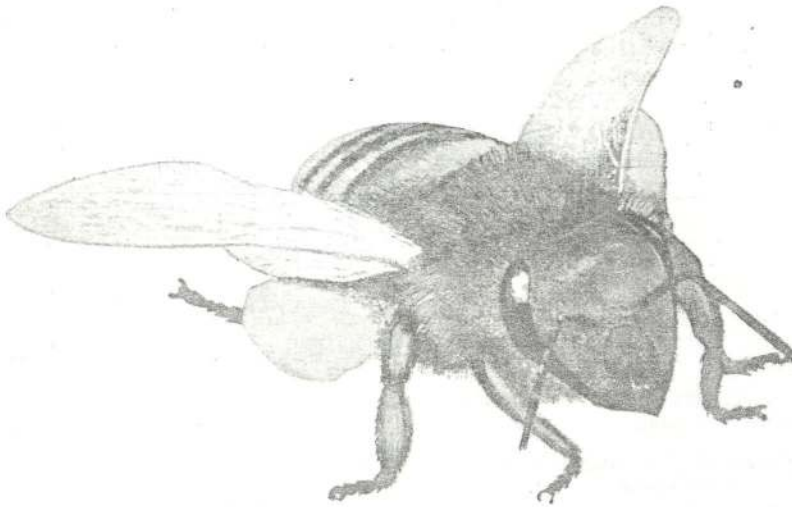
THE NEW ZEALAND BEEKEEPER



OFFICIAL ORGAN of the
NATIONAL BEEKEEPERS' ASSOCIATION
OF NEW ZEALAND

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

Better Beekeeping | Better Marketing

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SUBSCRIPTIONS:

1 — 15 hives	5/-
16 — 50 hives	10/-
51 — 100 hives	15/-

Five shillings extra for each additional 100, with a maximum of £2.

INSURANCE PREMIUMS:

1/6 per apiary per annum. (Insurance is voluntary, but, if taken, all of a member's apiaries must be covered.)

JOIN YOUR NEAREST BRANCH AND DERIVE FULL BENEFITS.

The New Zealand BEEKEEPER

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Gilbert S. Kirker, Editor.

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VOl. 2, No. 4 OCTOBER 20, 1940

NATIONAL SERVICE.

(For Beekeepers Only).

Your Country needs your service,
And also do your bees,
That their part of National Service
May well and truly please.

Enlist them for your Country,
Their part they will not shirk,
And if you do your duty
When the sun shines they will work.

So make your plans for action,
Don't let them be delayed;
Your motto being "production,"
That victory may be gained.

—W. Slinger, in "The British Bee Journal.

AMERICAN FOUL BROOD (BACILLUS LARVAE).

Dealing with a Beekeeping Scourge.

By H. F. Dodson, Apiary Instructor, Palmerston North.

HISTORY.

Foul brood is a disease that attacks young bees in the larval stage, usually just prior to capping.

The disease is known to be of great antiquity but was only given its name in 1769 by Schirach.

Originally considered to be a fungous disease, Cohn disproved this belief by his detection of rod-shaped organisms to which he attributed the cause of the disease.

In 1885 Cheshire and Cheyne announced the discovery of the causal agent of foul brood, but as reports were collected and knowledge increased, it became apparent that more than one disorder was included under the heading of foul brood.

By means of bio-chemical technique, White (U.S.A. Dept. of Agric.) succeeded in 1904 in isolating one causative agent which he named **Bacillus larvae.** The disease for which this bacterium is responsible then became known as American foul brood.

Later, **Bacillus pluton** was also isolated and identified as the cause of what was then termed European foul brood. (Recent research, however, has established that the causative agent is Bacillus alvei, Bacillus pluton being merely a stage in its life cycle.)

American foul brood can be an extremely dangerous disease, if its control is not properly understood. Any beekeeper, therefore, having the slightest suspicion that all is not well with his brood, should communicate immediately with the Apiary Instructor in charge of his district.

LIFE CYCLE OF BACILLUS LARVAE.

Bs. larvae is a spore-forming bacterium. The spores are very tenacious to life; they may be boiled for 10 minutes in water and still remain not only active but capable of causing disease. They can exist unaffected for two months in corrosive sublimate (Mercuric chloride)—for a similar period in 5% Carbolic acid.

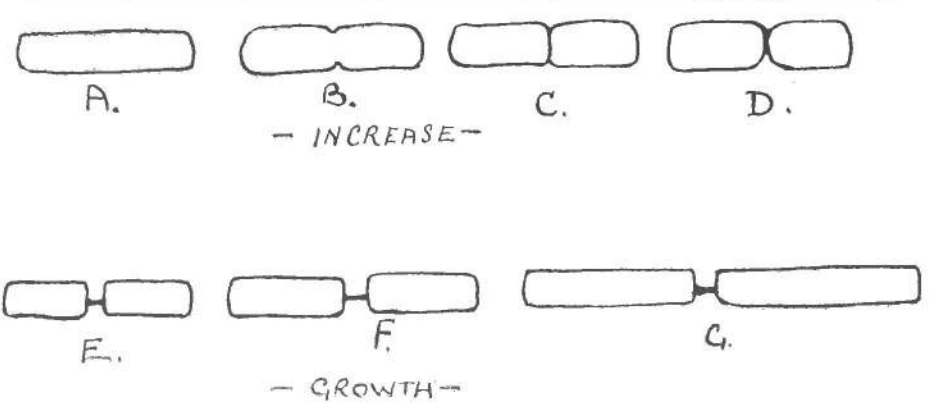


Fig. 1—The usual mode of increase of bacteria by division in the middle and subsequent growth in size of the two halves until the length of the parent is reached by both resulting cells. Division at the rate of one per hour means 17,000,000 Rods in 24 hours from one spore.

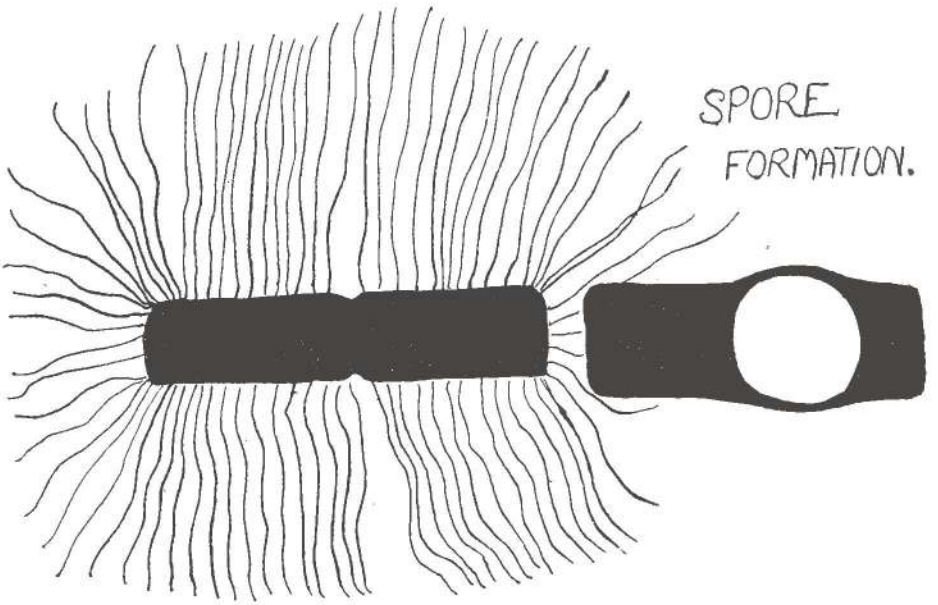


Fig. 2—FISSION OF ROD.

The bacteria of this disease multiply by repeated division (Fig. 1). Division proceeds during the vegetative stage. A slight waisting appears in the centre of the rod which gradually increases until a complete division exists between the two halves. In the case of Bs. larvae, the divided rods tend to remain attached by means of a single thread, thus forming chains of bacteria that rapidly increase, eventually destroying their victim.

Shortly after their development, the rods throw out numerous thread-like attachments, called flagellae, with which they vigorously swim about (Fig. 2).

