONEY PRODUCTION: Mr Greig commented that nectar yields were less than in earlier years, contributing to a reduced income for beekeepers. The views of Apiary Instructors had been collated, and at a later stage were considered by Executive with the following result:

1. Agreed that with land improvement and changes in pasture management for improved farm production, adequate nectar sources to support an increasing bee population is not now available in localities in which bees have been traditionally established.
2. It was not agreed that there had been no evidence to support the theory that changes in pasture management had decreased the flow of nectar in clover which actually reached flowering stage. Executive considered that some cheap sprays stop nectar flow whilst other dearer sprays do not do so.
3. Agreed that poor honey seasons during the past ten years had been due mainly to adverse weather conditions but that spraying had a significant effect.
4. Agreed that except in favourable years, the increase in colonies in many districts had led to overstocking.
5. Agreed there had been a trend to increase hive numbers to maintain income. This had been effected without increasing manpower.

Executive agreed with the comments numbered 6—10:

6. Many beekeepers are aiming to increase production by increasing hive numbers. The one-man unit is becoming bigger and there is a trend for big outfits to buy up smaller units.
7. Some beekeepers are over-committed and running too many hives. They are not able to give the colonies proper attention and have involved themselves in extra capital outlay and overheads without the compensating return.
8. If these trends continue hive production can be expected to drop through overstocking and inadequate colony management.
9. Some beekeepers packing honey for retail are over capitalized and many would be better off concentrating on production rather than producing, packing and selling.
10. The price of honey has not risen in comparison to production costs, and the reward from beekeepers has become less.
11. With regard to the comment that for a present day return comparable to that of 10 years ago, honey would need to retail at least at 30c. per pound. Executive felt that the current price for honey was approximately 30c. per pound and the beekeeper was not getting an appropriate portion of this as compared with ten years ago.

CAUCASIAN QUEENS. Mr Greig's attention was drawn to an Apiary Instructor's praise for this breed, allegedly imported into N.Z. illegally.

CODEX. Mr Greig commented that the proposed Codex for European standards did not appear to have been amended, and that if the standard should be finalised, the effect may well be detrimental to our market in the UK.

COST OF PRODUCTION SURVEY. Disappointment was expressed at the lack of participation by apiarists in providing information, and the hope that greater co-operation would be forthcoming when the benefits to the industry were appreciated. Simplification would be possible for future surveys, and it was decided to continue the survey for the next five years.

BALE REPORT. Correspondence was reviewed and resolved that no further action be taken.

GROUP INSURANCE. A firm of brokers are to be approached on the preparation of material for publication in the journal to ascertain whether there is general interest in a Group Superannuation Scheme for the industry.

MEMBERSHIP BENEFITS. An attempt is to be made to make hobbyist bee-keepers realise the advantages of Association membership and the benefits of Public Liability Insurance included with membership dues. 250 smaller bee-keepers are to be circularised.

SMOKERS. Waikato branch has again protested at the poor quality of some smokers. A request is to be made to the supplier for the name of the manufacturer so that the Association's concern may be communicated to them.

PACKERS' ASSOCIATION. It was noted that an Association had now been formed, but that the two delegates appointed to discuss with Executive the proposed formation having resigned, no further action could be taken by the National Beekeepers' Association.

FOOD & DRUG REGULATIONS. Liaison with the Health Department concerning the proposed changes in the definition of honey is being maintained.

B. L. INSURANCE. A letter from a company was tabled and further information obtained for consideration.

COMMISSION OF ENQUIRY. The motion from Waikato requesting Executive to press for a Commission of Enquiry, together with correspondence from interested parties was considered in detail. Resolved that Executive feels no benefit would accrue to the industry from the appointment of such a Commission, and that there was insufficient evidence to justify such action.

WALLACEVILLE RESEARCH CENTRE. Mr T. Palmer-Jones was welcomed and reported on his work:

Clover: New strains of clover being tested at Lincoln appeared to flower prolifically and to be attractive to bees. However, the test crop was of insufficient size for detailed survey and it will be another season before further tests can be made.

Closed Area: A detailed survey had been carried out in the closed area and the results appeared to be mainly unchanged. There had been little land development except in one or two places which were being considered to be released to beekeepers.

