

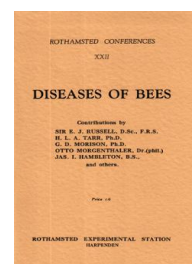
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ROTHAMSTED  
RESEARCH

## Diseases of Bees

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## Discussion

### Rothamsted Research

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## DISCUSSION

MR. L. ILLINGWORTH (Cambridge) gave the following brief account of the proposed Foul Brood Insurance scheme.

On July 8th, 1936, a Society named BEE DISEASES INSURANCE, LTD., was registered Under the Industrial and Provident Societies Act, with Dr. A. L. Gregg as chairman, Dr. F. Thompson and Messrs. B. C. Berkeley, C. W. Bowell, W. E. Hamlin, J. E. Swaffield, and C. Wilkinson as Directors, and myself as Secretary.

A circular letter describing the aims and objects of the Society has been sent to every Beekeepers' Association in Great Britain.

It is too early to predict what response the Associations will make to this invitation to join the scheme, as most of them will not hold meetings to consider the question before the autumn or winter. The Barnet B.K.A. has definitely decided to come in, Cambridge and District will almost certainly do so, but Cornwall, Norfolk, Warwickshire, and Worcestershire cannot see their way to join, or propose to take no action at present.

The scheme is quite frankly an imitation of the Foul Brood Insurance system initiated by the late Dr. Leuenberger, which has proved such a success in German Switzerland, having now been in operation for nearly 30 years. The small committee appointed to draw up the scheme has carefully considered what modifications are necessary for Great Britain, and has prepared bye-laws and regulations covering every department of the Society's activities, as well as providing for the representation of the subscribing Associations, so that each may have a voice in the working of the scheme. These will be laid before a meeting of delegates from the Associations for approval or modification, to be held during the coming winter as soon as it is known which Associations will join.

This is all the information about the progress of BEE DISEASES INSURANCE, LTD., that can be given at present.

In the moment or two that I have left it may be well to outline the main features of the scheme and to answer one or two objections. For fuller information I must refer you to the registered rules of the Society and to the circular letter already mentioned.

BEE DISEASES INSURANCE, LTD., is not founded for private profit. After providing a reserve fund sufficient for all eventualities all further profit, as well as interest on that fund, will be used to promote bee disease research, or returned to the Beekeepers'

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Associations in the form of grants, as the Directors, with the approval of the representatives of the Associations, may decide.

Subscribing Associations will be required to take up five shares of £1 each for every 100 members only 4/- per share being payable the first year. It is hoped that it will be unnecessary to call up any more money on the shares, so there will be no annual payment. Thus Associations will only be asked to pay £1 for every 100 members.

In addition there will be an Annual Premium of 1d. per colony of bees (spring count), minimum 6d.

Some Associations seem to think this is more than they can afford. It is difficult to see how the annual premium can be less than 1d. The chairman of one B.K.A. has offered to pay the 6d. minimum for all the members the first year. Where an Association has a number of very poor members cannot this excellent example be followed?

As to the initial payment on the shares, even this has been criticized in some quarters. £1 per 100 members the first year only, does not seem very much to ask for, as the Society must have some working capital to start with. If beekeepers really want foul brood control will they not be willing to make some slight sacrifice to obtain it? Surely, if an Association has no funds to pay for the shares, there is one beekeeper in a hundred who would give £1, or eight who would be prepared to give 2/6 to get control of foul brood.

Let no Association say that there is little disease in its territory and therefore it has no need of foul brood insurance. This is a national scheme. Only by receiving a large number of premiums from areas where there is little disease can we hope to weather the first few difficult years, and set the scheme on a firm financial basis. You can help to make it a success now. If it fails it will be many years before another plan is tried. Your county may not always be as free from disease as it is to-day. You may one day be glad of the help BEE DISEASES INSURANCE, LTD., can give you.