The death of the larva is followed by fairly rapid decomposition that soon terminates the source of nourishment upon which the disease has flourished. As soon as an approaching shortage of nourishment becomes evident, the bacilli enter upon the final stage of their life-cycle, the formation of spores, whereby they may continue to exist for long periods of time in unfavourable or even hostile conditions. Bacilli are not equipped to defend themselves and are comparatively easily destroyed. To understand properly the relationship between, and the different sizes of, the spore and the bacillus they may be compared with grass and its seeds. Grass seed may be stored in such unfavourable locations as sacks, barn floors, etc. But if placed in soil at correct temperatures, they will develop into shoots of grass which flourish so long as conditions are favourable. As soon as these conditions show signs of deteriorating, however, the grasses form seeds so that the species may be carried over an approaching period of dearth and famine. Should adverse conditions approach too rapidly, however, as in the case of a mowing machine removing the blades and stalks from their soil and roots and given them no chance of adjustment by seeding, they

will die without providing for further cycles of life. **But fresh grass will continue to grow from the roots.** As with grass, so with sporulating bacteria. Any treatment which does not deal with spores will be ineffective in the long run even if immediate results appear to be successful. Disease elimination necessitates a programme of spore destruction.

METHOD OF SPORULATION.

Sporulation is a very simple process. The bacillus forms within itself a minute transparent globe that grows until the rod-like bacillus is stretched into a taut oval, thus becoming merely an outer covering for the spore; this is eventually discarded, leaving the perfect spore free. At that stage it is the counterpart of the grass seed and is capable of remaining alive but inert, for many years, in honey, woodwork, propolis or other substances, awaiting its chance to enter upon the next stage of its life. This can only happen when it is introduced into the intestinal tract of the bee larva. Honey containing spores of Bs. larvae fed to larvae by nurse-bees will result in the development of the disease. When this happens the spores begin to grow until approximately double their original size.

The interior of the spore soon outgrows its exterior, finally rupturing the spore-case to emerge as a rod. Thus disease is born (Fig. 3) and the doom of the larva, and finally the colony itself, sealed.

NATURE OF THE ORGANISMS.

The rods which are now hatching in the intestinal tract are filled with protoplasm—a jelly-like substance containing numerous points of nucleus matter. These infinitessimae are the bases of all life-processes which char-

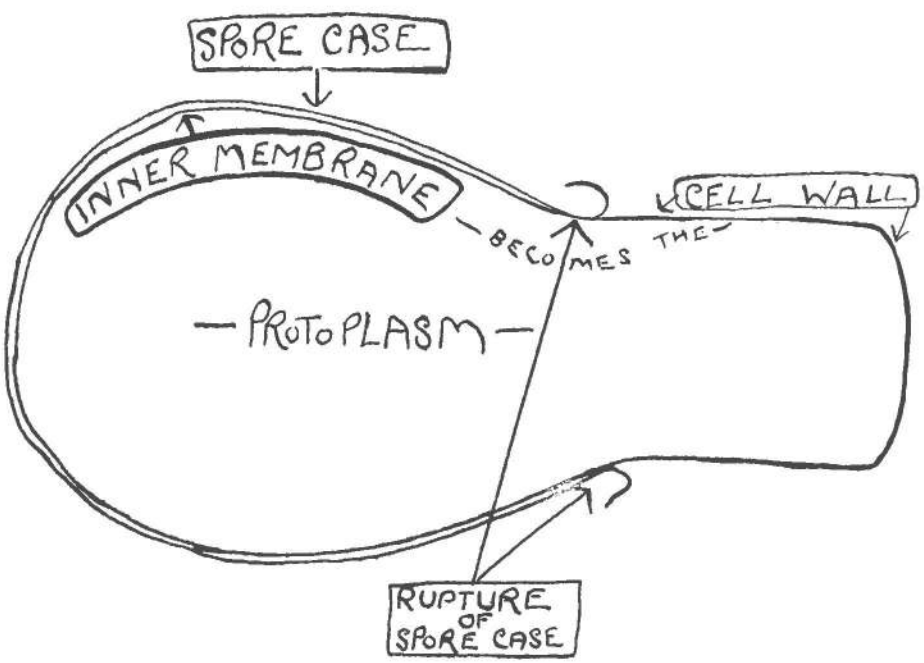


Fig. 3—THE BIRTH OF A BACTERIUM.

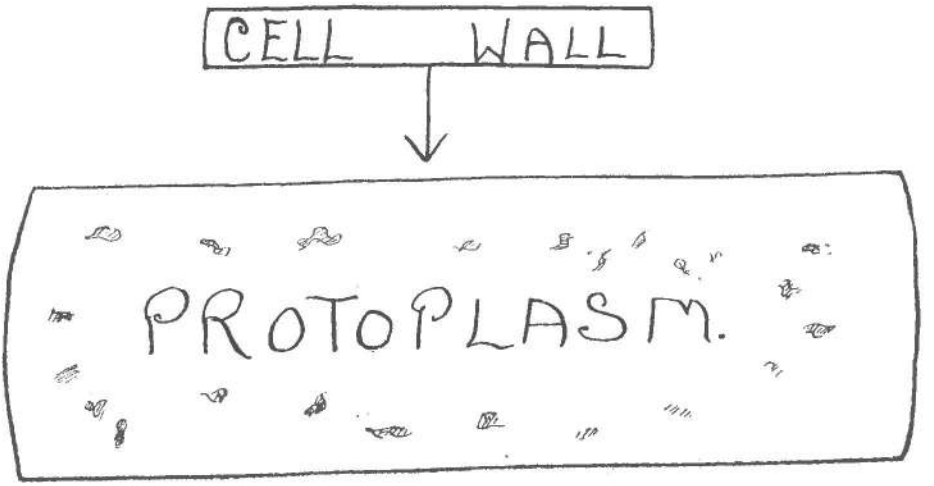


Fig. 4—"The Rod in Pickle" (Vegetative Stage).

acterise the organism, i.e., selectivity, ingestion, development of flagellae, motility, etc.

In size, the bacillus is approximately 1/5000th inch in length and 1/25000 in diameter. As the size of spores in relation to bacilli may be likened to hayseeds and stalks, the danger of carrying them in microscopic smears of honey or propolis will be readily appreciated.

Recent tests undertaken by the writer at Massey Agricultural College indicate that spores may be carried on the legs of bees and deposited on the surface of combs. To what extent exterior infection constitutes a factor in the incidence and spread of disease has not so far been determined. But a rudimentary knowledge of the characteristics of bacteria in general and Bs. larvae in particular is sufficient to warrant immediate and drastic steps in all cases of American foul brood.

INTRODUCTION AND SPREAD OF AMERICAN FOUL BROOD.

American foul brood is introduced into the hive principally by means of robber-bees carrying home honey from diseased colonies. Such honey usually contains high concentration of spores. The beekeeper himself may also spread the disease from hive to hive by means of small particles of honey on fingers, hive-tool, etc. Gloves become a serious manace when used by beekeepers who have disease in their apiaries. It will be noticed that in such cases disease tends to recur periodically in spite of treatment. Where disease occurs, gloves should be abandoned. Meticulous care should always be exercised to see that honey is not left lying about where bees can get at it. This care should be greatly increased if disease is in the apiary.

It is important to realise that the slightness or otherwise of the symptoms displayed by a diseased hive is no indication of the extent to which Bs. larvae may be present in the apiary.

In view of the highly infectious nature of American foul brood it is recommended that all hives in which the disease appears should be immediately destroyed by fire.

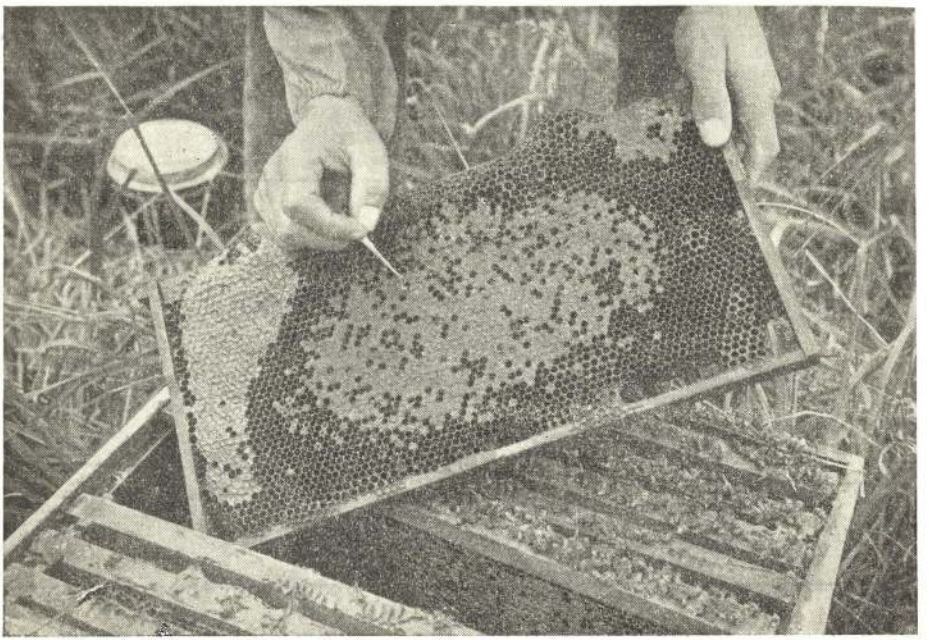


Fig. 5—Symptoms of the Disease.