Acarine: There had been little evidence of the disease in bees submitted for inspection. There had not been a good response to the request to forward bees for inspection.

Waspbait: The initial shipment had been considered unsafe for bees and the Company was obtaining new stocks which they would submit for testing. Another preparation was also under investigation.

Swarm Control: Mr Ivor Forstor had almost completed this assignment and a report will be made available for publication.

The President expressed appreciation of the cordial relationship which now existed between the Research Unit at Wallaceville and for the flow of articles presented for the Journal.

CONFERENCE 1968. Venue is to be the Red Cross Hall, Hamilton, and Waikato Branch have arrangements well in hand for an interesting and instructive event.

ELECTION OF EXECUTIVE. To ensure that election to office was the overall will of the majority, amendments are to be made to the preferential voting system requiring a candidate to obtain 50% plus one of the total votes cast.

HMA ELECTIONS. A joint meeting between the Association and the Authority to consider regulations governing elections resulted in the tabling of a report but Executive felt that the regulations should be further amended to enable a greater number of electors to vote with a minimum of inconvenience. The Association requested that suggested amendments to legislation be deferred to enable a thorough investigation to be made to specify qualifications for voters and the conduct of elections. (Branches have been invited by a circular from the Secretary to submit their sugestions by mid May).

HMA. The Authority Chairman, Mr J. Fraser attended to discuss matters of common interest and advised that an increase in the basic floor price had been made and that amended conditions of sale were being sent to all suppliers. Because of present conditions and to reduce expense, radio advertising has been suspended. A meeting had been held with the Department of Industry and Commerce to discuss a possible increase in the price of honey due to the season's poor crop and the economic state of the industry.

BRANCH LIFE MEMBERS. Certificates are now available to branch secretaries, at a cost of 50 cents each.

RESEARCH REPORTS. Dr Buddle is to be asked for a report on research carried out by his staff, and Mr R. S. Walsh to supplement information on his work.

TEST WEIGHING

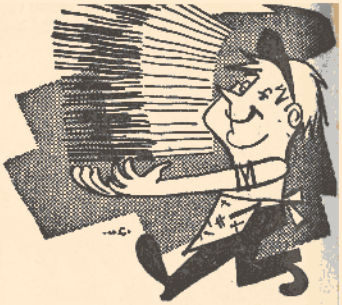
OVER A PERIOD

Here is a meticulous record of hive weights over a period of six months, showing gains and losses during the period and details of weather conditions throughout. This interesting experiment on an accurate platform scale was undertaken by Phil Muir of Auckland with the Apiary Instructor Neil Bates.

29.8.67	Starting weight 64 lbs — 9 Frames Brood & Stores.
12.9.67	Lost 3 lbs Weight, now 61 lbs.
19.9.67	Found Queenless with superceedure cells broken down in error and Queen Cell added.
26.9.67	The added queen cell has now failed but found another superceedure cell. Weight 56 lbs, ample stores.
11.10.67	Weight 55 lbs. **Weight taken at 6 p.m.**
17.10.67	New Queen commenced laying, weight 54 lbs.
25.10.67	Weight 56 lbs.
31.10.67	Weight 59 lbs.
11.10.67	Weight 63 lbs.
15.11.67	Weight 56 lbs.
21.11.67	Weight 58 lbs.
26.11.67	Weight 75 lbs. Added box, (8 frame brood) (box 17 lb.)
28.11.67	Weight 79 lbs.
3.12.67	Weight 81 lbs.
5.12.67	Weight 85 lbs.
6.12.67	Weight 86 lbs.
12.12.61	Weight 90 lbs.
12.12.67	Weight 94 lbs.
13.12.67	Weight 100 lbs.
16.12.67	Weight 102½ lbs. lost weight until this morning.
8.1.68	174½ lbs. Warm but cloudy.
9.1.68	177½ lbs. Hot & Sunny.
10.1.68	179 lbs Hot & overcast.
11.1.68	183 lbs. Hot Sunny, cloudless.
12.1.68	187½ lbs. Hot Sunny, cloudless.
13.1.68	190½ lbs. Hot Sunny, cloudless.
14.1.68	195 lbs. Hot Sunny, cloudless
15.1.68	194 lbs. Cloudy & cool.
16.1.68	194 lbs. Cloudy & cool.
17.1.68	196 lbs. Cloudy and warm.
18.1.68	197 lbs. Cloudy and warm (Showers slight)
19.1.68	196½ lbs. Cloudy and warm, windy.
20.1.68	196½ lbs. Cloudy and cool.
21.1.68	199 lbs. Clear & warm. Beautiful day.
22.1.68	201½ lbs. Clear & warm. Beautiful day.
23.1.68	204 lbs. Cloudy & warm. Beautiful day.
24.1.68	206½ lbs. Cloudy Hot & windless. Humid.
25.1.68	208½ lbs. Clear & hot.
26.1.68	210½ lbs. Clear & hot.
27.1.68	213½ lbs. Clear & hot, cloudless
28.1.68	214½ lbs. Mild shower midday, night & afternoon.
29.1.68	213 lbs. Turned cold, shower at Noon, improved P.M.

