THE NEW ZEALAND BEEKEEPER

VOL. 12, No. 2. MAY, 1950

OFFICIAL ORGAN of the
NATIONAL BEEKEEPERS' ASSOCIATION
OF NEW ZEALAND
(Incorporated).

(An Organisation for the advancement of the Beekeeping Industry in New Zealand)

Better Beekeeping | Better Marketing

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The New Zealand BEEKEEPER

Published Quarterly in February, May, August and November,
by the National Beekeepers' Association of New Zealand (Incorporated).
J. McFadzien, Editor. Subscription, 5/- per annum, post free.

VOL. 12, No. 2 MAY, 1950

EDITORIALS.

THE BEE WORLD

An event of interest to beekeepers throughout the world is the recent retirement of Miss Annie D. Betts from the Editorship of The Bee World. Miss Betts held this important post for twenty years, her keen interest in every aspect of bee culture and her extensive knowledge of European languages making her ideally suited for the position. As a result of her work as Editor, together with the many papers and articles which she has published, Miss Betts has become a leading figure in the industry.

Founded in England in 1919 and published by the Apis Club, The Bee World is an international monthly journal "devoted to the progressive interest of modern bee culture." Under the guidance of the new Editor, Dr. Eva Crane, and in a slightly altered form, the Journal will continue the recording and reviewing of developments in beekeeping in all countries. It now assumes another function as well, because, in the meantime at least, it is to be regarded as the official organ of "Apimondia," the world organisation which is being launched following the recent Congress in Amsterdam.

We join with beekeepers in other countries in paying a tribute to the work done by Miss Betts; and we wish The Bee World a rich future, not only because of the service it renders to the industry, but also because it is a symbol of international unity. If the members of one industry, operating in many countries, can work together in a spirit of goodwill, it is another step along the road to "one world" and enduring peace.

ADVERTISING

The abnormal stimulus to the honey market which was occasioned by wartime conditions is now no longer apparent, and it is likely that in future the industry may resort to advertising in order to keep the virtues of honey before the consuming public. The time is appropriate, therefore, to emphasize the responsibility which rests upon individual beekeepers in safeguarding and improving the reputation of their product. It is most important that every pack placed on the market should be attractive and reliable so as to create a feeling of confidence in the mind of the purchaser. In addition, producers should take every opportunity of displaying honey at district shows, both in competitive classes and as exhibitions, because in this way honey is presented as a natural foodstuff and as an established part of modern agriculture.

It is also important to realise that every honey producer, whether he likes it or not, is a publicity agent for the industry. The occupation of beekeeping is unique, and consequently the interest taken by the layman, either as a visitor to the honeyhouse or as a passer-by, often produces in him a fairly vivid impression. How often we see dilapidated and neglected apiaries and buildings which are untidy, overcrowded and depressing in appearance. Yet the application of a little time at regular intervals, careful working methods, and a well organised procedure can produce a transformation in any outfit—apiaries neat and attractive, the truck (and the driver) clean and tidy, the home yard well cared for and pleasing in appearance, and the honeyhouse itself as spick and span as might be expected in any place where food is prepared. The result is a unit which provides pleasant and congenial working conditions for the producer, and which suggests to everyone the purity and the delicacy of the product. The unobtrusive publicity which is shared by every beekeeper is perhaps of greater importance than much advertising propaganda directed point blank at the consumer.

NOTICE BOARD

THE 1950 CONFERENCE.

The Annual Dominion Conference will be held in the R.S.A. Hall, Wellington, on the 5th, 6th and 7th July, 1950. The Minister of Agriculture and Marketing, the Hon. K. J. Holyoake, has accepted an invitation to perform the official opening.

BEESWAX.

Producers are reminded of the urgent necessity of advising the General Secretary of the quantity of wax they have available for sale. Failure to do this will undoubtedly lead to the granting of further import licenses at prices considerably lower than that fixed in New Zealand.

The ruling price for good clean beeswax is 3/6 per lb.

SUBSCRIPTIONS DUE.

The new financial year commences on the 1st June and subscriptions for 1950-51 are due on that date.

When Member's subscriptions are in arrears (or when their receipt counterfoils are not sent on to Head Office by Branch Secretaries) their names are automatically removed from the Journal Mailing List.

ENGLISH CORRESPONDENT.

In a letter to the "N.Z. Dairy Produce Exporter," an English beekeeper, Mr. B. H. Hart, 94 Ramsay Road North, Dovercourt, Harwich, England, states—"I am a beekeeper (amateur) and would like to get in touch with beekeepers (individuals of associations) in New Zealand. Would you be good enough to assist me to this end, please?"

Perhaps some of our readers will respond to this inquiry.

CONVENTION AT DUNEDIN.

The Annual Convention of Otago and Southland beekeepers will be held on the 6th and 7th June, 1950. Particulars are advertised in this issue.

FLOOR PLANS.

If you keep growing in this bee business, you will sooner or later have to decide on a honey house. The main questions will be how big and how many floors. Finances will probably answer the first question, although I have yet to meet a beekeeper who said his honey house was too big.

The contour of the land available will usually answer the second question. It's no job to excavate a basement out of a hillside if you want it. Personally, I like to have all extracting equipment on one floor, where it can be watched at all times. A honey pump is cheaper than building a basement.

When honey drains out of sight into the basement, it is on its own. If the strainer clogs or tanks overflow, the honey will keep on flowing, and not say a word. Very often you have to stop work to go down and see what's going on.

If you use a pump, you can watch the honey flow while uncapping, and see when it is time to change the strainer cloth. A good pump operated by an automatic switch will not put air bubbles into the honey. The pump lifts the honey from an auxiliary tank only when the latter is full, the switch being operated by a float.

Two storeys may be all right for you youngsters, but after that middle-age bulge puts in its appearance, we like one floor.

—Ward Smith in the
Beekeepers' Magazine.

RICH HONEY ICING.

1 cup honey, whites of 2 eggs.

Beat together for 10 minutes with electric beater, or longer with ordinary beater. This is delicious for sponge cakes, etc. It can be supplemented by adding sliced fruits. It will keep indefinitely in a refrigerator.

THE GENERAL EXECUTIVE

MEETING IN WELLINGTON

A meeting of the General Executive was held in Wellington on the 28th February and 1st March. The President, Mr. E. A. Field, was in the chair and all members were present.

Annual Conference. The Secretary reported on the arrangements for the Conference which is to be held in Wellington on the 5th, 6th and 7th July, and these arrangements were confirmed. Remits, which are to be in the hands of the General Secretary by the 20th May, will be circulated to Branches for their consideration as soon after that date as possible.

Buller Branch. The Secretary read correspondence relating to the formation of a new Branch on the West Coast, and as all the necessary formalities had been complied with, the meeting approved the formation of a Branch in the Buller District.

MARKETING. The most important matter dealt with was that of Marketing, and as was to be expected with the change of Government, many of the relevant questions which have been under consideration since the last Conference, had to be reviewed in the light of subsequent developments. One of these was the result of discussions which had taken place with the Directors of the Dominion Producers' Agency Ltd., as requested by Conference. In view of the fact that any worthwhile arrangement with the D.P.A. appears to be attainable only through the formation of a Honey Producers' Co-operative Company linked with the D.P.A., the General Executive decided that the retention of the existing Marketing Organisation was desirable and that a new approach to the subject was essential for the future success of the marketing system.

The new Minister of Agriculture and Marketing, the Hon. K. J. Holyoake, had advised the Executive that there were alternatives to be considered in connection with the Government's plans for Internal Marketing, these being the setting up of Producer Co-operative control or the retention of the present marketing system on lines acceptable to the Industry. In this regard the Minister asked the National Executive to submit their views to him in writing at the earliest possible date.

In this connection the Executive reaffirmed the decision expressed by Conference year after year as to the necessity for organised marketing, and resolved to advise the Minister that the existing marketing organisation should be retained for the following purposes:—

(a) As an assurance of supply to the established overseas market for "Imperial Bee" Honey.
(b) For the disposal of surplus crops, if and when they occur.

(It should be noted here that the British market for "Imperial Bee" honey is now in grave danger of being lost owing to the small quantity of honey exported from the Dominion in recent years.)

Being conscious of the fact that the retention of the Blending and Packing Plant at Auckland is not warranted unless sufficient honey is sent in to enable the plant to be efficiently operated, the Executive gave very serious consideration to the various causes which are responsible for the lack of support by producers to their own marketing organisation.

One of these is the obvious anomalies in regard to the Seals Levy, without which levy, no marketing organisation would survive. It was unanimously agreed that one of the main obstacles in the way of securing adequate supplies, particularly of higher-grade honey, is the disparity in prices payable by the Marketing Department as compared with those obtainable in the open market.

In this connection proposals in line with the resolution carried at the Rotorua Conference concerning increased prices for high-grade honey have been submitted to the Minister, together with a request that the incidence of the Seals Levy be extended by making the Levy applicable to all sales of retail packs, including sales direct from Apiaries.

In connection with elections for producer members of the Honey Market-

ing Committee, the Executive still considers that the existing friction on the basis of the franchise as between Suppliers and Purchasers of Seals should be removed, and that each section should be given equal voting power. This should greatly stimulate interest in the Marketing Organisation and should restore confidence to all sections of producers. This step has also been recommended to the Minister.

A discussion with the Minister on these important matters is expected to take place prior to this year's Conference.

SPREAD OF FOUL BROOD: A letter from the Waitomo Branch was read in which it was urged that the Wallaceville Research Station be asked to institute investigations into the possibility of the spread of Foul Brood by the sale of Slumgum to Nurserymen.

This matter was referred to the Superintendent, Beekeeping Industry, for his consideration, and subsequently the following reply was received:—

Department of Agriculture,
P.O. Box 3004,
Wellington, C.1.
14th April, 1950.

Mr. G. V. Fraser,
General Secretary,
National Beekeepers' Assn. of N.Z.,
FOXTON.

Dear Sir,—Reference your letter of 10th March last in regard to the sale of Slumgum to Nurserymen and further to my memorandum of 23.3.50 on the same subject.

Following is a copy of remarks received from Mr. T. Palmer-Jones, Research Officer, Animal Research Station, Wallaceville, to whom the matter was referred for consideration.

"During the rendering of beeswax sufficient prolonged heating is applied to the wax and slumgum to render it most unlikely that any foulbrood spores originally present would survive in numbers sufficient to spread the disease. As far as I am aware no cases are recorded of foundation comb spreading foulbrood, although in some instances it must come from wax rendered down from combs containing foulbrood. In many rendering plants the slumgum is exposed to heat for longer periods than the wax and hence is even less likely to spread foulbrood spores.

It is apparent that research on this subject is not justified by the available facts of the case."

I concur in this view.

Yours faithfully,
(Signed) T. S. WINTER,
Superintendent, Beekeeping Industry.

HONEY TINS CONTAMINATED IN TRANSIT. Complaints were received from Branches in the South Island that honey tins forwarded by the manufacturers have been received in a dirty condition due to lack of packing and the fact that they have been sent on in dusty railway waggons. This matter was discussed and all Cannister Makers have been written to requesting that steps be taken to prevent a recurrence of the trouble. In this regard it is suggested that beekeepers receiving tins in a dirty condition should immediately contact the senders so that prompt action may be taken. Certain manufacturers forward their tins packed in collapsible cartons, the cost of which is charged to the beekeeper, but the cartons are returnable to the merchants if the beekeeper so desires. This method is recommended and members could make the necessary stipulation when sending in their orders.

APIARY INSTRUCTORS AT CONFERENCE. At their meeting held in Rotorua, the Executive decided to again point out to the Director of the Horticulture Division, the advisability of permitting all Apiary Instructors to attend our annual Conferences. A reply snce received from the Director states that it had been decided some time ago, as a matter of general policy affecting officers of all sections of the Department of Agriculture, to allow only those field officers who are resident in the district where conferences of producers are held, to attend in addition to executive officers where required. The matter had again been discussed with the Department's Superintendents and it has now been finally decided that no exception can be made in the case of Apiary Instructors.

IMPORTATION OF BEESWAX. Action to prevent further importations of Beeswax, in accordance with the Resolution from the last Conference, was taken immediately after the Conference, and certain correspondence in this regard was published in the February Journal. Since then further representations have been made to the new Minister of Customs, and arrangements have been made for the

irector of Marketing to be con-lted in the event of any further pplications being received for licen-s to import beeswax.

Members should advise the General ecretary of the amount of wax they ve for sale so that evidence can be ven of the quantity available with-the Dominion.