SYMPTOMS OF THE DISEASE (Fig. 5).

The earliest indication of the presence of disease is a slight discolouration of the larvae during the first week. This is sometimes observed before the capping of the cells, but as a general rule the beekeeper will not discover it in its incipient stages. Later it may be identified by perforated, sunken cappings which have a dark, greasy appearance. They appear in sharp contrast to the cappings over healthy brood.

Meanwhile, the decomposition of the dead larvae proceds rapidly, resulting in a breakdown of tissue.

The breakdown results in the formation of a light coffee-coloured mass of a sticky, ropy character. If a splinter of wood is inserted into the mass, a glue-like thread adhering to the splinter may be withdrawn. This ropiness, the most generally-known symptom of American foul brood, is characteristic, and may be accepted as final proof that the disease is American foul brood (Fig. 6).

The decaying mass continues to dry up until eventually it forms a scale—the last symptom of the disease. The scale hardens on the floor of the cell and cannot be removed except by means of a sharp penknife or similar instrument.

The scale without any doubt is the most infectious form of the disease as it literally teems with billions of spores capable of destroying whole apiaries of bees. In this stage bacilli are not present as no nourishment remains for their existence. The scale is like the bag of grass seed, full of individual, potential growth.

The smell from which foul brood derives its name, is not noticeable until the disease has reached an advanced condition. This smell has been likened to hot glue.

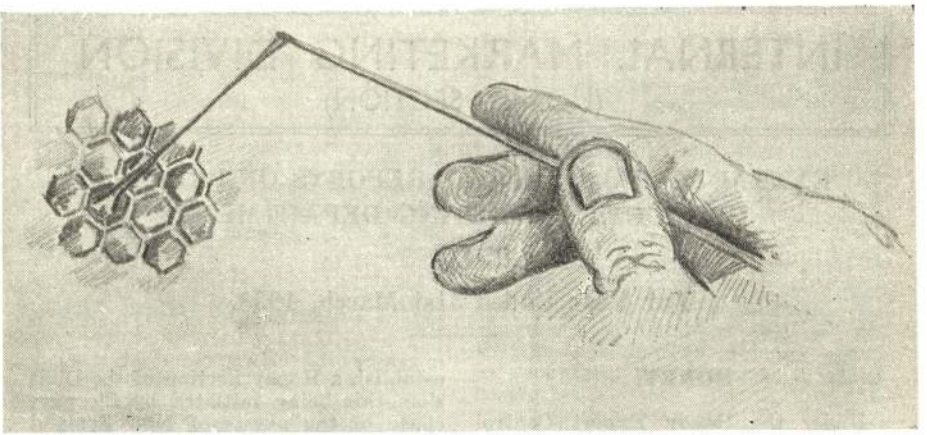


Fig. 6—Symptom which usually convinces the most skeptical hobbyist—"Ropiness," slightly exaggerated. The sticky, ropy substance does not usually follow the straw more than ¾ to ½ an inch.

AMERICAN FOUL BROOD A NOTIFIABLE DISEASE.

The discovery of any of the symptoms indicated should be reported immediately to the Apiary Instructor for the district.

The Apiaries Act, 1927, stipulates that the discovery of American foul brood must be notified within seven days whether it is treated by the owner or not. Failure to do so renders the beekeeper liable to a fine of £20.

ALWAYS BURN—NEVER SHAKE.

Experimental work has proved beyond question that some strains of bees are highly susceptible to American foul brood, while others show pronounced tendencies to resist the disease. The burning of infected colonies, therefore, is highly important because it not only reduces the sources of infection, but likewise helps to eliminate stock highly susceptible to disease. The shaking treatment formerly used to control this disease merely prolonged the existence of susceptible stock, and colonies so treated served more or less as perpetual sources of infection. ("American Bee Journal.")

INTERNAL MARKETING DIVISION
(HONEY SECTION)

EXTRACTS FROM ANNUAL REPORTS OF PRIMARY PRODUCTS MARKETING DEPARTMENT

For Year Ended 31st March, 1938.

HONEY.

Under the Honey Export Control Act, 1924, the New Zealand Honey Control Board assumed the sole authority for exporting honey from New Zealand, but sales of honey within the Dominion have not been subject to any supervision. Beekeepers who depend wholly or partly on honey-production for their living are in a minority among the beekeepers in New Zealand, and marketing of these supplies has been made difficult by the large number of domestic beekeepers selling their surplus production at whatever prices they were offered. In addition to this, there has been no possibility of standardizing grading and quality, and this factor alone has had a very deleterious effect on local consumption.

At least two attempts have been made by producers at co-operative marketing, but, due to the facts mentioned above, they have not met with success nor received the full co-operation of all producers. At the last annual meeting of beekeepers in Timaru an overwhelming majority favoured Government assistance to the industry.

Owing to the serious plight of the beekeepers of the Dominion in 1937 because of the poor season in that year, the Government (which had granted assistance at that time) was approached with a view to improving the marketing of honey so as to avoid the alternating shortage and glut conditions which had operated in the past.

After a thorough investigation of the circumstances, it was decided to establish a Honey Section of the Division, this being initiated by the purchase of the assets of New Zealand Honey, Ltd., a producers' company in Auckland. The Government was influenced in its decision to take the step in re-organizing the marketing of honey because of the very abundant crop this year following the acute shortage of last year.

It early became apparent that if selling-conditions internally were not regulated in some way, the producer would be placed in the unhappy position of being forced by competition to accept absurdly low prices for his product, whereas in the previous season he had received very small returns as a result of the paucity of the crop.

Honey-production varies considerably from year to year, and a long-range policy of conserving stocks in a glut year for the inevitable shortage in years to follow is deserving of attention; for that reason, honey has been brought under the jurisdiction of the Division. The supervision exercised over honey has enabled the Division to offer to producers a pro rata advance of 4½d. per pound according to grade this season for both export and local sales.

A further payment of ¾d. per pound has now been made, and at the conclusion of the financial year the Division confidently anticipates a further final payment to all producers supplying their honey to the Division. Advances have been made immediately on receipt of honey, irrespective of whether the honey will eventually be exported or sold on the local market.

The final returns from export sales will be pooled with the local market returns.

With the modern equipment available at the Government blending depot in Auckland, all honey received is blended to fixed standards of quality, so that the consumer can be assured of receiving a standardized flavour and quality in all honey packed by the Division.

Year Ended 31st March, 1939.

The 1939 honey season proved again the well-established fact that honey production is subject to more severe vagaries than any other primary producing industry.

A very short season in 1937 was offset by a particularly good one the following year, but owing to climatic conditions the 1939 season has been disastrous for some important producing areas. Reports of nil crops from many districts were unfortunately too common. A spell of good weather almost at the end of the season, however, saved the situation for some beekeepers who were fortunate enough to accumulate sufficient stocks to carry them through the winter.

Producers in certain areas in New Zealand, more particularly in the South Island, have not been so fortunate, however, and in many cases insufficient honey has been produced to accommodate the hives through winter and spring feeding. The acute and serious position thus created called for immediate action, and accordingly the Government, through the Division, made complete arrangements for advances to producers throughout New Zealand for the purpose of buying sugar to supplement their honey stocks. Quite a number of producers have availed themselves of this assistance, which was made available to individual producers at a minimum of delay. Expressions of appreciation have been received by the Division for the prompt and efficient manner in which the position has been handled.

Apart from providing immediate relief to beekeepers, the policy of the Government in providing a central and capable organization to handle honey as a means of stabilizing conditions from year to year in order to cope with the vagaries of yearly production has been completely justified. In 1937 the lack of such a safety measure did New Zealand producers incalculable harm through their inability to maintain a continuous supply to the English market, and as a result the excellent goodwill created for New Zealand's Imperial Bee brand was considerably impaired.

Strenuous efforts are being made by the Division to recover the leeway lost, and with the organization and equipment available at this end the Division has no fear of being unable to recapture the trade so unfortunately lost.