20.12.67	Weight 121 lbs (away 4 days)
21.12.67	Lost weight — dull days and showers.
23.12.67	132 lbs. Bright sunny days.
24.12.67	141 lbs. Put on ¾ box, (weight 9½ lbs.)
24.12.67	147 lbs. — clear and sunny.
25.12.67	150½ lbs. — clear and sunny.
26.12.67	151 lbs. — clear and sunny.
27.12.67	156½ lbs. — clear and sunny.
28.12.67	153 lbs. Showery overcast and cool.
29.12.67	159 lbs. Sunny.
30.12.67	7 p.m. 161 lbs. Fine.
31.12.67	7 p.m. 163½ lbs. Fine.
1.1.68	7 p.m. 161½ lbs. **Lost** 2 lbs. overcast & showers with drizzle.
2.1.68	7 p.m. 165 lbs. Fine Sunny.
3.1.68	164½ lbs. Fine Sunny Windy.
4.1.68	166 lbs. Fine Sunny Cool.
5.1.68	168 lbs. Fine Sunny.
6.1.68	169½ lbs. Fine Sunny Cool in morning.
7.1.68	172 lbs. Fine Sunny Warm.
30.1.68	216½ lbs. Warm & still humid.
31.1.68	217½ lbs. Overcast & windy, cool patchy.
1.2.68	218½ lbs. Overcast, Mild, some wind.
2.2.68	221½ lbs. Overcast Warm.
3.2.68	221½ lbs. Overcast & showers, windy.
5.2.68	222½ lbs. Clear & warm, 1 lb. increase in two days.
6.2.68	223 lbs. Clear & hot.
7.2.68	223½ lbs. Clear & hot. Cloudless no wind.
8.2.68	223 lbs. Cloudy, later drizzle, warm.
10.2.68	Extracted, took off 1¾ Boxes. Extracted boxes put back and weighed at 117 lbs. 223 -117 lbs. 106 lb. Honey extracted.
12.2.68	Weight with stores super — 109 lbs. — Clear & warm.
13.2.68	110½ lbs. Cloudy & cool.
14.2.68	110½ lbs. Clear & hot. End of flow.

BRANCH NOTES



WAIKATO

Our Annual field day was at Opal Springs near Matamata on Saturday March 2.

Although honey production in many parts of the country was "shocking", Waikato was rated "not so bad after all".

Alf Bennett gave a talk on preservation of hive timbers without poisoning the bees at the same time. Preservatives like copper napthenate, creosote, paraffin wax, wood-oil, paint and primer all had certain faults. Probably the best bottom-board was made of fibrolite with rot-resistant wooden sides.

Colin Rope in his talk on "Honey Grading" appealed for preservative materials which do not taint honey, as customers do not really enjoy honey flavoured with creosote or aluminium paint! He also showed a large cylindrical honey drum with the ends blown out by fermentation, caused by packing honey with too low a specific gravity.

Albert Pearson was made the first life member of the Waikato branch, and Jim Barber paid tribute to his many years of quiet service to beekeeping which had led to a retirement with excellent physical health, even though the financial reward was not very great.

In reply Albert related that his father had started beekeeping with one hive in 1888, but he and his brother had increased this total to over 2000 hives. This, of course, was in the horse and buggy era providing that the horse was bee-proof; — otherwise it was a buggy on its own!