THE SEAL LEVY

Appeal Against Conviction.

The following report is taken from e Christchurch Press of 29th April, 50:—

"It is merely a question of law and the erpretation of the law. There is no dis-e about the facts," said William Bayley ay, an apiarist, of Leeston, in presenting own case in the Supreme Court yester-y, before Mr. Justice Northcroft, in an eal against his conviction and fine in Magistrate's Court on November 16, 49, on a charge of selling honey in a con-ner not bearing the appropriate seals, as uired by the Honey Marketing Regu-ions.

Mr. Bray contended that the 1938 Regula-ns were ultra vires. By no stretch of the agination could the imposition of the seals y be considered an integral part of the rketing Department's functions under the gulations. The regulations requiring seals be affixed to honey containers was a rev-ue collecting regulation, and this did not ne within the purposes laid down by the ricultural Emergency Regulations Con-ming Act, 1939. Further, there was a de-t in the regulations, for they did not vide for the collecting, holding or dis-sement of the money. He was question-g the validity of the regulations, and he mitted that they were ultra vires. He, erefore, asked the Court to quash his con-tion.

Mr. A. W. Brown, for the Crown, said that r. Bray was genuinely interested in the tter and thought his contentions were und. But the whole matter was covered the Agricultural Emergency Regulations firmation Act, 1939, which validated the ney Marketing Regulations, 1938.

His Honour said that Mr. Bray had pre-ted a substantial argument which should se a doubt whether the 1938 regulations re for the purpose for which they were thorised but in 1939 Parliament expressly ared them valid. In those circumstances Court must dismiss the appeal.

His Honour told Mr. Bray that Parliament decided the matter and his redress, if , was with Parliament.

Mr. Bray asked the Court to fix security appeal to the Court of Appeal as he felt must go on with it.

His Honour adjourned until Thursday the stion of granting leave to appeal.

Mr. Brown applied for costs, but the plication was refused.

MARKETING DEPARTMENT
(HONEY SECTION)

Honey Receipts to the end of April show an improvement over the original estimates based on producer advices.

Season 1948/49.	Season 1949/50.
282 tons.	430 tons.

The above figures include quantities on honey received or in transit and it is expected that further quantities are still to be sent forward.

Seals sales also show an improvement over the sales for the similar period last year.

Season 1948/49.	Season 1949/50.
£3,500.	£4,600.

Inspectional work on the use of Seals is being carried out by Officers of the various District Branches of the Department.

Export:

Preparation for export continues and we have shipped or have ready for shipment approximately 35 tons of our second pack and 65 tons of "Imperial Bee" from this season's honey. Until all consignments are to hand it is not possible to estimate the total quantity of "Imperial Bee" standard available for export. It appears at present that this will reach the 200 ton mark.

Low Grade Manufacturing Honey:

The outlets for unblendable honey are much more restricted than in the past, and the Department reserves the right to reject honey which cannot be blended. We have received some poor quality lines which have a very limited sale with manufacturers. In these cases producers will be advised of a price at which this honey will be bought as a straight out purchase. If producers are in doubt, it is suggested that they send a sample to our Depot for test grading before arranging for consignments to come forward.

TO SUPPLIERS:

It is necessary to more clearly interpret for suppliers a paragraph in our circular forwarded under cover of our letter of the 20th January, 1950, reading:—

> "The Department reserves the right to refuse low grade honey which is only suitable as a straight line sale. Producers will, in these cases, be immediately advised and honey taken over at a price which may be mutually agreed upon."

As we have now returned to pre-war conditions, beekeepers will be required to take greater care in the extraction and packing of their honey to ensure that it reaches the required standard of moisture content (specific gravity 1.420) as honey generally has to be kept in store for longer periods.

Strong flavour Manuka honey is not suitable for export or local blending purposes, and producers with this class of honey should forward a 2lb. sample to Auckland for valuation before arranging such consignments to us, as it is becoming increasingly difficult to sell this type of honey, even to manufacturers. When the grade is determined producers will be advised the valuation placed on this honey for a straight out purchase.

BEES SENT BY AIR TO ENGLAND

The first consignment of bees to be sent by air from New Zealand to England left Auckland this week. They were eight queens, each of which is accompanied by 25 ordinary bees to look after it. The bees are a trial shipment by the Government. In eight small boxes, carefully packed and stocked with food—a mixture of icing sugar and honey—the bees will arrive in the English spring, and will be taken first to the Rothamsted Experimental Station in Hertfordshire.

—Herald, 22/4/50.

HONEY MARKETING COMMITTEE

A meeting of the Marketing Committee was held in Wellington in March, and the following matters may be of interest.

Discussions with N.B.A. Committee.

As your Executive was meeting in Wellington at this time the opportunity was taken to have a combined meeting of your Executive and the Marketing Committee. I feel that the frank discussions which took place were most helpful to all concerned.

The Resignation of Mr. C. R. Ridding from the Committee was received with regret, and the vacancy has been filled by the appointment of Mr. G. A. Beard, Head Office, Marketing Department.

Export.

Advices from beekeepers indicating the amount of honey coming forward caused considerable discussion, as from these figures the possible quantity available for export to the United Kingdom was not encouraging.

The Committee has an export target of 500 tons of "Imperial Bee," and it is felt that beekeepers should rally around their organization to achieve this objective. It was agreed that a further circular appeal (details of which are set out hereafter) should be made, as our export outlet **must** be retained as without it the local market returns are also in jeopardy.

Since our meeting, however, more honey has been received than was then anticipated, and we now have in sight Depot receipts of not less than 500 tons from which exportable lines amounting to not less than 200 tons should be packed, exclusive of the 35 tons of second pack shipped or held for shipment. This quantity is still well below our target and I would suggest that each beekeeper treat this matter as of vital personal interest.

Retirement of Producer Members.

From a ballot, the order of retirement of the producer members is as under:—

W. W. Nelson retires 1950
E. A. Field retires 1951
F. D. Holt retires 1952

An election for the appointment of a producer member will be held this year.

Bulk Carton Packaging.

A sample of the Canadian bulk package is available and enquiries are being made to see if some suitable local package is suitable for industry requirements.

Beeswax.

Applications for imports of Beeswax are still being received, with advice that supplies are not available in New Zealand. Repeated requests have been made to the industry to advise the Secretary of the National Beekeepers' Association or the Honey Section (Marketing Department) of stocks held for sale, and the supply of this information is essential if imports are to be avoided.

INFORMATION CIRCULAR ON MARKETING.

This circular is for the purpose of providing beekeepers with information and advice concerning the marketing policy that has been adopted on the recommendations of the Committee, and the essential factors and problems relating to the marketing of honey handled by the Marketing Department.

The Marketing Policy

is that honey received shall be sold on the market that will give the best return, whether this be local or overseas. With this objective honey will be blended, packed and/or distributed at the lowest possible cost.

Your Export Market

offers us, at present, for "Imperial Bee" grade, the better return, and it is obviously in the interests of suppliers that this market should have prior consideration. We have decided to ship the maximum quantity avail-

able, this season, up to a certain tonnage, and at the same time take advantage of re-establishing New Zealand's position on the British market. **To Establish a Second Export PACK** has been an objective, and investigations over the last twelve months of the possibilities of marketing an additional pack to our "Imperial Bee" are almost finalized through our London Agents. Quantities of this pack have already been shipped, and reports to hand from London give every reason for encouragement both in price and sales.

Export Essential to Maintain Local Price Stability.

The prestige and demand for New Zealand honey overseas represents a valuable asset to the industry, one that has been established by New Zealand beekeepers at a considerable cost over the last 35 years. If beekeepers consider this asset worth retaining then they **must** send forward considerably more honey than has been received in recent years.

Moreover it is unlikely that we will retain the services of our existing organization overseas unless we can ship sufficient supplies to justify basic overhead costs and make the handling of your product worthwhile to our agents.

Local Market.

The Committee is not unmindful of its obligations to re-establish our much sought after standard packs on the local market, but the Export Market must receive priority.

Initial Payment to Suppliers

remains the same as last season, 7d. pro rata, plus 2½d. flat rate. In accordance with past policy the balance wil be paid out at the close of the season.

If honey comes forward in **sufficient quantities** and of a **suitable grade** to take full advantage of the market opportunities now open to us, the Committee is as confident as it is possible to be at this stage, that last year's price may be maintained.

URGENT.

Advice of what beekeepers are sending forward should be sent **immediately** so that our blending arrangements can be made. Consignments near the end of the season are obviously not so valuable to the Pool.

Information to Consignors.

Beekeepers who desire information or find themselves in difficulties over consigning honey to Auckland should communicate with the Manager in Charge of the Department at any of the following centres—Auckland, Wellington, Christchurch, Dunedin.

A. C. BRIDLE, Chairman,
Honey Marketing Committee.

QUEEN BEES

Southland Breeder's Success.

Advice has been received by Mr. G. W. Swanson, of Waikaka Valley, that he has won the Open Championship at the Sydney Royal Show for Italian Queen Bees. To his knowledge, this is the only title of this class to be won by a New Zealand beekeeper. In 1947 and 1948 progeny of his stock were awarded first and second prizes and the championship at the show.

Queens entered in the competition are judged on temperament, evenness, colour and type of brood nest. Mr. Swanson has been a honey producer for the past 20 years and has been breeding queens for 12 years. He has been sending queens to Australia since 1944, reports received indicating that they were well received. Mr. Swanson is president of the New Zealand Queen Breeders' Society.

"Success can come only by careful selection," he said, "and hives must be tagged to make any progress. I have 400 hives and every hive is tagged." Queens he has sent to Australia have been used for artificial insemination tests, a new development in beekeeping. The formation of the Queen Breeders' Society is not to bring about higher financial returns but to produce a better class of bee. "The success of the society will lie in the simplicity of its objective," he said.

—Otago Daily Times, 28/4/50.

DEPARTMENT OF AGRICULTURE
HORTICULTURE DIVISION

The latest available beekeeping statistics recorded in March last year are shown in the following table:—

	Beekeepers.	Apiaries.	Hives.
North Island	4,645	7,557	114,924
South Island	1,842	3,812	59,462
Dominion Totals	6,487	11,369	174,386

The general trend at present is a falling off in the number of domestic beekeepers in town areas, and a gradual expansion and consolidation of economic commercial units.

Honey Production:

Seasonal conditions for honey production were erratic in most districts during the 1949-50 season, but fair to average crops of honey were harvested in all districts with the exception of Mid-Canterbury where the pastures dried up during the critical period of the season, resulting in light to very poor crops generally in that area.

The estimated total production of honey to the end of February in commercial and semi commercial apiaries (1949/50 season) is as under:—

Group.	No. hives.	Estimated Production. Tons.
6 hives and over	164,980	4,271
21 hives and over	148,980	3,857
51 hives and over	134,976	3,495
251 hives and over	89,914	2,328

A pleasing feature this year is higher production than the previous season and the higher quantity of the honey produced in most pasture land areas.

Marketing conditions:

The demand for honey continues fairly keen and beekeepers are able to sell large quantities locally at payable prices. Retail sales generally in the main marketing centres, however, are becoming slower as other competitive sweet foodstuffs reach the market in increasing quantities.

These conditions call for greater care in production as honey has now to be stored for longer periods during the time lag between production and consumption of the complete season's output.

Wasps (Vespa Germanica):

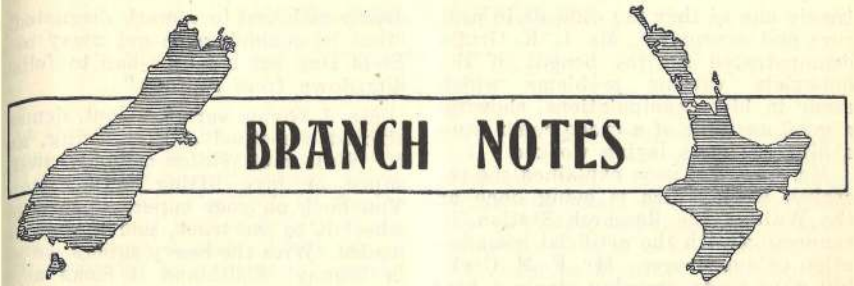
Comparatively few wasps were seen in the Hamilton district this season up to the end of March, but a steep increase occurred in April.

There is also evidence of Wasp activity in the Poverty Bay, Hawkes Bay, and Bay of Plenty districts, where the chances of finding and destroying the majority of nests established are very remote.