The blending of all honey for the English market before it leaves New Zealand is an innovation which is being tried this season. Under this scheme, repacking from the blended bulk into bottles or jars is the only extra handling required of the Division's English agents, and the blending and grading of all honey for sale in England will then be under the supervision and control of our experts in New Zealand. This new development, of course, necessitated additions to the plant and equipment at the Auckland Honey Depot, and when this plant has been completed and finally installed in the up-to-date premises to be built for the Division a service excelled by none in the world will be available to New Zealand beekeepers.

On the 11th November the Honey Board (Transfers of Powers) Order 1938 vested the powers of the Honey Export Control Board in the Minister of Marketing, thus transferring to the Division the authority for handling overseas sales, the proceeds of which could be pooled with the returns from the local market.

At the same time the Honey Marketing Regulations 1938 were brought down to give effect to the wish of the industry that some form of stabilized marketing should be introduced. The lack of an equalization scheme in the past has been one of the root causes of failure of voluntary efforts, but this difficulty was overcome with the advent of the regulations mentioned above.

Briefly stated, the regulations require a marketing seal on the basis of ½d. per pound to be placed on all

honey sold by way of wholesale or retail save in the case of sales made direct to consumers from a beekeeper's premises, and honey in the comb, which were exempted.

The honey seals are available from the Division's office in Auckland and Wellington, and in response to requests from South Island beekeepers arrangements have now been made for seals to be available at the offices of the Department of Agriculture in Christchurch and Dunedin.

Experience, both of beekeepers and the packing department of the Division, has proved that the adhesive seal is far from satisfactory when applied to wax cartons. The seals frequently come off before the honey reaches its destination, causing inconvenience to resellers. To avoid this the Division has arranged to have the seals printed on the waxed cartons of 1lb. and ½lb. capacity, in which the greater proportion of packed honey is sold.

This desirable improvement has been made by the Government's policy of import selection whereby all waxed cartons for honey are manufactured under license in New Zealand, the printing of the seal being incorporated with the process of manufacturing the cartons.

The new system is already proving a boon to beekeepers and repackers, and appreciation of the Division's action has been expressed in many quarters.

Adhesive seals are still available in all denominations for those who still have supplies of unsealed cartons on hand.

Already a very desirable degree of price stabilization has been effected by the operation of the regulations, and has assisted the Division to proceed with confidence with a national honey-marketing scheme.

The last annual report of the Division advised that a second payment of ¾d. per pound for the 1938 season pool, in addition to the original advance of 4½d. per pound pro rata, would be supplemented by a final payment of a substantial amount. Final overseas figures now to hand justified our earlier assessment, and payment has been made of a sum sufficient to make the total payment on both local and overseas sales 6d. per pound pro rata, a very satisfactory figure in view of the heavy crop in 1938. It is advisable to mention at this point that if producers exercised more care in packing and straining their honey a higher pro rata return would be received by suppliers.

It is perhaps pertinent at this stage of the report to express the Division's appreciation of the large measure of co-operation afforded by the beekeeping industry as a whole. Beekeepers have obviously realized that the Division has their interests at heart, and have responded to all suggestions and requests for necessary information in a very helpful manner.

The assistance of the Department of Agriculture has always been appreciated by the industry, and has again this season proved of immense value both to beekeepers and the Division in the smooth working and improvement of qualities in honey. The Division records with pleasure the part played in this way by Mr. E. A. Earp, former Chief Apiary Instructor, whose retirement took place last March.

In terms of the Honey Export Control Act, 1924, Mr. L. F. Robins, the South Island producers' representative, was due to retire from the Control Board at the end of 1938. Mr. Robins again offered his services to the industry, and, no other nomination being received, he was re-elected unopposed for a further term of two years.

It is pleasing to note the unanimity and satisfaction of the industry with the activities of the Control Board.

One of the first steps taken by the Division after assuming the functions of the Board was to liquidate the debt to the Unemployment Board, covering advances made to the Board in 1933 in connection with the purchase of the goodwill and certain trademarks on the overseas market. These advances have now been fully repaid.

Requests were received by the Division for permission to import quantities of beeswax into New Zealand on account of the commodity being difficult to procure in New Zealand. The Division took prompt steps to ascertain the position of immediate and anticipated stocks to enable the Government to determine to what extent licenses should be issued. Supplies of beeswax have been made available to

manufacturers, who must be assured of supplies, but the Division will continue to exercise a watching brief on the position in order to product New Zealand beekeepers from unnecessary imported competition.

Opportunity was taken during the visit to New Zealand of the assistant manager of the Dairy Sales Division of the New Zealand Government in London, which Division is supervising United Kingdom sales, fully to discuss the position of present and future marketing in England with a view to increasing sales.

The unfortunate position previously referred to under which Imperial Bee brand New Zealand honey was removed altogether from the market has been very capably handled, and goodwill so endangered is being satisfactorily regained.

Of the 1,218 tons of honey received by the Auckland depot, 801 tons were shipped overseas, which again emphasizes the essential value of an export market in order to maintain reasonable selling-conditions in New Zealand. The Dominion is second only to Canada in the quantity of honey shipped to the United Kingdom, and continues to be second to none in quality and popularity with the British market.

With the anticipated increase in production due to reliable marketing conditions, it is essential that the overseas sales coverage be increased, and the Division is well seized of this need.

In June the annual conference of the National Beekeepers' Association was held in Hastings, when the Division was represented by the Director and officers of the Honey Section. Appreciative references were made to the Division's work, and at the same time suggestions were offered and received for the improvement of conditions in the industry and for more effective working of the Government's scheme of orderly marketing.

[The foregoing extracts are published in accordance with a resolution adopted at the Annual Conference of the Association held in Hastings in 1939. The Minister of Marketing advises that the report for the year ended March, 1940, is not yet printed, but that a copy will be made available at the earliest possible date.—Editor.]

INFORMATION CIRCULAR No. 15

The attention of suppliers is drawn to an amended Information Circular (No. 15) that will be issued shortly. The whole of the circular is important as it gives full information respecting the packing, branding and consigning of honey, specifies defects which will make honey unacceptable, and contains a full copy of the Honey Marketing Regulations, 1938. This circular should be read carefully and kept for reference.

South Island suppliers and North Island suppliers who have formerly shipped their honey to the Auckland Depot from nearby ports should particularly note the new consigning arrangements.

South Island suppliers proceed as follows:—Consign at the nearest railway station, address consignment note "Internal Marketing Division, Auckland Wharf," and mark the consignment note "Honey extracted, locally produced. Ship by cheapest route; freight account (showing railage and rail mileage) to be sent to the Internal Marketing Division, Honey Section, P.O. Box 1293, Auckland." A specimen consignment note will be sent with the circular. Do not use this but keep it as a copy. Cases shipped from the South Island should be well nailed.

North Island suppliers: An arrangement has been made with the Railway Department to carry honey from localities in the vicinity of the ports of Napier, Wellington, Wanganui and New Plymouth, at local rates. It will now be as cheap and more convenient to forward honey by rail. Producers in these localities are therefore advised to consign their honey, by rail, addressing their consignment notes "Internal Marketing Division, Auck-

land" and marking the consignment note "Honey extracted, locally produced."

Other special points to be noted are:—

Paragraph (1). Period for receiving honey.

Paragraph (3). Packing.

Paragraph (4). Branding.

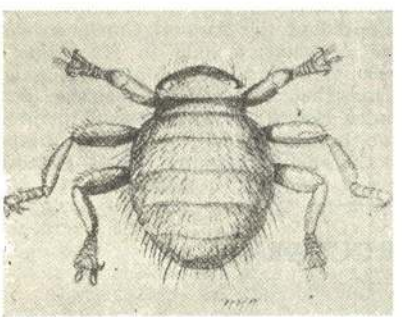
Paragraph (6). Advising Consignments.

Paragraph (8). Sub Paragraphs (b), (c), (d), and (e).

Paragraph (11). Forwarding advice of honey it is intended to supply.

As regards the latter, the difficulty in forecasting the amount of the crop is fully understood. Still, by the end of February, a producer could supply useful information as to the probable crop and the amount they could supply. This matter is this year of the first importance to producers. Our shipments to the United Kingdom are now subject to a quota and unless we have the advance information enabling us to make satisfactory arrangements we will be left with a large portion of the crop, probably in excess of local requirements. This will effect both local sellers and suppliers. Producers will therefore appreciate that it is worth their while supplying the information asked for as soon as an estimate is possible.

THE BLIND BEE LOUSE.



Braula coeca, the bee louse, greatly enlarged. (Drawing by W. R. Walton.)

This parasite is a very peculiar type of fly, so peculiar, in fact, that it is given a separate family all to itself, Braulidae, the louse itself being named Braula Coeca.