Dudley Lorimer recalled an occasion when as a very new beekeeper, he helped Albert Pearson move a hive from a 60 ft. knoll. The bes found that he had "leaky" overalls, so Dudley took off dropping the hive which rolled to the bottom of the hill.

Even this didn't ruffle the owner.

Alan Bates also paid his tribute and said that he had known Albert since the "horse and buggy" days.

Colin Gosse gave a talk on E.E.C. and on devaluation. If Britain joined the E.E.C. we should have to pay 30% duty on our honey in place of our present 5 shillings/1 cwt. preference.

Devaluation in both U.K. and New Zealand left us slightly better off for exchange rate, but freight, which is paid in sterling, is more expensive.

Our special packs of New Zealand honeys are selling well in England, Australia and Germany but there are difficulties with continuity of supplies due to two poor harvests in succession.

Argentine and China are selling honey very cheaply on the world markets.

Ron Baker judged the "gadgets" competition. Mr Hansen came first with his water-jacketted wax bath, and Allen Bates second with his honey strainer.

Kevin Eckroyd gave a valiant display of hive clearing with a "Solo" bee-blower.

The field-day ended with an auction conducted by Don Edwards. There were some excellent bargains in beekeeping and electrical apparatus but few beekeepers appeared to have any money!

For the ladies there was a display of floral art by Mrs D. R. Christopher, and a competition for the best fruit drink with honey.

Reported by Don Barrow.

CANTERBURY

A meeting was arranged for April 5 for a film evening, with a panel to answer questions in the form of a "brains trust", to be followed by a presentation to mark the retirement of the Apiary Instructor, Mr L. A. Griffin. Unfortunately, Mr Griffin was unable to attend and the function was cancelled.

Reported by A. R. Eagle.

After 4 or 5 inches of rain in late November who would have thought that Canterbury would be in for a dry season? In fact, we had almost the four seasons in one. A mild winter followed by a favourable spring made beekeeping seem easy, but we were soon disallusioned with the November snow storms and frosts. Bees which should have been reaching their peak were severely set back by shortages of pollen and in some cases, stores. Broodnests contracted alarmingly in the most seriously affected areas. Continuous high winds at the start of the flow soon had the pastures dried up and only the strong hives were able to gather an appreciable amount of nectar. Rains in January again restored clover and with an exceptionally fine and hot autumn (temps. of 90° or more) broodnests have filled well enabling more honey to be extracted. The over-all crop varies from good to well below average, with quality a little below last year's.

Our Apiary Instructor, L. A. (Griff) Griffin, retired at the end of March and has been succeeded by John Smith. We would take this opportunity of thanking Griff. for his administration of our needs over the years he has been with us, and wish him well in his retirement. And to John, a welcome and a hope that his stay will be a happy one.

Reported by Jasper Bray.

OTAGO AND SOUTHLAND

The Annual Convention of the two branches will be held this year at the Pioneer Women's Hall, Dunedin on June 4 at 2 p.m. and 8 p.m.

Local beekeepers and visitors to the city will be made very welcome by members, and a cordial invitation is exended to them to attend this function.

Reported by Mrs A. Dale.

The crop was light to average showing good returns on moist ground but very mediocre on the tussock and high country. Reasons:- cold snap at crucial brood rearing period in the first week of December.

There was an abundance of cold winds for most of season, especially January/February, and exposed sites suffered badly.

The field day held at Mr R. N. Hume's home at Roxburgh gave the opportunity to sample Central hospitality, with fruit straight from the trees etc. Weather was fine and sunny all day with bees flying. The new honey house and fittings with Pyrotenax heated hot room was of especial interest.

Speakers:-

R. Hobbs, apiary instructor queen raising, **R. N. Hume,** beekeeping in general, **J. Glynn,** Executive & Association affairs, **David Penrose,** two queen systems, better beekeeping etc. (One of the younger generation with plenty of go) His talks are of great interest. **Jack Fraser, H.M.A.** The poor intake and current problems;—more support needed here.

Lastly, a thought for the beekeepers of Southland experiencing the current flooding;—it is to be hoped there were no white boxes bobbing out to sea.

Reported by Bruce Jenkins.