DR. A. L. GREGG stated that the research on brood diseases which was being conducted at Rothamsted had reached a critical stage, and that there was every hope that, if it could be continued, some tangible result might be reached. The beekeepers would, he said, be very foolish were they to let slip the opportunity of continuing this research. He proposed the following resolution: "That this Conference considers that the Beekeepers' Associations should continue to provide the financial support required to ensure the continuance of the foul brood research at Rothamsted."

The motion was carried.

MR. LINDLEY (Gloucester) said that he felt that the work on brood diseases was extremely useful and on behalf of the newly formed Honey Producers' Association offered the sum of five pounds a year for three years in support of the work. (This contribution has since been increased.)

MR. W. HERROD-HEMPSALL (Ministry of Agriculture), said that he had listened with great interest to the papers, especially to the excellent one by Jas. I. Hambleton, chief of the United States Bee Culture Laboratory. He believed that we might eventually be compelled to adopt the plan now being followed in that country. When visiting the United States he had an opportunity to see the terrible ravages caused by foul brood. This occasion gave an opportunity to address a solemn word of warning to beekeepers in the British Isles. During the last three years foul brood had spread to an alarming extent, indeed, in some districts, it is endemic and a serious menace to the industry. He stated that he had inspected apiaries in which all the colonies were affected with brood disease. In England, Scotland and Wales to-day there are thousands of bee colonies affected with brood disease.

He went on to say that in the annual reports of beekeepers' associations it is not unusual for the statement to be made that: "no brood disease is present in the county." Such statements, made in good faith, are misleading because one of the troubles we are faced with is that many beekeepers are obsessed with the idea that the presence of disease in their apiaries is a disgrace and a reflection on their management. Consequently, when an outbreak occurs, they conceal the fact from the association officials. One must also take into account the large proportion of beekeepers who are not members of an association, and from whom no information is available as to the condition of their colonies. He, personally, begged beekeepers, when in doubt about the health of their colonies, not to be reticent, but to obtain the advice of a competent person immediately. Rothamsted provided such advice.

The following note from COLONEL HOWORTH, C.M.G., of Devon, was read as he was unable to attend: "My original communication on the use of the Frow treatment for acarine disease was published in the *British Bee Journal*, June 7th and 28th, 1928; since then I have distributed some 30,000 leaflets describing my method. I know of only one instance in which complete extermination of the mites was not effected (I am satisfied with nothing less than 100 per cent. mortality among adult mites and their eggs, although this entails some risk to the bees.) Mr. Frow's method differs from mine in that he applies the treatment from above the bees, whilst I, holding that the temperature is always lower and more equable on the floor board, apply the remedy there. He also uses a smaller dose and permits treatment during the brood-rearing season, whilst I use a larger dose and place a section rack or shallow below the brood-chamber, and have found that the brood of the bee suffers during the treatment."

The following notes with reference to "Bee Paralysis" have been added since the Conference.

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BROTHER ADAM, O.S.B. (St. Mary's Abbey, Buckfast.)

Bee Paralysis can cause serious loss to the beekeeper. In cases where this disease has been allowed to develop unchecked I have seen colonies perish outright, the dead bees accumulating within the hive between the combs to a depth of six inches.

The most conspicuous symptoms of paralysis are that the affected bees become denuded of hair, possess a distended abdomen, present a glossy black appearance and are bereft of all power of locomotion. They seem listless and can but feebly flutter their wings. When in this condition the diseased bees are evicted, to perish outside their home, by the still healthy members of the colony. The decomposing bodies, as they accumulate in front of the hive, give off a most obnoxious odour.

Paralysis attacks bees principally during the early part of the autumn. However, minor infestations may occur at any season of the year.

Disinfectants, even if used in strong solutions, impart not the slightest relief to colonies affected by this disease, whereas dusting the bees with flowers of sulphur has never yet to my knowledge failed to effect a complete cure. A handful of sulphur, sprinkled over the bees and the tops of the brood-combs, and the same dose repeated a fortnight later, will cure the worst case of this disease.