It has extraordinary claws on its feet, like curved combs with many teeth. When it wants to feed, it creeps down from the bee's back over the front of the bee's head and tickles the bee's mouth with the combs on its feet. This causes the bee to regurgitate a droplet of honey, which is eagerly lapped up by the parasite. When it has had enough, the louse retires once more to its usual position on the bee's back, where it does little, if any, harm.

Owing to its parasitic mode of living, the fly has lost its wings and has also become blind. Its life history is interesting, although one is left wondering rather more than usual as to why Nature should—bother.

The flat, white egg deposited by the bee louse on the comb hatches in about ten days into a maggot very much like an ordinary housefly maggot, only much smaller. The young larva creeps over the comb until it finds its way into a cell which is occupied by a young bee grub. The maggot takes up its abode alongside the bee larva and feeds on the food supplied by the nurse bees to the grub. The maggot is so small that the quantity of food which it takes does not make any difference to the bee grub. The two grow up side by side in the cell.

When it is fully grown, the louse maggot fixes itself to the side of the cell and changes into a chrysalis. A little later the bee grup reaches full size and it also changes into a chrysalis.

The adult louse emerges a little before the bee so that, by the time the young bee comes out, the louse is there waiting to get on to its body. Thus the young adult, furry worker-bee emerges from its cell with its own particular Sinbad, that has grown up beside it, perched on its back.

(Acknowledgements to "The Indian Bee Journal," and S. H. Skaife, M.A., M.Sc., Ph.D., in "Cape Times.")

POLLEN IS VITAL.

Somewhat like human beings, bees do best on a mixed diet and the best brood conditions always occur when there are several kinds of pollen available, according to Thos. Armour in "The Australian Bee Journal." He considers that honey is not so important so long as it is reasonably good honey, but bees always do better when they are working on blossoms which produce both honey and pollen. A number of good forage plants in Australia is listed, including Cape Weed and Ti-tree, which have no equal for producing strong, vigorous bees, but bees, in Mr. Armour's opinion, do noticeably better when they can also gather pollen from a mixture of shrubs and cultivated plants such as Iceland Poppies, Pussy Willow and other kinds of Willow, and Cape broom and even rib grass and carrot grass are helpful.

It has been estimated that a strong colony of bees gathers about 3 lb. of pollen in a day during spring, and brood rearing must be restricted if there is any shortage of it. ("Agricultural Gazette of N.S.W.")

A report in "The American Bee Journal" mentions experiments carried out by Frank Todd of the Federal Bee Culture Station at Davis, California. This investigator has made a careful study and has trapped pollen from the legs of bees. Such pollen has been carefully weighed, classified and preserved so as eventually to determine the best possible way of furnishing to bees the required amount of pollen in territories where a sufficient amount cannot be gathered by them.

It takes forty pounds of pollen for an average colony of bees to carry on its breeding activities during a single season. This amount of pollen would fill twenty-two standard Langstroth combs and, if a colony does not have pollen in sufficient quantity, its breeding of bees will be seriously handicapped.

APIARY NOTES.

BY "HONEYBEE" IN "THE WEEKLY NEWS"

MANIPULATION OF HIVES.

Increasing Bee Strength.

Colonies that are wintered on the correct number of combs for their strength, will usually start their brood nest near the entrance. If the entrance be the sunny, or warm part of the hive, the brood nest will almost certainly be there. If the hive be opened, the brood will be found on the front ends of the combs, and honey in the back ends.

The colony may have brood in four or five combs, with only sufficient bees to fully care for this amount. It would be dangerous, in these circumstances, to "spread" the brood, but, by manipulation, the bees could be induced to achieve the "spreading" themselves, as compatible with safety. This may be done by turning all the frames of brood in their exact order so that the honey-filled ends faced the entrance. The bees would as rapidly as possible seek to extend the brood nest to the sunny entrance and would remove the honey from the brood combs to other parts of the hive.

This activity would result in stimulation of the whole of the hive activities, with greater consumption of stores, better feeding of the queen (and thus more prolific laying), of the nurse bees (and thus of the young brood), and result in the speeding up of brood rearing, and in the production of more vigorous and more active bees. The greater consumption of stores would be amply repaid by the increased hive strength, as bee strength at the commencement of the honey flow is shown in terms of crop.

This method is a safe one. Where there is a greater bee strength than is necessary to cover and care for the brood in the hive, it is good management to lead the bees to pursue a policy of brood expansion.

In the degree in which there is an excess of bees, the following methods may be considered: (a) To reverse every second comb of brood (end for end). This is a small step. (b) To place the outermost frame of brood (usually with a patch as large as a hand) in the centre of the brood nest. This is a more severe treatment. (c) To place an empty worker comb in the centre of the brood nest. This is a serious matter, and may result in disaster in case a spell of cold, stormy weather ensues. (d) To place all brood, from the different storeys in the hive, down into the bottom (the brood nest proper). This should be accompanied by the removal of all spare supers of combs, where the bees are wintered in more than one storey; otherwise chilling may result.

Following any of these methods of manipulation, and the consequent hive activity, great attention must be given to the adequate supply of stores in the hive.

PROVIDING HIVE ROOM.

Arranging Frames in Supers.

The increasing bee population in the hives is making it necessary for room to be given to the colonies by way of adding supers.

A sound method of doing this must be adopted to avoid injurious effects, if there are sudden changes of weather. A good practice is to put all the brood possible in the brood chamber. If there are, say, four frames of brood left over, they should be placed in the centre of the second storey, and the space filled with empty combs. Four combs partly filled with honey should be placed in the centre of the third storey, and two empty combs each side.

When all are in position there will be:—Brood chamber, nine frames of brood; second storey (or first super), three empty combs, four frames of brood, and two empty combs; third storey (or second super), two empty combs, four combs of unsealed honey and two empty combs. The empty combs may be replaced with frames of foundation.

When the foundation is nearly built out in the third storey, a fourth may be added, half combs and half foundations. The two nearly completed combs on each side in the third storey are put in the middle of the fourth storey, and four empty combs or frames of foundation put in their place; and so on up to six storeys.

In each storey above the brood chambers it will be noticed that four combs partly filled with honey occupy the centre position. These four combs prevent the queen from coming up into the upper storeys, and do it without hampering her unnecessarily. The supers have only eight combs, which give full "fat" combs of honey that are such an advantage in extracting.

SWARMING.

Simple Method of Control.

Swarming has begun in warm localities in the Auckland district, where a honey flow from willow, fruit bloom or other sources has been experienced. Beekeepers will therefore need to be most vigilant in giving their bees super-room just in advance of their requirements, and in replacing failing queens with vigorous young ones before the colony decides to rear queen cells.

A good method of checking the swarming impulse is as follows:—All hives should have been cleaned of debris and propolis, and the frames made to move freely in the supers for rapid manipulation. Commence at colony No. 1 and find the queen. Place her with the frame she is on, in an empty hive alongside the parent colony, but facing in the opposite direction. Remove three or four more frames of sealed brood and adhering bees, and put them along with the queen. Fill up the empty space with frames fitted with full sheets of foundation or with combs. Sometimes it is well to give a frame of honey if the weather is not just right.

Secondly, on the eighth day, cut out all queen cells. Your parent colony is now hopelessly queenless and broodless and consequently out of normal condition. Bees not in a normal condition will lose the impulse to work. They will just loiter around (thus reserving their energies) until there is some brood to look after. You may now give the parent colony a ripe queen cell from your breeder queen.

Watch the old queens that were removed from the hives and see how the egg-laying is progressing. When the young queens are mated and laying commences, they will have plenty of room for their energies in that direction, with plenty of field workers and plenty of nurse bees.

The buttercup flow, and the light clover flow, become heavier in December, and eventually reach the main clover flow about December 15.

Thirdly, at this point the old queens are destroyed and the hives to which they were transferred set above the parent hives, with single sheets of newspaper between. A further super should be added on top with empty combs. The bees intermingle within eight or twelve hours and settle down to work harmoniously and vigorously for the newly-strengthened colonies, without a sign of swarming for weeks, and, probably, for the season.

MATING OF HUMBLE BEES.

(By A. F. Lewry)

Whilst hoeing kale in August, my companion and I noticed some humble bees on the ground. On making a closer inspection we found a drone mating with a queen, while another drone was clinging to her.

I took them in my hand, and after a minute or so the queen flew away, carrying with her both drones. This she could do without difficulty because they were only about a third of her size.

It will be interesting to hear if another reader has ever seen such a thing. Surely a queen does not mate with more than one drone?