The Department has continued the free distribution of chemical powder for destruction of any nests when found, and also arranged for the destruction of nests where required in certain circumstances, in addition to radio announcements advising the public what to do when nests are found. Tests are being made to determine the extent these wasps may become troublesome to orchardists and apiarists, and what precautions if any may be taken.

Research Officers of the Plant Diseases Division, Auckland, are also engaged testing the use of natural baits and traps for destruction of flying wasps; which may be used conveniently by the general public in future, where circumstances demand, in addition to the destruction of nests where possible.

T. S. WINTER,
Superintendent, Beekeeping Industry.



SOUTH CANTERBURY

The third Field Day of the season was held at the Home Apiary of Mr. G. Gumbrell, Orari Gorge, on Saturday, 18th February, 1950. It rained and blew and the surrounding hills were covered in snow. All this cold and wet came direct from the south lands, but we all had an enjoyable day. Thirty-three were present, including the Chief Apiary Instructor (Mr. T. S. Winter), visitors from the Canterbury Branch, and our two Apiary Instructors, Mr. Forster and Mr. Bartrum. Mr. Winter's address alone was well worth the trip, even in the cold southerly conditions that prevailed, and Mr. Forster reminded us of all the things we should do to present honey to the consumer in a likeable form. Mr. and Mrs. Gumbrell made us very welcome, and besides showing us all his set up, Mr. Gumbrell explained his method of operating his hives.

April Meeting.

Branch members were stirred into activity by a circular letter received from the General Secretary, and a short notice meeting was held on Friday, 21st April. All members present objected strongly to the Executive's recent action and passed the following resolutions unanimously:—

1st. That this Branch is not in favour of the Executive's action in recommending to the new Minister that the Honey Seals levy be extended to apply to all sales of retail packs, including sales direct from apiaries.

2nd. That this Branch is of the opinion that the views of all Branches should have been obtained before the Executive submitted its views to the new Minister.

3rd. That this Branch would appreciate, from the General Executive, details of the proposal for increased prices for high grade honey as submitted by the Executive to the Minister.

While the meeting was unanimous in pasing the above three motions, it was divided on the question of the present application of the Seals Levy, and a motion "That the Seals Levy be discontinued," was passed with only a small majority.

The practical side of the meeting was catered for by an address on the drifting of bees and the location of apiary sites, ably given by Mr. G. E. Gumbrell.

The meeting closed with supper and a general discussion on the season's patchy honey crop. But some of the patches were good.

Robert Davidson.

SOUTHLAND

The Annual Field Day was held on Saturday, 11th February, 1950, at the home apiary of Griffin Bros., Woodlands, beekeepers being present from as far afield as Ohai, Waikaka, Tapanui and Romahapa. After lunch the proceedings commenced with a demonstration by Mr. W. J. Watson, of his invention for transporting hives single handed, the same appliance being adapted for carrying full supers of honey, a great boon to those who work alone or who are physically disabled. Mr. S. Line exhibited useful clamps for moving hives, also new styles in hive bottom boards. His tip for extending the life of hive mats is a

timely one as they are difficult to procure and expensive. Mr. L. K. Griffin demonstrated for the benefit of the hobbyists various problems which occur in hive manipulations, showing a good example of a brood comb from a hive having a laying worker.

Mr. Geo. Swanson explained the research work which is being done at the Wallaceville Research Station, in connection with the artificial insemination of queen bees. Mr. F. M. Corkhill gave in an amusing strain a history of his attempts at making vinegar as a by-product of the honey industry, but a sample bottle was an indication of the success which has rewarded his painstaking efforts of the past.

Mr. Gould, the Dunedin manager of the Honey Section of the Marketing Department, gave the latest information for suppliers to the Department, and appealed for support, being backed up by several commercial beekeepers present.

Throughout the day many questions were asked the speakers, and these helped to keep the interest at a high pitch. The meeting terminated about 5.15 p.m. with the usual votes of thanks. Two new members were enrolled.

—L. K. Griffin.

GORE

The annual Field Day was held, under ideal weather conditions, on the 28th January, at the apiary of Mr. C. J. Kellett, Mandeville. Between 70 and 80 were present, including visitors from Dunedin, Romahapa, Ryal Bush, Kelso, Heriot, Winton, West Plains, and as far away as Christchurch.

The programme commenced, after lunch had been partaken of, with a "Brains' Trust," consisting of Messrs. W. T. Herron, W. Bray of Leeston, J. Glass, Geo. Swanson, and L. Box, answering questions from the gathering. This was followed by Mr. A. Coombes, of Lumsden, demonstrating nailing up supers with the aid of a super clamp. As Mr. Coombes was about to commence, a diversion was created by a swarm—travelling at speed—passing by. It was going places and in a hurry too. Our President was heard to remark disgustedly "that he couldn't even get away to a Field Day but his bees had to follow him down from Balfour."

Mr. J. Glynn, our President, demonstrated a method of requeening, and Mr. Watson of Winton demonstrated a super or hive lifting arrangement. You hook on your super, hoist it up, wheel it to the truck, and there it is, loaded. With the heavy supers we get in "sunny" Southland it looks as if we will all have to invest in something like this or the hospitals will be full of beekeepers with broken backs.

Mr. R. Stewart, of Heriot, showed his method of introducing into a hive, a queen in a mailing cage, and Mr. S. Line, Apiary Instructor, demonstrated the shaking of a hive for the treatment of F.B. This concluded the demonstration in the beeyard—nobody was stung—and all adjourned to the honey-house where Mr. Geo. Swanson showed his honey stirer in action, and Mr Kellett explained the arrangement of his extracting plant.

After afternoon tea had been served, Mr. Bray, of Leeston, addressed the gathering on marketing problems, and Mr. Gould, of the Marketing Dept., Dunedin, appealed for supplies to the Honey Section.

The President, Mr. Glynn, then thanked Mr. Kellett for the use of his apiary, and the ladies for their noble effort in attending to the wants of the "inner man." This brought a very pleasant afternoon to a close.

The honey crop this season promises to be average to good. In the early part of December, the prospects were for a fairly early flow, but the country dried out rapidly with strong nor'-westers, and not until we experienced heavy rain in January, did conditions improve, and the bees really get down to work. Many beekeepers did not start extracting until February, this being quite a few weeks later than usual.

—C. J. Kellett.

To vary the flavour of the breakfast toast mix two tablespoons of cinnamon with half cup of honey and spread on toast after buttering.

NOTES FOR BEGINEERS.

By " SKEP."

At this time of the year most beekeepers are at the end of the season's field work, and are very ready for a well-earned rest. The hobbyist should be well finished, and will be making plans for next season. These plans will probably be concerned largely with a certain amount of increase involving the making up of new material, and it is well in days of shortages and delays to have everything ready well in advance.

Care of the Bees.

There is little that can be done now with the bees; the important operation of requeening should have been done, and the hives should have been checked to ensure that they are queenright. It has been emphasized before that it is not necessary or economic to have hives full of bees for wintering; if one does this a big force of bees are mere consumers of stores in most localities. An adequate winter cluster should be maintained, however, and this should consist of bees enough to cover about six frames when clustered. It is well to remove top boxes, and to winter in one storey, making sure it contains sufficient stores, preferably both honey and pollen, a minimum of four well-filled frames of honey in addition to any small amounts along the tops of the other frames. Many like to make all cosy with good dry mats, but Skep has found that in many cases these become very wet with condensation, and if any lids are at all leaky then they are a definite handicap. Possibly district has a large bearing on whether mats are advisable or not; in districts where everything is heavily propolized mats are necessary to prevent the jar of breaking the lid away. A wet mat is definitely worse than no mat at all.

Hive Entrances.

Hive entrances should receive attention to ensure they are clear, and it is an advantage to reduce them, both to exclude mice and to conserve heat. Many beekeepers have brought reversible bottom boards for many years, and as one large commercial beekeeper told Skep, he could never remember reversing one. However our new enemy, the wasp, will probably make this procedure necessary in future; the bees will have to be given all possible help in limiting their depredations, and the best way will be to have hives all sound and tight, and reduce the entrances to the minimum at the beginning of March. Skep has had odd hives do this for themselves by building pillars of propolis all across the entrances, so it would seem to point the way to extra security by following the example set by those odd prudent colonies.

Marketing.

The beginner should be careful to see that his crop is marketed to the best advantage. If he has been careful to ensure that it is a product of which he can be proud, he should on no account do harm to his fellow beekeepers and to those who rely on bees for a living by cutting prices in seasons of plenty. It may not be important to him, but it can seriously affect commercial men if many small lots are offered in this way all over New Zealand. In most cases small lots can be sold at retail rates to neighbours, who will call for it throughout the year. If lots of up to half a ton or more are produced and any difficulty is experienced in disposing of it, then it would be best to send it in one consignment to the Marketing Department, and to have no further worry with it. In any case it pays the small producer to pack in nothing but tins, as cartons are very likely to ferment if packed at extracting time and held beyond September. This does not apply so much in dry atmospheres such as exist in the South Island, but it applies to large areas of the North. Comb honey in sections can be stored in clean dry cases well packed with paper, and made as airtight as possible, but some types of honey will granulate in the comb quite quickly, and no matter how good a product it

originally was, it is not pleasant to use in this condition. Sections that are allowed to absorb moisture from the air will weep and present an unappetizing appearance.

Care of Combs.

The spare combs should be carefully stored away by stacking in piles, with a sheet of newspaper between every two supers with a few crystals of para-di-chloro-benzene on each sheet of newspaper. This is a splendid precaution against moths and is cheap, easy and effective. Before using the combs next season they should be well aired to ensure that no taint remains to damage the flavour of the next season's crop. These piles should also be made mouse-tight, as mice can cause considerable damage. Cold climates are much less favourable to the wax-moths, and it may be advisable to build a slatted shed so that the wind can blow through, in which to store supers as an extra precaution. During really good seasons every extra comb available means so much more honey secured.

General comment to beginners contemplating expansion.

To those who have become keen enough to contemplate expanding to a commercial status, Skep would say be sure to see that all your expenditure is conducted on sound lines. Beware of becoming keen on unnecessary gadgets and inventions of your own, most of the ideas which you imagine will revolutionize the industry have been thought of before, tried out and discarded. Stick to standard material in every way, and aim to buy no extracting equipment which will not be useful in your ultimate outfit. Simplicity is a grand thing in a honey house, and if one can procure a first-class power extractor it will be in use for a lifetime. Honey tanks are assets that are always useful, but in commercial units they should be of a full ton capacity. In capping melters there are all sorts of varieties and ideas, but for complete simplicity Skep has found the "Brand" melter as useful and good as any, but it has tricks to be mastered, and until these are understood it can cause the beekeeper to become particularly venomous. In Skep's experience, more money has been wasted trying to secure an adequate small steam boiler to supply all needs, knife, melter and honey heater, than on any other appliance, and a coal fired boiler has at last fairly economically solved the problem. This season Skep has covered these items on a twenty ton crop on nine bags of coal. Both these items, however, steam boilers and melters, would afford good scope for interesting articles in our journal and possibly our Editor would welcome it if some came forward.

The season seems to have been average in most districts. As usual in our somewhat uncertain industry some have had very poor crops, and to these Skep extends his sympathy. Would it be poor comfort to suggest that this variation is one of the attractions of our occupation? I wish you all good wintering.

[Thank you, Skep. We recommend beginners—and others—to go back to the beginning and read these valuable Notes over again, carefully.

We will certainly welcome any comments on the interesting subjects of steam boilers and cappings melters.—Editor.]

WASPS AT WAIHI

Over 30 wasp nests have been reported in Waihi this summer. Supplies of D.D.T. powder, made available by the Department of Agriculture, have been issued to people reporting the nests. Last year only three or four nests were reported. Beekeepers in the district are concerned at the increase in the wasp population, and are waging war against them, one man alone having been responsible for the destruction of over a dozen nests.

—Auckland Star.

I will arise and go now, and go to Innisfree,
And a small cabin build there, of clay and wattles made;
Nine bean rows will I have there, a hive for the honey bee,
And live alone in the bee-loud glade.

From "The Lake Isle of Innisfree,"
by W. B. Yeats.

SOME ASPECTS OF AMERICAN FOUL BROOD

By Robert Davidson.

The subject of Foul Brood has a forbidden atmosphere about it, which leads to ignorance and by each beekeeper spreading the gospel that he burns, or that he is not bothered with the disease, leads the beginner to have a wrong impression of what is generally done, or to believe that a fire is a sure method of cleaning up.