BAY OF PLENTY

Bay of Plenty had a change of venue for their Field Day this year, and held it at McLaren Falls Park on February 10.

Weather was fine and attendance good, with visiting beekeepers coming from Waikato and Auckland.

President Ron Mossop opened the programme with a welcome to all.

Colin Rope gave a most interesting address on honey grading and honey generally.

Following lunch break beekeepers gathered at an apiary beyonging to Messrs A. C. & D. A. Barrow, where Kevin Ecroyd demonstrated a bee blower.

I am not sure whether the honey was removed from the bees, or bees removed from the honey! However the bees certainly were blown from the honey in a very satisfactory manner; and the blower was sold straight after the demonstration.

The next item was a talk by Allan Ward on two queen hives, followed by Norman Tuck who gave a first class talk on his recent trip to U.S.A. Finally, Ron Mossop gave a demonstration on how he had converted an old "Frigidaire" into a unit for softening 60 lb tins of starter honey in the winter. It is simply an old Frig. casing with a light bulb for heat and a thermostat to regulate temperature.

With a final word of thanks from Ron Mossop and a cup of tea, the Field Day was brought to a very pleasant close.

The honey season finished with a crop a little better than nothing, but fortunately, most hives have got winter stores. In a few months time Beekeepers will once again be looking up at Rewarewa, Kamihi and Tawari buds and saying "I WONDER"?

Reported by D. A. Barrow.

WAIKATO

Our fine weather came, but too late to do much good. In some inland areas crops have been obtained but in most Waikato locations little more than winter stores is general. A lot of producers will struggle to get 1 ton per 100.

Thistle has been a big help as brood boxes are generally well filled so hives will go into winter in good condition.

Colour slide competition for conference on a beekeeping topic. Six slides maximum per branch, direct members one slide. All slides to be forwarded to Mr N. Tuck, Secretary Waikato Branch, Kihikihi, two weeks before Conference.

Reported by C. Bird.

NORTHLAND

A branch meeting was held last month but, sorry to say, the attendance was only fair so we blamed the weather and hope for better things at our field day on April 27 at Terry Gavin's apiary at Titoki outside Whangarei.

Our honey crop is above average this year and of very good flavour and texture, after one of the best summers any of us can remember.

The storm which lashed all New Zealand did not leave us alone and brought serious flooding to low laying pastures. One member reports that in one of his yards, all that could be seen was the lids, so that the bees will at least have had their feet washed. In my own yard, the flood went through the bottom supers and has taught me a lesson to keep to high ground.

The annual general meeting of the branch will be held on May 15 at number 2 Norfolk Street, Whangarei.

Reported by Athur Tucker.

LATE REPORT

Northland & Far North Field Day late note. Fifty beekeepers assembled at Terry Gavin's yard to see various demonstrations of beekeeping techniques on April 27, and the weather was 'one out of the box'. Interest was expressed in the stubborn refusal of one queen to perform her reproductive duties, and this dark daughter was to be replaced with a handsome striped beauty of Italian origin. However, whatever alacrity was lost in laying eggs was more than made up in physical activity, for she slipped through Terry's fingers and took off into the unknown. Retribution eventually caught up with her when the apiary instructor and the editor made a lucky find as residence was just about to be taken up again, and she quickly lost her head, not metaphorically, but in fact. The half castes in the yard were not at all resentful of intrusion and submitted to a general inspection of brood and frames without apparent annoyance. For some unexplained reason, several bees thought that Arthur Tucker deserved a thick ear, and did their best to enlarge his lobes. A very enjoyable day, and the smaller fry learned a lot from the commercial lads.

HAWKES BAY

The Autumn field-day was held at the Aschroft's Honey house in Havelock North. Despite a damp beginning, the day cleared in the afternoon, and a good attendance of beekeepers from all over Hawkes Bay came to watch the demonstrations.

Syd Line gave an amusing account of some of the highlights of his years as an apiary instructor.

The programme for the afternoon covered autumn queenrearing, wintering hives and the all important wintering and storage of combs; with a very interesting demonstration of blowing bees from the hive with Bill Dorward's very efficient home-made blower.

Bill Ashcroft demonstrated the pricking and extraction of manuka honey, which is always of interest to beekeepers.