Mr. A. May or Island Block, Otago, a foundation member of the Association, has recently undergone a severe operation, but we are pleased to learn that he has made good progress and, by the time we go to print, we hope he will be back with his family.

TOPICAL COMMENTS.

OVER-ESTIMATING THE CROP.

You cannot tell how much of a honey crop you will get until it is in the cans. Should weather changes cut off the nectar and you have a hive full of baby bees, they will get hungry. This causes the queen to reduce egg production and your brood chamber does not expand. A thousand colonies in the same location will not average the same as 100 in a yard. It takes at least 2½ lbs. of feed per day to supply any good colony in the working season. It takes four times or more nectar to make ripened honey. Multiply your daily requirements per colony and the daily average gain of surplus honey you would have to get before there is to be a substantial paying crop, and you can get some idea as to what a thousand colonies have to bring in, also the amount of nectar a bee range produces. ("The Beekeepers' Item.")

GIVE THE BEES A CHANCE.

Needless manipulations during a good flow result in the loss of from ½ lb. upwards of honey. Watch the entrance instead of looking inside! A queenless stock, in early summer, is unlikely to be carrying pollen in energetically. In any case, if you suspect it to be motherless and it is working well, why not wait till the flow is over before interrupting its labours? A diseased colony is also unlikely to be working well, unless the infection is very recent (when you will probably fail to detect it if you do manipulate, and may cause drifting). Any sudden change in temper is most likely due to the weather, and not a cause for anxiety. If you must prevent swarms, you may feel obliged to manipulate; but remember that the disturbance may easily cause a stock that had no thought of swarming to start preparations, and so bring about the very trouble you feared. In general, a stock that is working well and carrying in nectar (bees without pollen coming home heavy and tired) is much best left alone. Remember the story of the beginner who never got any honey till his friend the expert—suspecting the reason—persuaded him to exchange his very docile and alleged unsatisfactory bees for a colony of demons. His new bees soon cured the beginner of his secret vice of continual manipulating, and gave him a good crop in consequence. ("The Bee World.")

ABUNDANT NECTAR NECESSARY FOR SURPLUS HONEY.

Some beekeepers seem to think that all that is necessary to secure surplus honey is to place supers on hives of bees, to be filled. If this were all there is to it there would be no crop failures.

In order to secure the maximum honey crop there must be: (1) very populous colonies of bees, superior in honey-gathering qualities, ready for the honey flow; (2) good beekeeping equipment; (3) intelligent apiary management; (4) a good beekeeping location which means an abundance of honey and pollen plants; and, last, but not least, (5) favourable weather for nectar secretion and bee flight during the time the surplus crop of honey should be harvested. If one or more of these conditions are absent the amount of surplus harvested will be reduced proportionately. ("Gleanings.")

HOW TO KNOW WHEN HONEY IS COMING IN.

Diagnosing conditions at the entrance is not difficult if one knows how. Here are a few things that can be seen without opening a hive and yet will give a fair estimate of what is going on.

(1) Bees coming out and flying in at the entrance in large numbers may indicate a light flow of nectar.

(2) If they drop down with their bodies podded out it may mean a heavy flow.

(3) If again on the same day at nightfall, bees can be seen in large numbers on one side of the entrance fanning air into the entrance and on

the other with their bodies reversed and fanning moist air out of the entrance, it may be assumed that a large amount of nectar has been gathered and that they are reducing the water content down to specific gravity of honey.

(4) If the bees are busy all day going in and out of the entrance and yet do not fan at the entrance at night it may be guessed that they consume the nectar gathered in brood rearing or as fast as it came in.

(5) When bees go out in great clouds in one or more directions from the apiary and return flying low, nectar is coming in.

(6) If they fan at the entrance at night, the bees may need more supers.

At the height of the season it is often impossible to examine hives and these surface manifestations may show when and where to put on supers and at the same time save a lot of work. ("Gleanings.")

A SURPRISE IN NECTAR SECRETION.

It is generally believed that nectar secretion is favoured by cool nights and warm days; that extremely hot days and hot nights retard secretion. While both theories are probably true, this season with its frequent rains and chilly sub-normal temperatures has given us some new surprises.

As soon as the rains began to let up, but with the mercury at 53 deg. F. at night and 65 deg. during the day, bees began to drop down at the entrances heavily loaded with nectar. The surprise came when honey came in so freely under such unfavourable conditions. The ground was soaked. The clovers, white and alsike, were in prime condition. Even though the mercury was down to 60 deg. bees began bringing in nectar and at 65 they were almost up to the peak. It was noticeable that when the mercury at night was 55 deg. F. and then jumped up to 70 and 75 deg., the number of bees going in and out of the hives increased, and correspondingly, honey storage increased.

It has not generally been believed that bees would store honey at a point below 70 deg. F., but apparently if the deviation in temperature between night and day is great enough they may do so, provided the plants are well watered, as they were this season. ("Gleanings," August, 1940.)

WEIGHT OF BEES.

Some work done years ago on measuring the weight of bees seemed to show that there were from 4000 to 5500 worker bees to the pound. Five thousand empty bees to the pound has for years been accepted as the correct average.

Later work by the U.S. Bee Culture Laboratory under Jas. I. Hambleton, showed this figure was too high. Mr. Hambleton, under date of July 23, 1939, write as follows:—

"We find it unreliable to use the common figure 5000 bees to the pound; consequently, we always take a representative sample, weigh this, count the bees and then make the calculation of the number of bees to the pound. In Technical Bulletin, No. 309, "The Development of Package Bee Colonies" (page 24, table 9) Mr. W. J. Nolan gives some figures of the average weight of individual bees received in packages. The minimum average weight for these packages was 102.71 milligrams per bee. It would require 4416 bees of this weight to make a pound. The maximum average weight was 168.06 milligrams per bee or 2705 bees per pound. The average weight samples taken from 45 packages was 135.85 milligrams per bee or 3337 bees per pound.

Mr. Frank Todd, in charge of our Pacific States Bee Culture Field Laboratory, has sent us some data in which the average is only 2608 bees per pound.

Since the number of bees per pound is of particular interest in connection with package bees and since package bees are usually well fed at the time or shortly after they have been put in cages, 3500 bees per pound is probably a more accurate figures than 5000 bees per pound, under average conditions."

There is a slight variation in the size of different races. Taking all these factors into consideration the actual number of bees to the pound may run from 2608 (Todd) to 4416 (Nolan). And so it would seem that 3500 bees to the pound is a safe average. ("Gleanings.")

HOW TO FOOL ROBBER BEES.

A. N. Norton, in "Gleanings."

I have spent over 20 years in trying to figure out the best method to combat robber bees. In my operations, they are about my worst problem. The best plan I have found yet to protect weak colonies from being robbed is to put an inner cover underneath the hive and let the bees use the hole in the centre of the inner cover for their entrance. They soon learn to go out and in and it seems to baffle the robbers to have to go back to that hole and find their way in and out.

This past season I put up nuclei in that way and they were not molested when if they had been in hives with the regular entrance they would have been robbed out promptly. This last fall I found a queenless colony that was being robbed. I gave them a ripe queen cell at the time and put an empty hive body on the bottom board with an inner cover on over it and the colony on top and it baffled the robbers. The next time I examined the colony it had a young laying queen and all was well.

OUT OF HER DEPTH.

The army of beekeeping journalists recently gathered in a new recruit. The great Marie Stopes forsook her crusade for restricting families, and took up the cudgels for increased beekeeping in a recent copy of "The Daily Mirror."

A swarm lit in her garden, and having hived it, she wrote an article on beekeeping. With all due respect to her reputation as a biologist, still I feel that not only did Dr. Marie Stopes write things that were not true, but she was also unwise enough to make certain aspersions on beekeepers as a whole which cannot be anything else but harmful.

She conveyed the impression that it was quite a general practice for beekeepers to feed their bees from feeders in the open.

Let me just quote her own words:—"Have you ever tasted pale, thin, flavourless stuff you are offered as 'guaranteed pure honey'?

"It is got by feeding syrup or sugar and water placed close to the hives. From the point of view of the commercial beekeeper it is a great advantage as the bees save all the long journeys and search from flower to flower, and simply transfer the syrup into the combs.

"And you—poor purchasing mug—are satisfied, because you don't know the taste of real-blossom-busy-bee honey. And the law is quite satisfied because it is quite true that the bees did pack it into the hive!"

We beekeepers know that this is a gross libel, but the cachet of a famous name is considered warrant enough for the truth of such statements. This entry of Dr. Marie Stopes into the ranks of beekeepers has brought more discredit than fame upon our craft.