The majority of beekeepers will be against any discussion about the methods of eliminating this disease, but in fairness to beginners, who know little of burning or of treating, and to some who are not beginners, I consider that not enough thought is given to the individual variations in the methods in general use.

To start with, take the ever popular burning method (popular with the other fellow's gear); a pit, or trench, about twelve inches deep, is dug, a good fire is started in it, and the diseased frames stacked on top. To be a success the job should be done when all field bees are in the hive, so that they can be stupefied with cyanide gas before the burning is started. At the finish of the "BURN," the empty supers are piled up, about six high, on top of the fire and left until a good flame is roaring out of the top, when they are pushed over, and any flames knocked out. An old super is usually sacrificed as the bottom one. The lids are well scorched by placing them on top of the fire, and the same treatment is handed out to the bottom boards. Some of the more cautious beekeepers may burn the lot, but the above is the method in general use. Briefly:—The frames are all burnt; the honey runs into the trench in the ground, and the supers, bottom boards and lids are scorched and used again.

There are one or two aspects of the above method which are open to doubt. In digging the trench or pit, the softest ground is picked, and what is the condition for infection if the honey is ploughed up at a later date? It is certain that if much honey is in the frames it cannot be heated hot enough as it runs through the fire. The other items of possible, or in the case of the bottom board I would say probable, infection are the lid, supers and bottom board. There are a number of beekeepers who are strong believers in scorching, but on questioning their method closely one finds that their scorching is done very thoroughly with a blow-lamp, with tin rebates removed, that the supers are thoroughly cleaned while being scorched, and that they are painted afterwards. Another question that can be asked is the destination of any bees that are left lying about and which may come to life next day.

Before going into the weaknesses of any other method, I wish to draw attention to what, to my way of thinking, is the worst feature of American Foul Brood: that is the necessity of there being a fairly heavy concentration of the disease microbes before the brood becomes infected. This measure would permit all gear to be slightly infected, and the beekeeper, thinking that his "METHOD" of dealing with the disease is good, might be puzzled with a severe outburst which may only come from a source of mild infection.

All beekeepers know that it is against the law to shift gear infected with American Foul Brood, and those who do must have some method of treatment which they are certain is right, but they open up a big risk as to accidental infection due to neglectful storage or accidental exposure.

Infected gear is often treated with more or less success, so why not discuss treatment and bring it out into the open? One hears of gear being boiled in coppers, usually with the added stipulation that it must be kept under the boiling water for twenty minutes. One aspect of this treatment I would like to know more of is how long it takes the centre of a one inch board to heat to boiling point, when the board is immersed in boiling water? As the foul brood germs are carried in the honey, and the honey mixed with water can penetrate to the centre of the wood, it is very necessary that the centre of the wood must be maintained at boiling point for the stipulated twenty minutes. Then the twenty minutes as stipulated is cast

in doubt by scientists saying that foul brood germ can live through that time, at that temperature; but do they live in sufficient numbers to reinfect? This is the point I wish to make: is it not possible for a treating method to spread infection and make its concentration below that necessary to reinfect, except when added to by some fresh source?

About now the beginner will be where he was before he started to read this, but here is some good advice, and no question about it being good. If you burn and burn everything, make sure that the hot honey runs into a pit that will not be disturbed. If you burn and save the supers and lid, be sure to burn the bottom board, and do not use the lid to stand the infected supers on—use an old bottom board for this and burn it afterwards. If you contemplate any other method use superheated steam, and get a beekeeper who uses this method to tell you the real catches. Do not boil in a copper. Do not immerse the lot in some creek which has legendary healing properties. With wax so difficult to quit the man who makes the complete burn takes no risks, and has very little work to do beyond making the new gear.

I know from experience that the question that troubles most Southern beekeepers is:—What precautions should a beekeeper of Scotch descent rightly use? Here they are as I see them. First paint all recovered gear a distinctive colour, a coloured corner would be enough, and confine this gear to apiaries where F.B. is constantly showing up. If the disease is spread throughout your apiaries the sooner you start a complete burning programme the better. The second precaution is confined to the apiaries where F.B. shows up, and it is to number all supers on hives, and only use these supers on their own hives. Thus there would be four supers for number ten hive and so on. At extracting time, extract and return to the same hives; this means leaving hives for one day with just the lid to build comb in, but it is very necessary. Lastly, if you think your method is correct and thorough, and that any infection that is showing up is from an outside source, try switching a complete batch of these "treated" supers to an apiary that has never had American Foul Brood.

BOOK REVIEW

"Bees, Flowers and Fruit."

This addition to the list of books by Herbert Mace tells the fascinating story of the honeybee in nature. It describes the structure of flowers, their significance in the reproduction of plant life, and the intricate variations in the process of fertilisaton by wind, water or insects. The beekeeper who is interested in nature will find it most helpful in studying his bees at work. "Bees, Flowers and Fruit" is published by The Beekeeping Annual Office, Harlow, Essex.

A TOUR IN THE SOUTH

Our roving correspondent recently journeyed to Southland and ventured a few miles over the border to view the countryside and to feel the pulse of the beekeeping industry in that part of the Dominion. The area north of Gore presents a pleasing prospect; the Waimea Plains stretching north-west to Mossburn, fifty miles away, with the Hokonui Mountains on the south, while to the north the broad rolling pasture lands reach into Otago as far as the Blue Mountains. Favoured by a dry sunny climate and a kindly soil, the district is devoted to sheep farming and the production of grain and small seeds, and it provides a wide area suitable for commercial beekeeping.

Leaving the main highway east of Gore and proceeding up the Waikaka Valley, we soon arrived at Willowbank where the sheltered homestead and commodious new honeyhouse of Glass Brothers is pleasantly situated on the rise. The owners were absent from home, but later on their truck was seen returning with a caravan in tow, and it is a pretty safe guess that John and Norman had been away on a deer-stalking expedition.

A few miles further on is Maitland, where we were welcomed into the home of Mr. and Mrs. Geo. Swanson. George had just finished running off the last tank of honey for the season, and the scene on the packing floor was one of superabundance—just room to open the door and walk round the mountains of honey.

On the following day we accompanied George on a visit to Gore, returning via Mandeville beside the Hokonuis. On this route we passed the road leading to Croydon Bush, where Douglas Todd has his outfit, and we pushed on to Mandeville where we called on Mr. and Mrs. C. J. Kellett. Charlie was busy extracting the final round and we found his medium sized honeyhouse in smooth running order, with volumes of steam, well planned equipment, and a steady stream of water-white honey coming slowly from the extractor. A brief pause for afternoon tea took an hour and a half. Then we headed across the Plain and over the farmlands of Chatton (passing, no doubt, some of the apiaries of Mr. G. Toogood and Mr. A. S. Burns, but apparently they are all tucked away behind the numerous shelter belts), and so back to Maitland.

Next morning we bade farewell to the Swanson home—a friendly and hospitable place. The sturdy Swanson family is a mighty good advertisement for the Swanson honey, and the Swanson honey is a mighty good advertisement for those Swanson bees!

Further up the valley, at Greenvale, is the beautiful and neatly arranged home and honeyhouse of Mr. W. T. Herron, surely one of the most attractive in the country. Mr. Herron, though already a busy man, has lately shouldered an additional responsibility as Chairman of Directors of the new Co-operative Store at Waikaka. The position is in very good hands.

From Greenvale we travelled north over rolling country. On some farms mobs of sheep were being marshalled for the dipping ceremony; on others the headers were busy at work in the paddocks of wheat, standing dead ripe in the autumn sun. Soon we reached the sad little town of Kelso—the cheese factory, relic of dairying days, stands neglected and slumbers peacefully in the long grass, and in the main street an acre of blackened ruins shows where two of the main business premises were recently razed by fire. One might expect that Kelso would quit the struggle and sink quietly into oblivion; but no! already the carpenters are at work and a brisk trade is going on in a temporary shed, and soon the prosperous countryside will hoist Kelso back into a steady stride. Nearby is the home of Messrs. H. Winslade and Son. Eric reports a fair crop this season, but not so good as that of last year. For some reason the fertile Crookston area failed, and the best returns were obtained from the higher and lighter lands.

A few miles east of Kelso is Tapanui, under the shade of the Blue Mountains, the home town of Mr. J. H. White. (Tapanui is booming with the timber trade now that the afforested areas are reaching matur-

ity.) But our road led north to the thriving township of Heriot. Here live two well known beekeepers, Mr. Robert Stewart, veteran producer of fine Italian queens and one of the greatest benefactors of New Zealand beekeeping, and Mr. Len Box, operating in the surrounding district and producing fine clover honey. Messrs. Stewart, Box and Kellett have one interesting point in common—they use three-quarter depth supers and frames. Of course Mr. Stewart is engaged in queen rearing, but the other two are producing honey, and incidentally they are both strong fellows. While the full depth Langstroth super is well established as a standard hive unit, we must say the smaller size looks very attractive at extracting time. If we wish to avoid the back breaking work of handling a heavy honey crop maybe the answer is in smaller supers rather than in complicated appliances. What does everyone think?

We drove up to the Box home and received a warm greeting. Len looked into our truck to make sure the fishing gear was on board and announced that plans had been made for an expedition to the Mataura River, reputed to provide some of the best fly fishing in the Dominion. Actually we thought the nearby Pomahaka looked pretty good—crystal clear water flowing over a shingle bed—still, distant fields look greener, so we hustled round and with the last of the honey crop safely in the tanks and everything in fair order, we fitted the canopy on Len's roomy truck, loaded in provisions from the generous hands of Mrs. Box, and set out. On the sixty-mile journey we first travelled southwest, skirting the hill country, and then northwest across the plain. We threaded our way through the biggest mob of yearling Herefords we have ever seen, and we observed the remnants of the small seeds harvest, now practically finished except for the stands of Montgomery clover still ripening in the fields. Between the Mataura and its main tributary, the Waikaia, lies the Wendonside district where Mr. J. S. Spence tends his bees. We always thought Stewart lived at the end of the world, but that is not so. Nicely situated on the terraced lands, his domain looks up at the mountains beyond and looks down at the broad sweep of the plain below. Wendonside is certainly at the very centre of things and the rest of the universe revolves around it!

Following the Mataura River to the hills, we travelled up the gorge till the road finally petered out, and pitched camp by the simple process of pulling on the hand brake. Two beautiful days on the river; the whine of the reel, the two-pounders dancing on the water, two nights under the stars, rousing camp-fire meals, and a basket of gleaming trout—happy memories! Then back again to take up the burdens of the civilized world.

Unfortunately we were unable to visit Riversdale, Balfour and Lumsden, further up the plain, and call on some of the well known beekeepers in those districts. Thoughts turned, however, to two immigrants to that part of the country—Jack Glynn from the West Coast, now President of the Gore Branch, and Alf. Coombes from Otira, where the horizon is away up in the sky. We hope they are now both happily in tune with the Southland landscape.

Home again to Heriot where we faced an eager welcome. The Box home is a cheerful place, and a game of cricket with the young Box family is an exhilarating experience.

The country visited on this trip has great possibilities in the production of high-grade honey, and it is in good keeping. The producers within the area are progressive in outlook, they appreciate the value of their service to the community, and their work is to them their vocation in life. The standard which they are setting, along with many others, gives the promise of a sound future for the beekeeping industry in New Zealand.

GOLDEN TART

Line greased sandwich tin with short pastry. Slightly warm about 8oz. honey, add some breadcrumbs to stiffen. Flavour with lemon essence to taste. Pour mixture into pastry, bake tart in very moderate oven till pastry is golden brown.

QUEEN BREEDERS' SOCIETY

The Committee of the Queen Breeders' Society, consisting of Mr. G. Swanson (Chairman) and Mr. W. P. Carter (Secretary), which was set up at a meeting held during the 1949 Conference, has made inquiries overseas and it is learned that several bee breeding projects have been started in other countries.

Mr. Carter reports that in the United States the Division of Bee Culture under Mr. Jas. I. Hambleton is engaged in a programme of selecting and breeding bees by artificial insemination, and while it has found some strains which appear superior as regards production, it will naturally require some time to breed a bee in which various desirable characteristics have been incorporated. As part of this programme it is planned that some two to three thousand queens will be reared this year and mated naturally on an island in Lake Erie. These queens will be placed with beekeepers in selected localities who are in a position to test in lots of 25 queens or more and keep the required records.

Through a co-operative arrangement the distribution of queens is handled by the Honey Bee Improvement Co-operative Association, a body which was formed for the sole purpose of promoting bee breeding work. It is considered that this Co-operative is the most satisfactory means of distributing the breeding stock.