A vote of thanks to our very busy Mayor and Mayoress for the use of their home apiary concluded a very pleasant field day.

Reported by Mrs F. D. Maultsaid.

A GUIDE for BEGINNERS

By R. S. Walsh, Auckland

Amateur beekeepers in the Auckland district have for many years been keen supporters of queen excluders. Now there is nothing wrong with queen excluders, and some commercial beekeepers claim they could not succeed without them. There is however a correct way to use them and a proper time to apply them if the aim is to control swarming. This is the main use of the excluder but it is of course quite valuable for other purposes. The improper use of excluders in this district has concerned both myself and other instructors who have worked in this district over the past twenty years. It is unfortunate but true that so many smaller beekeepers who genuinely desire to apply the demaree system of swarm control only succeed in disorganising their colonies. I have seen hives divided up by excluders when they have neither the bees nor the stores to withstand such treatment. It is often carried out too early in the season and numbers of hives fail to recover. Queens are lost through supersedure and colonies are unable to build up again before the honey flow and little or no surplus honey is obtained:

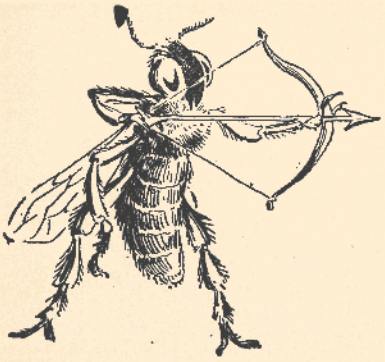
In some cases the separation of brood and bees too early in the season results in chilled brood and in extreme cases, in the loss of the colony. A lack of understanding of the demaree principle is undoubtedly the reason for the misuse of the excluder by so many beekeepers.

Demaree's System

There is no necessity for experimentation with this method of swarm control. Demaree, who invented the system over eighty years ago, altered his plan on a number of occasions before he finally decided what was best and when it should be put into operation. He waited until the queen had brood in both brood chambers, perhaps as many as sixteen frames. Action was also delayed until as near as possible to the start of the main honey flow or until the first preparations for swarming were observed. The operation itself was simple. The queen and all the unsealed brood were put in the bottom box, then the excluder was applied and the second box with all the sealed brood set above the excluder. If required as would be likely, a super or two of combs was added above the sealed brood. An inspection of this borod for queen cells in a week's time was considered advisable.

Miller's Modification

Commercial beekeepers sometimes adopt a more severe form of swarm control than the above. It was first used by a beekeeper named Miller who based it on one of Demaree's earlier methods. If swarm cells are seen to have been started they must all be destroyed. The colony is then removed from its floor board and an empty super put in its place. The queen is then found and placed in this new super on one frame of unsealed brood, and the space is filled with empty brood combs. A queen excluder is then placed on the new brood chamber followed by a super or supers of empty combs. The remainder of the brood goes to the top of the hive beneath the lid. It is necessary to examine this brood in ten days' time and remove any cells that may have been started.



G. N. LANSDOWN
of Auckland writes on

DRONES AND WORKERS —

Outside the Hive

Through the years there have been unselfish and enthusiastic beekeepers who have willingly given their time assisting the beekeeping industry in every possible way. The result — their efforts have helped considerably to bring the industry to its present important position.

There are, however, other beekeepers who for some reason will not give their support to anything likely to benefit the beekeeping industry. Some beekeepers are cagey about joining a beekeepers' association because they fear it will cost them time and money. The same beekeepers seldom subscribe to a bee journal or exhibit their honey at shows. They are drones and let other beekeepers carry the burden and do all the work.

Is this being smart and thrifty, not to subscribe to a bee journal or refuse to belong to a beekeepers' association in order to save a few dollars each year? I think such a policy is negative and very foolish. A beekeeper can easily become outdated in his methods of operation if he does not subscribe to a progressive bee journal.

Several beekeepers I have spoken to openly ascribe their success in beekeeping to subscribing to a first class and up to date bee journal. If the reader of this article is not a subscriber but aims to increase his knowledge of beekeeping, he should lose no time in taking out a subscription to a bee journal of repute, such as the one he is reading now. He will find the articles a source of continued inspiration and encouragement.