("The Scottish Beekeeper.")

STRAINING.

The decrease of viscosity of honey to 120 deg. the decrease is hardly perceptible. It is therefore apparent that there is no advantage in heating honey much above 105 deg. Fahr., for the purpose of reducing viscosity when straining, while there is a definite risk of deterioration in quality through overheating when higher temperatures are used.

Counsel (cross-examining Petitioner in Divorce Suit): "Did you not go to the house where your wife was staying and, while she was talking to some other persons, call out, 'Come out you pack of b—s or I will smash the windows!' "

The Chief Justice: "Surely an error in terminology, Mr. Blank—swarm, not pack!"

Prevention is better than cure. Every one who keeps bees in a city or town should, before trouble occurs, give the neighbour on each side a nice section or pail of honey. Where this is done in advance trouble will seldom occur. Honey given to neighbours helps to keep them sweet.

HOW TO PREVENT SWARMING.

By G. W. DEMAREE.

[The Demaree system of management for swarm control or variations of it, has been widely adopted. During his lifetime, Demaree himself modified his system several times. This article is reprinted from American Bee Journal, Vol. XXIX, No. 17, p. 545, April 21, 1892.—Editor.]

When discussing this subject the temptation to argue the question, rather than to rely on a simple description of the manipulation resorted to, to accomplish the object in view, is very great. So many apiarists have imbibed the idea that some sort of contraction of the brood nest is essential to the production of comb honey, if not the extracted article, that any new discovery that runs counter to this idea of contraction meets a deaf ear, if not open opposition.

Let me say, once for all, that when a new discovery is applied to an old system, it often becomes necessary to revise the old system to accommodate it to the newly-applied discovery. These remarks apply not exclusively to the old system of bee culture, but to all systems pertaining to all industries. Those persons who are determined to stick to the old paths of the past, are not in position to profit by any new discovery; and this essay is not written for that class of readers.

When your apiary is as large as you want it, what would you give to be able, by a simple, practical manipulation at the beginning of the swarming season, to hold all your colonies in full strength of working and breeding force steadily through the entire honey harvest? You can do it beyond a doubt, by practising my new system of preventing swarming; and if you have the ingenuity to apply proper management to suit the new condition, your surplus yield will be larger than by any other method heretofore made known to the public.

I have practised the new system largely for the past two seasons, and my surplus yield was never so large, though it is well known that the past two seasons were not above the average as honey-yielding seasons.

As I have already intimated, my plan of preventing swarming, and entirely preventing increase, is accomplished by one single manipulation right at the commencement of swarming. Only one hive and its outfit is used for each colony. Any system that requires a divided condition of the colony, using two or more hives, is not worthy of a thought.

In my practice, I begin with the strongest colonies and transfer the combs containing brood from the brood chamber to an upper story above the queen excluder. One comb containing some unsealed brood and eggs is left in the brood chamber as a start for the queen. I fill out the brood chamber with empty combs, as I have a full outfit for my apiary. But full frames of foundation, or even starters, may be used in the absence of drawn combs.

When the manipulation is completed, the colony has all of its brood with the queen, only its condition is altered. The queen has a new brood nest below the excluded, while the combs of brood are in the centre of the super, with the sides filled out with empty combs above the queen excluder.

In twenty-one days all the brood will be hatched out above the excluder, and the bees will begin to hatch in the queen's chamber below the excluder; so a continuous succession of young bees is well sustained.

If my object is to take the honey with the extractor, I tier up with a

surplus of extracting combs as fast as the large colony needed the room to store surplus. Usually, the combs above the excluder will be filled with honey by the time all the bees are hatched out, and no system is as sure to give one set of combs full of honey for the extractor in the very poorest seasons; and if the season is propitious, the yield will be enormous under proper management.

The great economy of this system is, all the colonies will produce as nearly alike as can well be—a condition of things that never occurs in any apiary swayed by the swarming impulse. If my object is fancy comb honey, I tier the section cases on the super that contains the brood, and push the bees to start all the combs they can; at the close of the season I extract the honey from the combs in the super, and feed it back to properly prepared colonies to have the partly-filled sections completed. The nicest honey in sections that I ever produced was obtained in this way.

To feed back successfully, requires as much experience as any other work connected with the art of producing honey, but the theme is too broad for a place in this connection.

The system above described works perfectly if applied immediately after a swarm issues. The only difference in the manipulation in this case is, that no brood or eggs is left in the brood nest, where the swarm is hived back.

HONEY WAYS.

HONEY SQUARES.

One cup honey, 1 cup brown sugar, 1 tablespoon butter, ½ cup cream, 1 teaspoon lemon extract, pinch cream of tartar.

Put butter, honey, cream and sugar in saucepan, stir over slow fire until dissolved. Boil till it forms a hard ball when tested in cold water. Remove from fire, stir in extract, pour in buttered tin and mash into squares before cold.

HONEY PUDDING.

Butter a medium-sized piedish and fill with crumbled stale cake and spread on top 2 tablespoons honey. Take 3 eggs, reserve whites of 2 and beat, then add 2 cups of milk. Pour over the cake, stand piedish in dish of cold water and bake in fairly hot oven till set. Beat egg whites to a stiff froth with a little sugar, spread honey on top of pudding, then pile beaten egg whites on top and return to cool part of oven to brown slightly. Serve with whipped cream.

HONEY DROPS.

One egg, ½lb. honey, 2 tablespoons butter, 3 small cups flour, grated rind of 1 lemon, 1 teaspoon baking powder.

Cream butter and honey, add beaten egg, flour, grated rind and baking powder. Put in paper cases, brush with milk and sprinkle with sugar and put a small piece of lemon peel on top. Bake in a quick oven 15 minutes.

HONEY DATE BARS.

One egg, 3 cups honey, ½ teaspoon baking powder, 2½ tablespoons flour, few grains salt, ½ cup dates and ½ cup chopped nuts.

Beat egg until light, add honey, then dry ingredients sifted together. Stone and chop dates and add to mixture with chopped nuts. Line a tin 6½ inches square with greased paper and pour in the mixture. Bake in a moderate oven for 25 minutes. When cool cut in strips 2 inches long and ¾ inch wide. Roll in powdered sugar and keep in an airtight tin.

—Mrs. Bond, 16 Rhode Street, Carterton, in "N.Z. Truth."

CORRESPONDENCE.

85 Scott Ellis Gardens,
London, N.W.8.
7th August, 1940.

To The General Secretary,
National Beekeepers' Association of N.Z.,
Pungarehu, Taranaki, N.Z.

Dear Sir,—I have the honour to acknowledge with many thanks the cordial Resolution passed on by behalf at the 27th Annual Conference of the National B.K.A. of N.Z. held at Wellington in April. This message came as a complete surprise to me.

For many years I have been interested and enthusiastic about the beekeeping industry in the Dominion in all of its phases.

The kind appreciation of my services at the recent Conference held at the N.Z. Centennial Exhibition was very gratifying to me, as what little I have been able to do for the Craft and Industry in the Dominion was always a labour of love.

With all good wishes for your continued success in the future.

I remain, Sir,
Yours faithfully,
LEONARD S. HARKER.

To the Editor.

Sir,—As my name is figured in the headline news of the last issue of the Journal I wish to place my point of view before your readers.

With regard to the Executive dissociating itself from my action in writing direct to the Minister, re a certain Court action.

I have no grievance over this matter, but wish to state my action was endorsed by my Branch, that I have nothing to feel sorry for, and would do the same again under similar circumstances.

The remit from North Taranaki is really too trivial to worry about, but the motive behind it is quite another thing.

You admitted Sir that this resolution was passed at your suggestion, and after the failure to tack any disgrace on me for presuming to represent the Taranaki beekeepers, you changed your ground somewhat, and in the last issue of the Journal you endeavour to prove that I have suggested we are not a true Branch of the National.

Well I frankly admit I should have signed myself President of the Taranaki Branch of the National, and not Taranaki Beekeepers' Assn., but surely it did not need a remit to Conference to clear that up.

As far as being a branch of the National, a glance at the minute book will prove we have been the Taranaki branch for 13 years and you Sir as General Secretary have received our branch subscription which included my own personal contribution for Insurance surcharge.

At the request of Mr. Field I met the executive before the Wellington Conference, and to save any discord at Conference this matter was discussed and it was agreed a statement would be read at Conference and published in the Journal.

This statement you Sir read at Conference to the effect that I was in order in signing as President of the Taranaki Association, and should have been published in the Journal without derogatory comment, or such terms as not strictly out of order.