In New Zealand the main objective of the Queen Breeders' Society will be to improve the type of Italian bee in this country. Dr. I. J. Cunningham, Superintendent of the Animal Research Station at Wallaceville, in a letter to Mr. Swanson, welcomes the movement to form such a Society, and it is hoped that by co-operating in the work being done at Wallaceville substantial progress can be made in the improvement of bee stocks in the Dominion.

It is intended to hold a meeting of the Queen Breeders' Society in Wellington at the time of the Annual Dominion Conference.

BEEKEEPING IN AUSTRALIA

The Industry.

A recent article in "The Australian Bee Journal" (reprinted from the National Bank Monthly) describes apiculture as a relatively small but important industry that is steadily expanding in most States of the Commonwealth.

The United Kingdom is Australia's principal consumer for honey, and the industry has enjoyed a period of stable and reasonable prices in recent years as a result of the ability to market abroad all honey produced in excess of local needs. During the past season, however, honey production exceeded the previous annual output by a substantial margin, and, although the United Kingdom market was able to absorb most of this increase, the continued prosperity of the industry will depend largely on the maintenance of the export demand at prices at least equal to those now current. Moreover, if production should continue its upward trend—as seems possible—there will be need to increase local consumption to absorb unexported surpluses. With the object of promoting a greater consumption of honey, both abroad and in this country, the Australian Honey Institute was recently incorporated. There is an Apiarists' Association in each State, which furthers the interests of beekeepers, and a Federal organisation with activities on a Commonwealth-wide scale, whilst marketing matters are delegated to an Australian Honey Advisory Council.

There are about 9,000 beekeepers in the industry in Australia, but of these only about 20 per cent. are full-time apiarists, and it is from their hives that the bulk of the honey and beeswax marketed is obtained.

Although the majority of small apiarists work their bees from a fixed location, large-scale bee-farming is migratory in character, as it is the practice to transport hives by motor trucks to the localities where blossom is most abundant. Equipment for extracting honey from comb is also taken to the temporary scene of operations, and an apiarist will travel thousands of miles during a season, which usually extends from October to March.

Commercial apiarists may possess as many as 2,000 hives, each containing between 40,000 and 50,000 bees, and usually obtain their queen bees from foundation stocks, imported from Italy, Jugoslavia and the United States of America.

Principal Areas of Production.

Honey is produced in all the main forest areas of Australia, excepting those at high altitude and in high rainfall districts which have not been exploited to any great extent and the potentialities of which are, as yet, little known. Irrigated areas and semi-arid scrub districts also yield good honey crops. New South Wales, Victoria and South Australia at present are responsible for the bulk of the honey produced, but possibilities for expansion are undoubted, particularly in the States of Western Australia and Queensland, where industry is not so well developed. The

natural flora of Tasmania are not as suitable as those on the mainland, and little apiculture is practised in that State.

Apiculture is the only primary industry which conserves natural resources, since most of the honey is taken from native trees, mainly eucalypts, and banksias, which are not destroyed in the process. Moreover, bees play a vital part in the pollination of forest trees, fruit trees, agricultural seed crops and grasses. Thus by assisting the regeneration of forests and the pollination of agricultural crops, the beekeeping industry renders a service of great value to the national agricultural economy.

Statistics.

The Commonwealth Statistician (Dr. Roland Wilson) has issued statisticts of Bee Farming in Australia during 1948-49, together with comparable data for previous years.

In 1948-49 production of honey was 53,203,000lb. and of beeswax 632,000lb., the output of each constituting a record far in excess of the previous record production (30,996,000lb. of honey and 373,000lb. of beeswax) attained in 1946-47.

The high yield of 1948-49 was due mainly to exceptionally favourable seasonal conditions, particularly in New South Wales, where the production of honey totalled more than 26,000,000lb., as compared with 9,017,000lb. in 1946-47.

The number of productive hives in Australia during 1948-49 (385,286) also represented an increase over preceding years—309,473 in 1947-48 and 290,799 in 1946-47. The average production of honey per productive hive in 1948-49 (viz., 138.09lb.) constituted a record also, being more than 30lb. higher than the previous best, 106.58 lb., recorded in 1946-47.

The proportion of productive hives to the total of productive and non-productive hives has increased during recent years; the 385,286 productive hives of 1948-49 representing more than 83 per cent. of the total.

The following tables sets out details of production in 1948-49, and details of honey and beeswax exported in 1948-49, compared with figures for previous years.

BEE-FARMING, 1948-49.

State, etc.	Beehives.			Honey Produced.		Beeswax Produced.
	Productive.	Unproductive.	Total.	Quantity.	Average Production per Productive Hive.	
	No.	No.	No.	Lb.	Lb.	Lb.
New South Wales	140,771	19,119	159,890	26,007,774	184.75	295,892
Victoria	91,810	25,750	117,560	8,729,527	95.08	90,778
Queensland	31,264	10,496	41,760	3,044,677	97.39	47,184
South Australia	93,634	15,738	109,372	10,906,372	116.48	140,384
Western Australia	24,451	3,398	27,849	4,290,418	175.47	55,239
Tasmania	3,327	1,685	5,012	220,954	66.41	2,944
Aust. Cap. Territory	29	4	33	2,790	96.21	20
TOTAL	385,286	76,190	461,476	53,202,512	138.09	632,441

Country of Destination.	1938-39.		1939-40.		1946-47.		1947-48.		1948-49.	
	'000lb.	£A	'000lb.	£A	'000lb.	£A	'000lb.	£A	'000lb.	£A
United Kingdom	583	10,921	4,451	122,264	12,238	466,241	14,504	555,984	30,451	1,124,991
India	13	526	34	1,579	51	3,659	30	1,466	447	30,786
Malaya	20	747	29	1,421	509	26,132	7	500	37	2,632
Palestine	(a)	(a)	(a)	(a)	145	8,379	94	4,472	(b)205	(b)10,198
Other British Countries	15	474	32	1,281	579	25,708	192	9,523	567	29,809
Syria and Lebanon	(c)	(c)	(c)	(c)	24	1,066	15	750	40	1,936
Japan	(c)	(c)	(c)	(c)	175	14,286	122	5,010	106	5,021
Other Foreign Countries	56	1,289	86	2,429	207	11,134	22	1,580	241	11,820
Exporting States:										
N.S.W.	429	8,570	1,602	45,967	973	45,962	2,925	108,532	8,754	332,727
Victoria	40	1,451	1,374	43,600	7,682	308,379	6,897	271,178	12,727	480,609
Queensland	2	43	123	2,409	142	5,569	628	24,768	2,258	87,379
South Australia	161	2,964	1,156	28,309	3,832	151,149	3,159	125,832	5,601	218,087
Western Australia	55	929	377	8,689	1,293	44,936	1,377	48,975	2,754	98,391
Tasmania	—	—	—	—	6	610	—	—	—	—
TOTAL	687	13,957	4,632	128,974	13,928	556,605	14,986	579,285	32,094	1,217,193

(a) Not available separately. Included with Other British Countries. (b) Palestine was classified as a foreign country in 1948-49; previously British. (c) Not available separately. Included with Other Foreign Countries.

TOTAL EXPORTS OF BEESWAX, AUSTRALIA: 1938-39, 1939-40 and 1946-47 to 1948-49.

Country of Destination.	1938-39.		1939-40.		1946-47.		1947-48.		1948-49.	
	Lb.	£A	Lb.	£A	Lb.	£A	Lb.	£A	Lb.	£A
United Kingdom	—	—	19,525	1,598	3,927	616	79 144	12,752	18,303	2,910
New Zealand	5,337	127	4,537	519	23,031	3,785	15 700	2,654	50,251	7,444
Malaya	(a)	(a)	(a)	(a)	6,210	1,184	—	—	664	158
Other British Countries	228	15	261	10	3,697	522	437	82	5,728	905
Foreign Countries	—	6	—	—	—	—	2,773	684	2,241	415
Exporting States:										
N.S.W.	336	31	9,252	872	4,776	836	16,415	3,416	30,611	4,282
Victoria	5,229	117	8,096	857	32,089	5,271	59 531	9,346	29,857	4,769
S.A.	—	—	3,559	208	—	—	21,134	3,266	16,719	2,781
W.A.	—	—	3,416	190	—	—	974	144	—	—
TOTAL	5,565	148	24,323	2,127	36,865	6,107	98,054	16,172	77,187	11,832

(a) Not available separately. Included with Other British Countries.

CHEMICAL WEEDKILLERS AND THE BEEKEEPING INDUSTRY

By T. PALMER-JONES, Research Officer, Department of Agriculture
Animal Research Station, Wallaceville.

Tests described in this article show that the use of 2, 4-D and M.C.P. acid preparations as hormone weedkillers constitutes no hazard to the beekeeping industry. However, the plant poison sodium D.N.O.C. is toxic to bees and precautions should be taken to avoid losses in bees if it is used on a large scale.

During the last few years the increasing use of chemical weedkillers has been a noticeable feature of overseas agriculture. These weedkillers are already employed fairly extensively in New Zealand, and there is no doubt that their use will increase as a wider range becomes available and methods of application become more effective. Chemical weedkillers may be divided into two groups:—

Hormone weedkillers.

Non-hormone-type weedkillers.

HORMONE WEEDKILLERS.

Hormone weedkillers are a very recent development and have been used commercially for only a few years. In the August and September 1946, issues of the "Journal," J. P. Hudson described plant hormones, showing how these substances, which are found in the normal growing plant, are necessary for the control of its vital activities. Substances may be prepared artificially which are related to the natural hormones and affect the plant similarly. Hudson gave five uses for these artificially prepared hormones: As fruit-set hormones, fruit-drop hormones, weed-killing hormones, transplanting hormones, and hormones for use in plant propagation. In this article, which deals with the effects that the use of such hormones may have on the beekeeping industry, the weed-killing group alone are considered, as these are the only ones with which bees are likely to come in contact.

At present many commercial preparations of hormone weedkillers are on sale in New Zealand, but all are derived from two main types:—

2, 4-D acid (2, 4 dichlorophenoxyacetic acid) base and its compounds (esters, amine salts, and sodium salts).

M.C.P. acid or methoxone (2 methyl, 4 chlorophenoxyacetic acid) base.

Hormone weedkillers applied as dusts or sprays to plants usually cause disturbances in their normal growth processes, resulting in death. These weedkillers are selective, some plants being resistant at all stages of growth and others being resistant only at certain stages. The selective action of hormone weedkillers can be used in some instances for obtaining clean crops and pastures when these cannot be cleared economically by hand. In the "Journal" for November, 1948, P. B. Lynch described trials of hormone weedkillers conducted in New Zealand.

Effect on Bees.

The beekeeper is naturally concerned with the question of whether the use of hormone weedkillers will constitute a new threat to the beekeeping industry by causing a heavy mortality in field bees. Research workers overseas have tested the toxicity for honey bees of these weedkillers. Eide (1) in 1947 fed 50 parts per million of 2, 4-D in 10 per cent. sugar solution to bees without causing mortality. Bees in contact with a card on which 2, 4-D had been allowed to dry, giving a concentration of .001 grammes per sq. cm., were also unaffected. Eckert (2) in 1949 stated that 2, 4-D was not very toxic to bees and was used in such small quantities as to have little or no toxic effect.

The development of more efficient spray equipment has enabled hormone weedkillers to be sprayed in much higher concentrations than was possible at first, and sprays containing 2 per cent. of 2, 4-D and M.C.P. acids are now often used on a large scale. It should be noted that the practice is to express the strength of hormone weedkillers as the percentage by weight of pure 2, 4-D or M.C.P. acids present in the solutions or powders used.

The higher concentrations of hormone weedkillers now being used and the lack of detailed knowledge available regarding their possible toxicity to honey bees led to the tests outlined in this article being undertaken.

It is apparent that hormone weedkillers applied as sprays or dusts might come into contact with field bees in the following conditions:—

Liquid sprays: Bees could come into contact with these on flowers and foliage before the sprays had dried and might also collect contaminated dew and moisture held on the leaves of plants. Pollen might also be contaminated. Toxicity tests were carried out with the following aims: 1, To find if the liquid hormone solutions acted as contact poisons to bees. This was tested by spraying the hormones in a fine spray over bees. 2, To find if the hormone weedkillers acted as internal poisons to bees. This was tested by feeding various concentrations of the hormones in sugar syrup to bees.

Dried sprays: Bees usually would come into contact with the sprays in a dry condition on flowers and foliage. Toxicity tests were carried out to find if the sprays were toxic in this state by confining bees in cages on the gauze sides of which the hormone weedkiller under test had been allowed to dry.