I have met beekeepers who do not take a bee journal because they think they know all the answers and have nothing new to learn. Quite a few bee journals have ceased publication because, strange as it may seem, the very people they want to help refused to support them.

In reading through the numerous bee journals one cannot help but note how much valuable research is being done to aid beekeepers. A lot of good work has been done and is being done in investigating bee diseases and the values of various honeys. There are dozens of institutions where all phases of beekeeping are being studied. Numerous discoveries have been made in regard to the composition of honey, the various reasons for different colours, its granulation, and its food values. Much research has been made in regard to the many races of bees and their honey gathering qualities. Also, the various bee pests and diseases have received a lot of study and attention.

There are beekeepers who refuse to belong to a beekeepers' association or if they do join, they never attend a meeting or pay their dues. It is often quite impossible for some members to attend all the meetings because of the long distance to travel; thus, many beekeepers leave it to the keen and active ones to attend the meetings.

Any beekeeper who makes a real success of his business becomes an important individual in his association. I have heard non-member beekeepers remark that certain men only become members of the beekeepers' associations in the hope of being elected president to see their name in print. This, of course, is utter rot and is only an excuse for not joining.

The president of a beekeepers' association should receive the respect due his station but I am certain he does not expect or want the local barber to give him the V.I.P. treatment just because he happens to be the head of a bee association.

It is only through joining bee-keeping associations and taking an active part that beekeepers can ever hope to make politicians wake up and take notice of the beekeeping industry. Bees work together for the common good; beekeepers must do the same if they want to flourish. Far too many people, like drones, want to receive without giving.

Most beekeepers I have spoken to cannot be bothered exhibiting their honey at fairs and shows. They claim people exhibit for reasons of vanity. This is a pity because a honey show is like a shop window. It helps to attract attention and tends to increase the sale of honey.

When I was a youth, an old man with a long white beard exhibited his honey year after year and at the same time had a few bees in an observation hive. The old man always had a big crowd around him and did more to interest the public in bees and honey than any other beekeeper I have ever met. He was a real worker.

It is at shows that we find large and small businessmen rubbing shoulders with beekeepers. Businessmen visit shows with their eyes open for business. The reason for exhibiting honey at shows is simple and obvious. (1). It pays to advertise. (2). No one can gauge the standard of his own honey fairly unless he sees it in competition with other honey side by side. It often happens that a beekeeper thinks he has something exceptionally good only to find someone comes forth with a honey pack even better. (3). There is nothing like competition for keeping a beekeeper up to the mark. The interest created is not confined only to the beekeeper, but to those who work for him.

If a beekeeper does not have any success the first time he exhibits he must not be discouraged. He should ask the judge why he was not successful. Most judges are only too pleased to tell the exhibitor exactly why his entry failed and go to no end of trouble to enlighten the beginner on the finer points of showing honey. With the knowledge gained, the beekeeper will, no doubt, do better next time.

By exhibiting honey at shows, joining a beekeepers' association, and taking an active part in it, and by subscribing to a bee journal, a beekeeper is playing his part, however small, in assisting the bee industry. Be a worker and not a drone.

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THE N.Z. BEEKEEPER

This Journal is issued free to all beekeepers in New Zealand having 30 or more registered hives, and to others who are members of the National Beekeepers' Association.
Literary contributions and advertisements must be in the hands of the Editor, Mr L. W. Goss, P.O. Box 3561, Auckland, not later than the 25th of the month preceding publication.
Nome-de-plume letters must be signed by the writer and address given, not necessarily for publication, but as proof of good faith. Letters accepted for publication do not necessarily express the views of the Editor.

front page story

ADAM BLACKWELL now aged 93 and still keeping a few hives, is probably the oldest living beekeeper in New Zealand. His early years were spent on the Great Barrier Island where his father settled in 1866.

Adam was given his first hive at the age of five. The family kept bees as a living and Adam worked with the hives until he went to sea. Even then he was often at home for the honey season. As a lad with two young friends he made a voyage to Sunday Island to examine the fine honey-producing pohutukawa trees that he had been told about by the Bell family who lived on the island.

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A grand old man, and a credit to the beekeeping industry.

(Picture by courtesy R. S. Walsh, Auckland)

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