Apparently certain strains of bees are practically immune to this form of paralysis. On the other hand some strains seem most susceptible to it.

Very little is known of the causative agent of bee paralysis. According to the findings of a Swedish investigator, G. Turesson, paralysis is caused by poisons produced by certain moulds or fungi. By feeding a colony a solution of honey containing such toxins he found that the bees developed paralysis within three to four days and finally succumbed to its effects.

The disease, supposedly caused by *Bacillus gaytoni*, to which Cheshire referred, whilst similar in some respects to paralysis differs substantially from this malady. In both diseases the affected bees present a shiny black appearance. In paralysis, however, the bees have distended abdomens and are deprived of practically all power of movement, whereas in the other disease, according to Cheshire, the bees are "undersized" and found "running" upon the ground.

The disease mentioned by Cheshire appears to be identical to the Schwarzsucht or Waldtrachtkrankheit so common on the Continent. E. Zander distinctly states that bees afflicted with this complaint possess a contracted abdomen. On the Continent this disease occurs chiefly when bees work on the pines, buckwheat, or heather. Instances of this trouble have come under my observation on Dartmoor. The affected bees were undersized, hairless and

jet-black in appearance. After about ten to twenty days all the diseased bees present in a colony seem to die suddenly, or, perhaps, are killed off by the healthy members. They invariably perish suddenly and their dead bodies are found lying outside the hive. But bees that die of this malady do not give off any perceptible odour.

There is a form of paralysis, that is quite distinct from the one first mentioned, which at times causes serious depletion in the strength of colonies. The symptoms of this malady resemble acarine disease in that the affected bees are deprived of the use of their wings. Bees suffering from this kind of paralysis appear to be normal in every respect except that their wings are paralysed and often also dislocated. The disabled bees, mostly young ones, leave and run away from their home and eventually die of exhaustion. They do not form clusters on the ground as in the case of Acarine. The malady comes on suddenly, generally early in July, and again vanishes after a week or ten days. This form of paralysis is no doubt identical to the "Disappearing Disease" that at one time caused such serious losses to many apiarists in the U.S.A.

With the exception of the malignant paralysis all the other diseases mentioned are of transitory duration and affected colonies recover without the application of any remedial measures.

DR. TARR (Rothamsted). It is by no means certain that Bee Paralysis is a single disease, and, as can be seen from Brother Adam's remarks, there is some confusion as to exactly what is implied by this term. Whether such diseases as Waldtrachtkrankheit, Bee Paralysis and Black Robber Disease (Black shiny bees) are distinct complaints cannot be stated with certainty until their causes have been definitely determined. At present there is no accurate diagnostic feature by which these diseases can be distinguished, though the work accomplished by Dr. Morison may provide a useful clue. It may transpire that there are several virus diseases of the adult bee which differ slightly from one another, or that there is a single disease modified by the presence of various bacteria. Until practical experiments have been made, any statements regarding the etiology of these diseases can only be speculative. In this connection it is of interest that Dr. Morison states that Dr. Phillips, of Ithaca, believes that American Bee Paralysis is not identical with the disease occurring in this country. Many beekeepers state that Black Robber Disease or Bee Paralysis can be cured by requeening the affected colony. However, the success of this method cannot be considered as proven, and the reason for it is not known because there is, as yet, no definite indication that the queen carries the disease.

In 1933, Burnside, working in the United States, published a paper entitled "Preliminary Observations on Paralysis of Honeybees." He concluded that the disease is mildly infectious, and often

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disappears of its own accord. Extracts prepared from bees affected with Paralysis in certain cases caused infection in healthy bees, but porcelain filtrates were not, in his experiments, able to cause infection. Burnside (1928) also described an apparently new disease of the adult bee: a septicaemia caused by an organism which invaded the blood of the bee, namely, *Bacillus apisepeticus*. These findings show that much remains to be discovered with respect to some of the diseases of adult bees, and that a large number of such diseases may exist.