Dusts: Hormone weedkillers are sometimes applied by blowers or from aeroplanes as a fine dust, in which form they might come into contact with field bees. The toxicity of such dusts was checked by dusting bees and confining them in observation cages.

Method of Conducting Tests

Throughout the investigations bees used in toxicity tests were confined in wooden cages of approximately 3in. x 3in. x 1½in. internal measurement fitted with gauze sides (12 mesh per inch). Bees were added or removed from the cages through an aperture at the top which could be closed or reduced in area by a pivoted metal flap. Bees were always fed the solutions under test in 2oz. bottles the screw caps of which were pierced with small holes and inserted through the openings in the cages. Cages were kept in a dark incubator at 78 degrees F. They were supported for convenience of handling in wooden racks. All tests except the second series listed in Table 2 were conducted in duplicate, each of the cages used being filled with 50 young bees removed from the brood combs of hives in the laboratory apiary. The average of the two results obtained is given later in this article. The most convenient method of transferring bees to the cages was to shake them from the combs into a container, where they were anaesthetised with carbon dioxide. They could then be counted direct into the cages, if the toxicity of hormone solutions was being tested, or sprayed or dusted before being placed in the cages. The sugar syrup used in the tests contained 34.2 per cent. of cane sugar and was sterilised by filtration. The feeding bottles and caps were also sterilised. Sterilisation was done to prevent the growth of moulds in the feeders.

Liquid Sprays

Effect as contact poisons: The object of this experiment was to test the effect on bees of fine sprays of hormone weedkillers. The weedkillers were sprayed liberally over 100 anaesthetised bees spread out on a dish, an atomiser being used to deliver the spray in small droplets. After spraying, the bees were caged and fed sugar syrup while under observation. The results of this experiment are shown in Table 1.

TABLE 1—EFFECT OF HORMONE WEEDKILLERS SPRAYED OVER BEES

Type of spray	Number of bees dead in cages after 8 days
18 per cent. 2, 4-D (solution of the amine)	19, 18 (average 37 per cent.)
10 per cent. 2, 4-D (ethyl ester solution, oil base)	36, 9 (average 45 per cent.)
10 per cent. M.C.P. (sodium salt solution)	22, 20 (average 42 per cent.)

TABLE 2—EFFECT OF DRIED HORMONE WEEDKILLERS ON BEES

Type of spray	Number of bees dead in cages after 8 days' exposure to freshly dried gauzes	Number of bees dead in cages after 8 days' exposure to gauzes dried 8 days previously)
18 per cent. 2, 4-D (solution of the amine)	17, 6 (average 23 per cent.)	25 (50 per cent.)
10 per cent. 2, 4-D (ethyl ester solution, oil base)	*45, *50 (average 95 per cent.)	11 (22 per cent.)
70 per cent. 2, 4-D (saturated solution of sodium salt)	11, 1 (average 12 per cent.)	14 (28 per cent.)
10 per cent. M.C.P. (sodium salt solution)	12, 2 (average 14 per cent.)	13 (26 per cent.)
Controls (gauzes untreated)	11, 6 (average 17 per cent.)	

*Three days' exposure.

TABLE 3—EFFECT OF HORMONE WEEDKILLER DUSTS ON BEES

Type of dust	Number of bees dead in cages after 8 days
2, 4-D acid powder (100 per cent. 2, 4-D)	5, 5 (average 10 per cent.)
Sodium salt 2, 4-D (72 per cent. 2, 4-D)	15, 14 (average 29 per cent.)
Sodium salt 2, 4-D (70 per cent. 2, 4-D)	16, 5 (average 21 per cent.)
Controls (calcium carbonate)	5, 3 (average 8 per cent.)

Less than 50 per cent. of bees sprayed by the three weedkillers tested died over the 8-day period. Even if no allowance is made for the normal mortality of bees similarly caged, which may reach 8 per cent., it will be seen that the toxicity is very low. Under field conditions bees would be most unlikely to be sprayed as thoroughly as they were in the tests. It thus appears that losses of bees through contact with these weedkillers in the form of sprays would be negligible.

Effect as internal poisons: This experiment was designed to find if hormone weedkillers acted as internal poisons for bees. Various strengths of the hormone weedkillers, calculated as the acid equivalent, were fed in sugar syrup to bees confined in cages. These concentrations were prepared by diluting the weedkillers, if already in solution, with sugar syrup or dissolving the appropriate weights of the powdered weedkillers in syrup. The solutions fed were always present in excess, so that the bees were unrestricted in their feeding. The end point was taken to be when 90 per cent. of the 50 bees in a cage had died. This was considered a necessary convention because it was often found that a few bees would live on for days after most had died.

Five control cages with 50 bees in each were fed untreated sugar syrup. The average mortality was 4 bees per cage (8 per cent.) during a period of 8 days.

In considering the results it is apparent that there is little difference in toxicity between the sodium salt preparations of 2, 4-D and the others for concentrations as low as 0.25 per cent. In 0.125 per cent. strengths, however, the sodium salt preparations were less toxic. The sodium salt preparation of M.C.P. acid is of even lower toxicity than the others in a 0.125 per cent. solution. It was also noted that caged bees consumed slightly larger volumes of the sodium salt solutions compared with the other 2, 4-D preparations before 90 per cent. mortality occurred.

Although hormone weedkillers may sometimes be sprayed in concentrations as high as 2 per cent., water collecting bees would be expected to consume them diluted well below 0.125 per cent. strength. It is apparent

from the tests that toxicity is low at 0.125 per cent. strength as bees can consume this dilution for days without a high mortality occurring. Therefore spraying operations are not likely to cause noticeable bee mortality.

A common way of estimating toxicity is to state the treatment required to produce a 50 per cent. mortality. Viewed in this way the substances tested gave the following figures, which represent the time required for the 0.125 per cent. acid-equivalent solutions to cause a 50 per cent. mortality in the bees fed:—

	Days
Sodium salt of M.C.P. acid	9
Sodium salt of 2, 4-D acid (a)	8
Sodium salt of 2, 4-D acid (b)	7½
Amine salt of 2, 4-D	4½
Ethyl ester of 2, 4-D (oil base)	4

Dried Sprays

The contact effect of dried sprays on bees was tested by soaking the usual 12 mesh 3in. square wire gauzes in various hormone sprays and allowing them to dry. The gauzes were then used to form the sides of cages in which bees were confined. Deaths of bees over an 8-day period were noted. In the first experiment gauzes were used immediately they dried, in the second they were used 8 days after drying. The results are shown in Table 2. From the table it is apparent that except for the oil-base weedkiller the materials had little toxic effect on bees. Though the other weedkillers dried rapidly, the oil-base preparation remained oily for days on the gauze and its toxic effect was apparently largely due to the oil soaking the bees. However, when the gauze was thoroughly dry the oil-base weedkiller was no more toxic than the others.

As the tests were carried out under conditions much more drastic than any likely to be met with by bees in the field, it does not appear that the weedkillers in the dry state are likely to cause more than negligible losses of bees.

Dusts

The effect of hormone weedkiller dusts on bees was tested by dusting them over bees anaesthetised with carbon dioxide. Each dust was applied liberally to the bees (100), which were then caged and supplied with sugar syrup. Control bees were dusted with calcium carbonate. Mortality of bees over an 8-day period was noted (see Table 3).

Mortality of bees was low, and as the dust had been applied much more liberally to the bees than would occur in field dusting operations, bees would not be depleted by these weedkillers applied as dusts.

If the toxicity of the 2, 4-D, and M.C.P. weedkillers for honey bees is compared with that of D.D.T. and arsenic, both of which are used on a large scale as insecticides, it will be seen that their toxicity is relatively much lower. Thus 0.00005 milligrams per bee of arsenic internally is lethal and a concentration of 0.05 per cent. D.D.T. acts as an internal poison for bees, most of them dying in 17 to 42 hours when feeding on it. Most bees die in 6 hours if kept in cages sprayed with 0.05 per cent. D.D.T. Bees can be fed in cages with 0.125 per cent. strengths of 2, 4-D and M.C.P. acids for days before a 50 per cent. mortality occurs, and these substances have little effect on bees as contact poisons and dusts.

It should also be remembered that the new weedkillers, unlike insecticides, are used to destroy plants, and although they may take a considerable time, flowers are the most sensitive parts of plants and may be affected sufficiently within a few days to close. Thus it has been reported that dandelions sprayed with 2, 4-D showed no blossoms after 24 hours. It would appear probable that shortly after spraying no flowers would be open to attract bees, which would visit sprayed plants solely to collect water trapped on the leaves. It should also be possible to avoid spraying at times when flowers present in the area to be sprayed would be likely to attract bees. Large-scale spraying operations should always be undertaken if possible in collaboration with the local Apiary Instructor.

If reasonable precautions are observed, there appears no likelihood that the 2, 4-D and M.C.P. acid preparations in use as weedkillers will constitute a hazard to beekeepers.

NON-HORMONE-TYPE WEEDKILLERS

Many of the non-hormone-type weedkillers, such as the arsenicals, sodium chlorate, sulphuric acid, and oil and tar compounds, have been in use for a long period, and if they are applied with care, constitute little or no hazard to the beekeeper. The use of arsenicals as plant poisons should not be confused with their application as insecticides when they may, if applied without taking suitable precautions, cause severe losses of honey bees, such as occurred recently in the Hawkes Bay area when fruit trees were sprayed with lead arsenate at a time when the blossoms were attractive to bees.

Recently organic materials have been developed of particular value for destroying weeds in peas and onions (which are susceptible to hormone weedkillers) and for the control of certain weeds resistant to hormone weedkillers. A member of this group at present being used in New Zealand is sodium dinitro - orthocresylate (D.N.O.C.). Most preparations marketed in New Zealand contain the sodium salt of D.N.O.C. in solution.

Toxicity Tests of the Sodium Salt of D.N.O.C.

Effect of liquid spray as a contact poison: A 1 per cent. solution of the sodium salt of D.N.O.C. was sprayed liberally with an atomiser over 100 anaesthetised bees spread out on a tray. These bees were then caged and fed sugar syrup. Within an hour of spraying bees began to die, and all were dead within 16 hours.

This was an extreme test and bees are unlikely under field conditions to be sprayed directly with a spray except in negligible numbers.

Effect of liquid spray as an internal poison: Various strengths of the sodium salt of D.N.O.C. were fed to bees in cages, employing the usual method. It was found that a 0.01 per cent. solution of the sodium salt in sugar syrup when consumed by bees caused a 100 per cent. mortality in 3 days. This salt is about 200 times as toxic as the 2, 4-D and M.C.P. preparations when given to bees in this way, as a 2 per cent. solution of these causes 100 per cent. mortality in 3 days.

Effect of dried spray: The contact effect on bees was tested in the usual way by soaking wire gauzes in a 1 per cent. solution of the sodium salt, allowing them to dry, and then using them to form the sides of cages in which bees were confined for 8 days. At the end of this period the average mortality was 72 per cent. Within the first day of exposure approximately 50 per cent. of the bees succumbed, showing that the dried spray quickly loses toxicity.

The liquid spray might under certain conditions be collected by field bees carrying water or visiting flowers for nectar. As its toxicity is high, it might cause losses. Care should therefore be exercised if large-scale spraying is undertaken to avoid spraying crops attractive to bees, and advice should be sought from the local Apiary Instructor.

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2. Eckert, J. E. (1949): American Bee Journal, May, page 244.

—N.Z. Journal of Agriculture.

LOSS BY FIRE

Damage estimated at over £2500 was caused by a fire which destroyed a two-storey building at Messrs. Palmer Brothers' apiary at Naumai. Fourteen tons of honey, valued at between £80 and £100 a ton, wax, tins and machinery were lost in the blaze.

When the fire was first noticed it had gained a firm hold and within a short period had enveloped the main storeroom building and an adjacent garage.

The honey destroyed represents nearly half of the total yearly output and was shortly to be forwarded for marketing. The wax represented a value of approximately £200 and the tins a similar amount. The building was insured for £900.

—N.Z. Herald, 4/4/50.

QUEEN REARING

EARLY RESEARCH WORK

In view of recent developments in the instrumental insemination of queen bees, readers may be interested in the following extract from an article in "The New Zealand Fruitgrower," dated June, 1920. It is taken from a paper by Gilbert Barratt published in "The Bee World."

Recent research work, consisting of experiments in drone egg fertilization, disprove the theory advanced by Simmins and Dieckel, that all eggs are fertilized, and that drone eggs are defertilized by the workers. These experiments afford therefore a final confirmation of the theory of parthenogenesis.