And after all this Mr Editor you actually suggested at our last meeting that we do not alter our name to that of South Taranaki, so I presume you have discovered that the North branch is a hobby man's branch and that our branch does actually represent the commercial men of Taranaki.

I suggest therefore Mr Editor that in future before attempting to use a neighbouring association to stir up feeling between branches, and to litter up the pages of our Journal, that you choose a matter of some consequence to the industry.

The fact that the whole matter was so trivial, and yet occupied such a prominent part in the last Journal is only in keeping with your plan to discredit the Control Board and all associated with it.

I am open to take all the criticizm that comes provided it has to deal with the policy and recommendations the Board has supported.

In closing I would reiterate the words of the Editor of N.Z. Honeybee in his final pamphlet to the industry.

"The opportunity for service to the industry exists to-day as never before, and granted that the new Journal is conducted upon the principle of high service with constructive impersonal positive and educational ideals, the power and influence of the Journal for good should grow to an extent hardly dreamed of."

Yours, etc.,

H. R. PENNY,

President, Taranaki Branch of National B.A.

Okaiawa,
27/9/40.

[We are sorry to have hurt Mr. Penny's feelings, but the report in question was based on the minutes of the meeting to which Mr. Penny refers. We are not aware of having changed ground. The following statement, which was read out at the last Conference, was prepared in collaboration with Mr. Penny:—

"The North Taranaki Branch will be informed that Mr. Penny was in order in signing as President of the Taranaki Beekeepers' Association owing to the name of his branch never having been changed by formal resolution, but in view of the formation of a branch in North Taranaki the members of the Taranaki Beekeepers' Association are to be invited to consider the desirability of changing the name of their organization to 'South Taranaki Branch' of the Association, and a note to that effect will be published in the next number of the Journal."—Editor.]

AN INSECT TRAGEDY.

(To the Editor).

Sir,—On approaching a clump of michaelmas daisy one day early last May, I witnessed an insect tragedy. I heard a buzzing sound such as when a bee is caught in a web. Investigation disclosed that the sound emanated from a bee which was in the clutches of a large green mantis. The bee was soon quite helpless and the mantis held down one leg and the wings of one side, while the other wings were tightly clutched and held up so close to the bee's body that they probably were broken.

While its victim was still alive, the mantis proceeded to consume her head! At that stage I went to get a magnifying glass and returned just in time to see the remains of the back of the bee's head fall off and then, after eating part of the thorax, the mantis began on a leg which was entirely devoured.

At this juncture, a second similar buzzing sound drew my attention to a second mantis with another bee. She was held by the head with one claw, while a second leg and claw clasped her round the narrow part of her thorax in a stranglehold.

When at length I departed, the first mantis was still holding a little piece of the hollowed out end of a bee's abdomen—all that remained of the first victim.

The mantis appears to be exceptionally plentiful here this year and our pet cats often catch and eat them. Could any of your readers tell me if it is common for bees to be preyed upon by the mantis?

Yours, etc.,

D. M. DALGLIESH,

Hastings, H.B.

20/5/40.

[We remember once seeing what, in our schooldays, we called a "dragonfly," eating a bee which it had apparently caught on the wing near the hive, since it was perched on the hive cover. The prey, in this instance, was also consumed head first.—Editor.]

DEPARTMENT OF AGRICULTURE
HORTICULTURE DIVISION

PART-TIME APIARY INSPECTION.

Arrangements for beekeepers to act as part-time apiary inspectors were completed early in September this year, and the work of inspection has already started in most localities.

So that the work will be put through as expeditiously as possible, appointments have been made from the ranks of beekeepers suitably situated in the areas it is proposed to cover. In the majority of cases the men appointed have the full approbation of the National Beekeepers' Association.

Each part-time inspector is allotted a specific area, and is required to officially inspect all apiaries specified within that area at least once, excepting those apiaries owned and/or controlled by himself. These latter will be attended to by the permanent inspector.

All visits of inspection and the condition of each apiary are reported to the permanent inspector, who will issue any necessary notices to clean up where disease is found. These notices are to be followed up to see that the work required has been satisfactorily completed.

Over 121,000 colonies of bees were registered in New Zealand by the end of June, 1940. This will give some idea of the magnitude of the work involved.

This year 66 part-time apiary inspectors have been appointed throughout New Zealand, providing 454 man working days.

The success of a scheme of this kind lies in the fact that all districts are inspected simultaneously, and that a complete clean-up is effected at the right time of the year. It is confidently hoped that the renewal of this extension of the inspection work again this year will maintain a high standard of cleanliness in apiaries throughout New Zealand.

All beekeepers can help to raise the standard of commercial beekeeping in New Zealand and increase production by co-operating with the inspectors in every way possible. The Apiaries Act provides as far as practicable for the inspection of apiaries and for the control of bee diseases and conditions which are likely to foster them.

Attention is drawn to Section 8 of the Apiaries Act, 1927, which reads:

"Every beekeeper on whose apiary any disease appears shall forthwith take proper steps to cure the same and to prevent its spread, and shall, within seven days after his first becoming aware of the presence of the disease, send written notice thereof to an inspector."

While it may seem unnecessary to report disease after it has been found and thoroughly cleaned up immediately by the beekeeper it is important that he should do so, to enable the inspector to take steps to locate the possible source of the infection and thus prevent a recurrence of the trouble.

Removal of Bees: Section 7 of the Act reads:—

"(1) Except with the written consent of an inspector, and subject to such conditions as he imposes, no person shall—

(a) Sell, lend, or give away any bees for removal to another location;

(b) Remove or transfer any bees to a location situated more than ten chains from where they were previously located;

(c) Take or remove any bee-combs, or other appliances from one apiary to another for the purpose of the extraction of honey, or for use for any other purpose on or in connection with such other apiary."

To meet the requirements of beekeepers operating out-apiaries (free of disease), and for the proper and economic working of such apiaries, seasonal permits may be issued (period 1st August to 31st May each

year), subject to cancellation at any time for non-compliance of the Apiaries Act and regulations made thereunder. **In special circumstances these permits may be extended, but in no case shall a permit be issued to operate over more than one complete season** (paragraph (c). Beekeepers should make their applications early.

All beekeepers must, however, obtain a separate permit from the Apiary Instructor to sell, barter, lend or give away any bees for removal to another location (paragraph (a), and must also obtain separate permits in all cases where bees are to be moved more than 10 chains to a new location (paragraph (b).

Where possible, applications for permits should be made well ahead of requirements, to avoid delays at times when the permanent inspector is away from his headquarters attending to field inspection work, and all applicants should state the location from which the bees and apiary appliances are to be moved, also the final destination.

Heavy penalties are provided where beekeepers fail to comply with the requirements of the Apiaries Act and regulations thereto. It is hoped, however, that beekeepers will co-operate as much as possible with the Department to avoid the necessity of more drastic action becoming imperative.

"THE N.Z. BEEKEEPER"

This Journal is issued free to all members of the National Beekeepers' Association of N.Z. Future numbers will not be forwarded to members who are in arrears with their subscriptions to the Association.

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Literary contributions and advertisements must be in the hands of the General Secretary, National Beekeepers' Association of N.Z., Pungarehu, Taranaki, N.Z., 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.

ADVERTISEMENT RATES.

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Open Letter to Beekeepers

Dear Sir(s),—

You are aware that it has been our practice for many years past to issue an annual Price List, but in view of the present state of emergency we have decided that no useful purpose would be served by issuing a Price List for the 1940-41 season.

As a result of import restrictions and war conditions there is a good deal of uncertainty as to supplies and prices of raw materials and finished goods. Consequently any prices quoted in a printed list may, in a number of instances, have little relation to prices current at date of delivery.

We feel the only use of a Price List, under present conditions, would be to remind our clients of our continued existence. Our goodwill is such that we consider it unnecessary to issue a list for this purpose only, and you may rest assured that our price list will again be issued as soon as we feel the time has come when firm prices can be quoted and when a printed list can be a useful guide to you in placing orders.

In the meantime we will endeavour to keep prices as low as possible in accordance with changing costs, and, at the same time we will do our utmost to give you as adequate service as possible under present difficult trading conditions.

As costs and selling prices become known these will be communicated to our Provincial Agents, to whom clients in the various territories should apply for quotations.

Yours faithfully,

The Alliance Bee-Supplies

Company, Limited

MASON STREET, DUNEDIN

Postal Address:
P.O. Box 572,
DUNEDIN.

Telegraphic Address:
"Beeware,"
DUNEDIN.

HECTOR C. MATHESON, PRINTER, TIMARU