The almost unique nature of the bee's egg lies in the fact that the fertilizing element from the drone enters from the outside of the egg, after it is fully formed, and immediately prior to its extrusion by the queen. This makes the artificial fertilization possible, and without the aid of elaborate and costly appliances.

In the experiments here recorded, freshly laid drone eggs from a pure golden queen were secured by placing a frame of clean drone comb in the centre of a strong stock, and here it may be stated that the use of eggs two or three days old will always result in failure. The comb containing these eggs was cut down, and pure Punic drones, just arriving in the hive from a flight, were squeezed on to a warmed glass plate. The necessity of using drones on a return from flight is shown in Cheshire's beautiful description, when the air sac being fully distended, the expulsion of the male sperm on to the glass plate is rendered a readier and more certain operation. This squeezing of the drone demands some practice before the spermataphore can be ejected.

The next operation was to touch the large end of the eggs with a camel hair pencil, previously dipped in the male sperm from the glass plate. An eyeglass, as used by watchmakers, is a most useful article in this, and many other operations in the apiary, notably in the transferring of larvae in queen rearing. The eggs were next placed in an incubating chamber, maintained at 97 deg. F., a small poultry incubator answering the purpose very well; the next day a little royal jelly, slightly thinned with new honey, was added with the hair pencil, again on the third day, and on hatching they were further fed with royal jelly for two days. The transfer to artificial queen cups, in the manner familiar to all modern queen breeders, was then effected, these being given to a queenless and broodless stock of bees. They were duly accepted, capped over, and resulted in perfect queens, proving that the male spermatazoon had entered the micropylar aperture of the egg, and produced fertilization.

Punic drones were used in the foregoing investigations, because, as the Punic is intensely black, and possesses other characteristics, the greater contrast would be provided.

If a pure queen mis-mated is used for drone eggs, and the sperm from a pure drone of the same breed, the resultant queens will be pure, seeing that the drone mated to the mother has no influence on her drone eggs.

THE OPOSSUM INVASION

Opossums, small and harmless-looking animals, are well on their way to becoming New Zealand's greatest bushland problem. Increasing in numbers every year, they pave the way for destruction of forests, eventual erosion, and damage to farmlands.

This was stated by the head of the wild life division of the Department of Internal Affairs, when he outlined efforts being made to control the pest in New Zealand.

First protected as profitable fur-bearing animals, opossums are now being ruthlessly hunted. As first steps in the campaign against the pest, the division has just completed a North Island survey of the density of opossum population, and the amount of damage being done.

"New Zealand is an opossums' paradise," he said. "They thrive here as nowhere else in the world. New Zealand forests provide succulent food in huge abundance. The climate is perfect, and apart from man they have no natural enemies.

"Nowhere but in New Zealand is the opossum a menace. Here, they have everything in their favour. They are so well fed that they have bigger families. Their losses at birth are lower than anywhere else in the world. We are just starting to learn the best methods of controlling them.

"Nineteen opossums were released in the ranges east of Paraparaumu in 1892. Now their descendants infest the whole of the mountain backbone from Cape Palliser to the Manawatu Gorge.

"Literally hundreds of thousands have been trapped and killed in this area. Yet now, the opossums are encroaching into home gardens and fruit plantations in Belmont and Eastbourne, to name only two places near at hand.

"The huge population is becoming greater than the food supply can support. In many parts of New Zealand they are forced to eat so much foliage from one tree that the tree is killed. The opossums then move on to new feeding grounds."

Opossums Versus Bees

Opossums were competing in a one-sided battle against bees on the West Coast of the South Island, he said. "The opossums, with their five-point suspension, can climb to the outermost of branches. On the West Coast, they eat the buds of the rata before it flowers."

The red rata, which covers whole hillsides on the Coast, was the mainstay of the West Coast beekeeping industry, he said. "Beekeepers have appealed for help from the division to control the opossums and raise their falling honey production.

"The sparsely-bushed inland country between Gisborne and East Cape is heavily infested with colonies of these animals. Here they are nullifying farmers' attempts to prevent erosion, and this area is perhaps the worst eroded in New Zealand.

"Two years ago, the local catchment board used aircraft to drop willow and poplar saplings for planting on scoured hillsides. Their idea was that the trees would hold the sliding earth in place.

"But the animals settled that in short order," he said. "The saplings sprouted, and the opossums descended like locusts. The trees died, and the farmers were back where they started.

Attacking the Pest

"They asked the Wild Life Division for aid, and we have set up proving grounds for the various methods of extermination. Some areas we have completely cleared, and we are well on the way to learning successful means of control.

"The best method in this open country has been a band of two or three men, with perhaps four dogs. The dogs cover every inch of the ground, and flush the opossums into the open, where they are shot or killed by the dogs.

"Special poison baits are being developed by a chemist attached to the Division. With aromatic lures, the forest opossums are attracted to

the poison. Trapping accounts for many more.

"So far in two years' operations about Tolaga Bay, 50,000 opossums have been accounted for. Their wholesale scouring of the country has been checked and they are now under control."

—The Dominion.

MANUKA BLIGHT

REPORT OF SELECT COMMITTEE

"Though the destruction of manuka is eminently desirable on many thousands of acres of grassland, it is relevant to consider what would happen if the many millions of acres of land submarginal or uneconomic for farming were stripped of the protective covering which this plant affords."

This is the considered view of a committee of representatives from interested Government departments which met recently, under the auspices of the Soil Conservation and Rivers Control Council, to consider the implications of the dissemination of insects for manuka destruction.

The committee, says a report released by the Department of Agriculture, found that "to the farmer manuka is a weed which invades some pastures and ultimately may take control of them unless it is held in check rigorously. To the forester and botanist manuka constitutes an ideal nurse crop for many native trees.

"To the soil conservator manuka is a type of cover which helps to reduce erosion and run-off on poor, reverting hill country. Thus it is evident that manuka in its right place is of the utmost value from the point of view of forestry and soil and water conservation; in the wrong place it can become a serious problem in pasture management.

"Mixtures of fact and conjecture have led to dangerous conclusions about the use of manuka blight, and it can be stated bluntly that no reliable information as yet exists about the plants which would follow such a major crisis in the New Zealand flora.

"The problems of manuka invasion differ intrinsically from those of most other weeds. Unlike most of them, manuka is not an introduced species but a native, and through countless ages it has won for itself a definite place in the vegetation of New Zealand. . . . This fact places manuka in a very different category from most other weeds. It belongs to this country, and if disease wiped it out the effect on the vegetation with which it had been so long in association might indeed be disastrous. . . .

"Though evidence is not yet conclusive, it appears that the scale insect responsible for the death of manuka is not a native of New Zealand, but probably came from Australia. Therefore, the blight must be considered in the same category as all other introduced plants and animals. Experience has shown the danger of the uncontrolled and unrestricted introduction of many plants and animals which later have become weeds and pests, and to take unnecessary chances with manuka blight would be rash. . . .

"In summarising the position four important conclusions have been reached by the committee:—

Manuka serves a most useful purpose on vast areas of poor country by promoting forest regeneration and reducing soil losses and run-off.

Where it is economic, good farming is the most effective means of preventing manuka invasion, and the blight cannot be considered as an alternative.

The artificial propagation of a plant disease about which little is yet known is fraught with danger.

Though manuka blight might be of immediate advantage to some farmers, its widespread distribution is likely to prove disadvantageous to the country in the long run.

"In the present state of knowledge it is considered unwise to foster and distribute the manuka blight," concludes the statement, "and until the results of investigations now being made are available, farmers are urged, in their own interests and in the interests of New Zealand's vegetation as a whole, to refrain from trying to use the blight beyond the range of its spontaneous occurrence."

HONEY TANK PROBLEM

The honey tank problem (May 1949 issue) which prompted only one reply within New Zealand, was the subject of the following comment in The Bee World, October, 1949:—

The N.Z. Beekeeper asks whether particles of wax, etc., rise faster to the top of a shallow honey tank or on a tall deep one. [The rate of rise of any light object depends on the difference between its weight per unit bulk and that of the honey, on the temperature of the honey (being slower if the honey is cold and therefore more viscous), and also on its shape. The rate of rise per second for similar particles at the same temperature would be the same (or nearly so) whatever the depth of the honey, so that the particles would reach the top in a shallow tank sooner than in a deep one. On the other hand, when they get there, they must be skimmed off; and the honey taken with them will be greater in proportion nearly to the area of the top of the honey. (If there are only a few particles, exactly so; if there are many, so that they form a thicker layer on top of the tall tank, there will not be much difference). We may have left out some essential point, and shall be obliged if Mr. Wedmore, or some other expert in physics, will in that case "deal faithfully" with it and us.]

In the December, 1949, issue of the same Journal the following contribution appeared:—

In that section of "Press Mirror" (B.W. 30, 78) concerned with N.Z. Beekeeper query on **the rate of rise of wax and other particles in both shallow and deep columns of honey,** there are important factors which were not mentioned in your observations.

It is true to say that it is a very complicated matter to make the comparison under discussion the more so because rise from different depths brings in considerations concerned with variations in hydrostatic pressure. (Consideration of this factor by itself suggests that the deeper the column the more efficient the separation.)

The two factors I had in mind, however, are (a) viscosity—which is not necessarily controlled directly by temperature as implied in your observations, and (b) size of particles.

The effect here is extraordinary because when the ratio of surface area to volume is very high—i.e., when the surface area is large as compared with volume, the particles remain suspended and do not rise at all. Emulsions are liquids containing suspensions of such a type which cannot normally be separated.

Some honeys have definite emulsion properties but beyond pointing out that scope in the physico-chemical study of emulsions is a wide field of research in itself I will refrain from enlarging.

I might add to the complexity by pointing out that although pollen grains remain suspended indefinitely in liquid honey, no question of honey-pollen emulsion arises—the pollen grains are far too big and can, as you are well aware, be separated easily from the honey by special means.

—G. W. Green.

CORRESPONDENCE

The Editor.

Dear Sir,—About now every beekeeper should be asking himself why he sent so little or in most cases, no honey at all to the Marketing Department. It will be clear now that some central packing plant is necessary to provide for that big crop which is visualised as the provider of that new house or car. Has anyone, with the exception of the "old hands," considered into what containers they would pack that big crop so that it could be sent to the Marketing Department? This was forcibly brought home to me this season, when, with only an average crop, the last pound of honey went into the last container to fill the last order.

One of the features of this season was the number of roving beekeepers whose aim in life was to pry containers loose from the store rooms of the more fortunate who had hoped for that big crop and had containers on hand.

I consider that had the Marketing Department had durable returnable containers on hand in their various Branches, they would have received more honey than they have.

Wholesalers and some grocers were smart enough to take note of the fact that if they supplied containers the beekeepers would readily fill them, so why not the I.M.D.?

Beekeepers would know that containers for that surplus honey were on hand, and honey in excess of orders would not be dumped on to a delicate market.

Why not use some of the reserve funds to solve the container problem?

ROBERT DAVIDSON.

HONEY INDUSTRY

Superintendent Reports to Beekeepers.

Since the opening of the 1948-49 honey season there had been an increase of 19,878 in the number of hives kept in New Zealand, requiring an expenditure of more than £49,000 in addition to the usual maintenance costs in the industry during that period, said the superintendent of the New Zealand Beekeeping Industry (Mr. T. S. Winter) at a field day of South Canterbury beekeepers held at the apiary of Mr. and Mrs. G. E. Gumbrell, Orari Bridge, recently.

There was now a total of 174,386 hives of bees registered in New Zealand, bringing the establishment cost of bee stocks, apiary equipment and operating plant up to £1,217,000, Mr. Winter said.

Seventy-five pounds of surplus honey from each hive was considered a reasonable estimate of normal production in commercial apiaries in New Zealand. On that basis the output from the group of commercial beekeepers who owned more than 50 hives each would exceed 4500 tons of honey and some 135,000lb. of commercial beeswax annually on present holdings, continued Mr. Winter.

Last season the amount of honey produced in commercial apiaries was 1600 tons below normal production, but this year beekeeping conditions generally throughout the country, with the exception of certain areas in Canterbury and Otago and also the Bay of Plenty, had been fairly good. There were not definite indications that the total crop this year would be much larger than last year.

Although some districts were heavily stocked with bees, there were not enough honey bees in other areas for adequate pollination of all economic plants and trees, a work that was far more important to our national economy than the value of honey and beeswax produced, Mr. Winter said. Our dependence on honey bees had been brought about mainly by intensive and specialised agriculture. The only method of ensuring pollination of many economic plants, including clover pastures, was to concentrate sufficient hives of bees to carry out this important work, he concluded.

—Timaru Herald, 21/2/50.

HONEY CRISPS.

2oz. honey, 3oz. butter, 1oz. dark brown sugar, 4oz. cornflakes.

Melt butter and honey together, but do not let mixture get very hot. Stir in the sugar, then the cornflakes at once. Stir till they have blended with the other ingredients, then turn the mixture into a well-greased oblong tin. Flatten down evenly with a knife and bake in a moderately hot oven for 15 minutes. Run round the edges of the tin with a sharp knife and leave till cold, then cut into shapes and turn out.

GADGETS AND IDEAS

BOTTOM BARS.

The use of ⅞-inch bottom bars for frames is suggested by Mr. W. B. Gray of Leeston. The bars are stronger than those generally used and they can be cut from standard 1-inch dressed timber. The extra width also allows for the construction of shoulders which prevent the bottom bars from protruding beyond the end bars and causing difficulty in the manipulation of the frames. In addition it will be noticed that the cells are built right out to the edge of the timber, and the bottom bar can be used as a guide for the knife when uncapping.

THE BEE VEIL.

If the strings on a bee veil are cut off at the right length and a wire hook tied on, and a wire ring is then put on the front of the veil, it will save a lot of trouble with knots in the strings and make it a lot handier to use. The strings on the back are brought up under the arms and the hooks placed in the ring. A simple and easy way to prevent delays in putting on a veil when needed in a hurry.

—Modern Beekeeping.

CLEANING QUEEN EXCLUDERS.

Question: How can I clean queen excluders? I have never heard how to remove the burr comb and propolis from them.—C. D. Trowbridge, N.Y.

Answer: Very few beekeepers do more than scrape queen excluders. They can be submerged in boiling water in which lye has been dissolved but sometimes the swelling of the wood that results pushes the corners apart badly. It is not ordinarily necessary to clean between the wires unless the excluders have been left on a long time in a locality where propolis is bad, so that they are nearly propolized shut.

—Gleanings.

THE HONEY PUMP

The most exacting time for the beekeeper is when the honey crop has to be collected from the various apiaries and extracted in the honey house. This period generally coincides with a time when the weather is fine and temperatures are high. The lifting of supers of honey in the field under these conditions cannot very well be avoided, but with intelligent planning in the honey house much heavy lifting can be eliminated. Why lift tons of honey up into the honey tanks as it comes from the extractor when a honey pump will do it? There is no doubt that lifting about 50lb. of honey high above the head to reach the top of the honey tank creates a greater strain on the beekeeper than any other form of lifting he meets with in his work. The two-level or gravity type of honey house was designed years ago to overcome all this lifting, but the trend today is for a single-floor honey house with mechanical means of lifting the honey from the extractor through a straining unit to the honey tanks.

Construction of Honey Pumps

Honey pumps are specially designed to deal with a viscous fluid, and pumps that are constructed to move water or oil are not considered suitable for handling honey. Honey pumps are simple in construction, with very few working parts, and give very little trouble if the pump is kept as close as possible to the source of supply and all connections are made absolutely tight.

The speed of the pump influences its efficiency, because if a pump is rotatting too quickly not sufficient time is allowed for honey to flow into and completely fill the pump, whereas by reducing the speed it will be found that the slides have a full compartment of honey to deal with on each revolution. A pump speed of approximately 40 to 50 r.p.m. appears to give best results. A greater speed, if necessary, can be used with warmed honey.

Methods of Installing Honey Pump

One method of installing a honey pump is to have the pump closely connected to the honey extractor and drive it off the countershaft. The belt is slipped on and off according to how much the pump is required. This is not a desirable set-up, because the belt very soon gets slack and there is a constant need for re-adjustment. Also the practice of handling a belt on a moving pulley creates a definite hazard which should be avoided.

An improved method is to have the pump coupled to an independent electric motor, as this enables the beekeeper to switch the unit on or off as required. Because of the low speed at which a pump requires to be run, it is not possible to run it direct off a motor, but this can be attained by means of a countershaft, the use of which is necessary to get the required speed.

A motor with a 2in. V pulley drives on to a 12in. pulley on the countershaft, while a 2½in. pulley on the countershaft drives on to a 10in. pulley on the pump. V pulleys and belts give a very silent and efficient drive, a shield can be placed over the whole unit to cover the moving parts, and a unit of this type is mobile and can often be used for pumping honey from one tank to another, if required.

The unit when fitted with an automatic motor control gives the beekeeper a greater range in the set-up of his honey-house; it allows a straining unit to be used and the outfit to be completely controlled by the automatic pump. This control can be purchased from merchants dealing in machinery and pumping equipment and is generally set to switch in the motor when the lever is down. The beekeeper requires the motor to start the pump when the tank compartment is full or when the lever is up. This means reversing the mercury tube in the control. As this is a delicate operation, it should be left to the electrician who is doing the installation.

With a control of this type, the beekeeper is assured of a reliable pumping unit, and one that will allow plenty of latitude in re-designing the layout of equipment in the honey house.

—From an article by C. R. Paterson, in the N.Z. Journal of Agric.

NORTHLAND DROUGHT.

"The drought up here," writes Mr. H. A. Bagley, Kaitaia, 11/4/50, "was broken on Thursday last by about ten drops of rain. The bees are holding out fine; where on earth they are foraging licks me. Everything is brown and dried up and the temperature still up in the seventies."

A later press report states that the drought was broken in earnest on the 14th April. "Torrential rain covered the Auckland province today, and most districts experienced the heaviest fall for many months. More than three inches was recorded in many Northland centres, a greater fall than most had received for the year to date.

"Although minor flooding has occurred and some roads, particularly in Northland, are treacherous, all routes remain open. Drought-affected pasture throughout the province will benefit."

WASPS AT TE AROHA.

During the past few weeks hundreds of wasp nests have been destroyed in the Te Aroha district by council workmen. On one farm at Waihou 17 nests were destroyed within a few chains of each other. Whole crops of grapes have been stripped by wasps, and apples, wherever damaged slightly, have been attacked.

—Herald, 21/4/50.

WASPS AT TAUPO

Thousands of wasps are reported to be infesting the western shores of Lake Taupo. They are raiding camp meat supplies and any small fish washed up. Annoyance by the wasps has been so great that in some cases campers have had to light fires to protect their meat supplies. The pests appear to be multiplying rapidly.

—Star, 21/4/50.

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WINTER DRIVING

1. Friction between tyres and icy roads is highest at the moment brakes are applied. If the brakes are held down, however, the wheels start skidding and friction drops sharply, not improving until the car is finally sliding very slowly. This means that the brakes should be " pumped " gently to stop the car on icy roads. For emergency stops, pumping should be rapid.

2. Do not race the engine and spin the wheels to get out of a slippery place. Once the wheels start spinning, they lose almost all ability to move the car. But if you can start slowly and keep the wheels from spinning, friction between tyres and icy surfaces will be much greater.

3. By rounding slippery curves under slight power from the engine, you can help avoid side skids.

—Automobile Facts.

HONEY IN HISTORY

The jar of honey that appears on the breakfast table has a history far older than the oldest Egyptian relic ever unearthed. Early man used honey long before he learned to grow his food, even before he evolved a language. It's one of the oldest foods known—yet honey has properties that still baffle modern scientists. Assyrians, Babylonians, Chaldeans, Phoenicians, Hebrews, Egyptians, all doubted man's ability to go to Heaven without a vessel of honey at his side—of that he would find much happiness on Earth unless a jar of honey were bestowed on him at birth. The Greeks regarded honey as an elixir of youth, and athletes were given honey and water to drink, to banish fatigue after the Olympic Games. Inspired by Pythagoras, who gave a lot of thought to his diet, the Athenians invented a mixture of honey and milk—a tipple that became known in the better bars as " ambrosia," after the food of the gods. Today after fifty centuries of daily use, honey is still celestial food —not merely a sweet but a sweet with a flavour.

—N.Z. Listener.

WORRIES OF AN EDITOR.

Getting out this magazine is no picnic.

If we print jokes, people say we are foolish.

If we don't, they say we are too serious.

If we don't print contributions, we don't appreciate genius.

If we do print them, the paper is filled with junk!

If we edit the other fellow's write-up, we're too critical.

If we don't, we're asleep.

If we clip things from other papers, we are too lazy to write them ourselves.

If we don't, we are "stuck in the mud" and parochial.

Now like as not, someone will say we cribbed this from some magazine.

We did—"The Beacon."

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MEETING.

The Annual Convention of Otago and Southland Beekeepers will be held in the Pioneer Women's Memorial Building, 362 Moray Place, Dunedin, on the 6th and 7th June, 1950.

June 6th, 7.30 p.m.: Addresses on Beekeeping.

June 7th, 9.30 a.m.: Session for Commercial Beekeepers. 7.30 p.m.: Social Evening.

A cordial invitation is extended to visitors from other districts.

"THE N.Z. BEEKEEPER"

This Journal is issued free to all members of the National Beekeepers' Association of N.Z. (Inc.). Failure to renew subscriptions promptly results in automatic removal of names from Journal Mailing List.

Subscription rates for the Journal are 5/- per annum, post free. Please notify any irregularity in receipt of the Journal to the Editor.

Literary contributions and advertisements must be in the hands of the Editor, Mr. J. McFadzien, 29 Nottingham Crescent, Calton Hill, Dunedin, S.W.1, not later than the first of month of publication.

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

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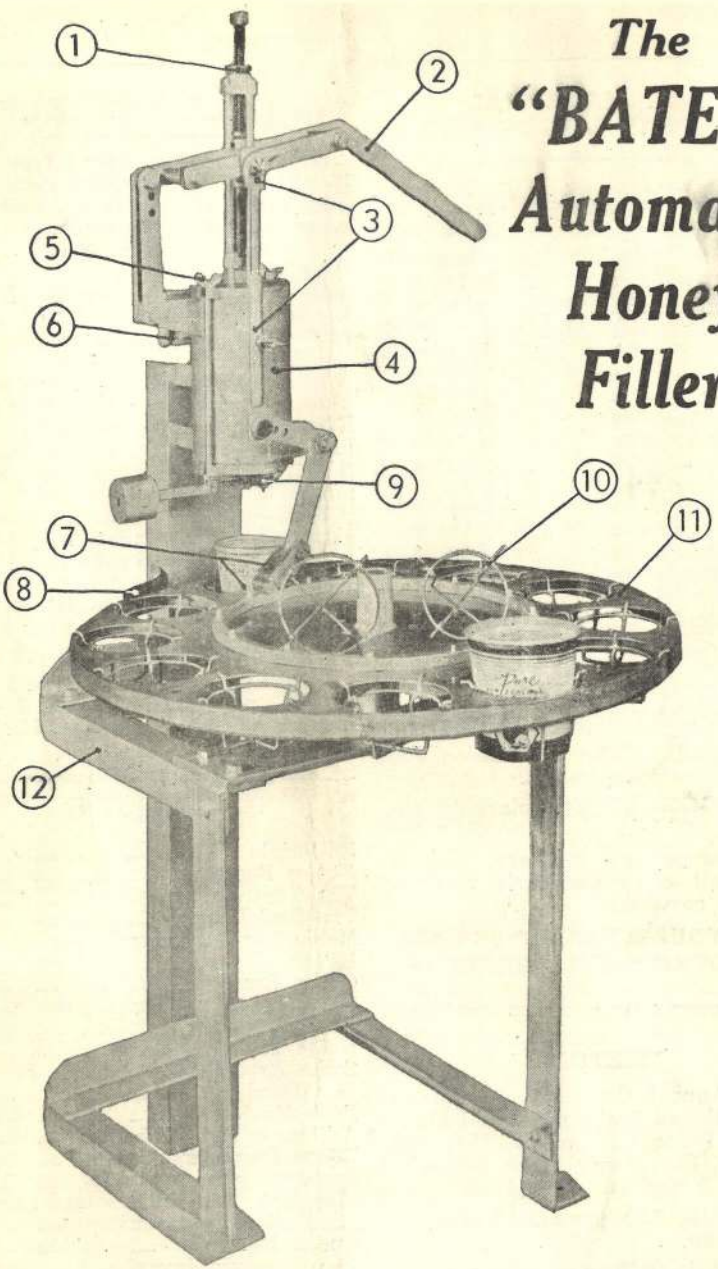

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