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Brood Diseases of Bees

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Foreword

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INTRODUCTION

BY SIR E. JOHN RUSSELL D.Sc., F.R.S.

THE exodus from town to country that has been so marked a feature of the post-war period has led to a considerable increase of interest in beekeeping. Recognition of this fact led the Rothamsted Experimental Station about eleven years ago to include bee investigations in its programme. Prior to that date the Development Commission had given a grant to the Cambridge School of Agriculture to investigate bees, but the work did not fit in well with their other activities, and by agreement between the two Institutes it was transferred to Rothamsted in April, 1923. Rothamsted already possessed a strong entomological department under Dr. Imms, who was personally interested in bees and anxious for an opportunity of studying them. Mr. D. Morland was thereupon appointed Apiarist, and an Advisory Committee of practical bee experts was set up to keep Rothamsted informed about the problems of the industry and to indicate which of the possible lines of work would be of chief interest to practical men. We could not, however, hope to cover the whole field of bee investigations with only one worker, nor was this necessary, as Dr. Rennie was already at Aberdeen studying bee diseases, his work having been inaugurated through the generosity of the late Mr. A. H. E. Wood, who had supplied funds for its equipment and furtherance. All bee keepers are under a debt of gratitude to him for his public-spirited action. In addition, the Ministry of Agriculture provided a maintenance grant. The Rothamsted authorities settled with Dr. Rennie and the Ministry the lines we would each take up: he studied Bee Diseases while we studied the Bee as a Honey Producer.

We always recognised that the arrangement was artificial: that for the beekeeper the problems of honey production and of disease cannot be separated. However, artificial arrangements often work out well when all concerned act loyally together, and had Dr. Rennie lived the arrangement would have continued. But unfortunately for science he died in August, 1928.

We at Rothamsted pay tribute to his memory for his noble self-sacrificing devotion to the task he had undertaken. He was never robust, and many a man in his place would have given up and rested. Yet he never lost courage, but continued to the end a faithful friend and helper of the beekeepers. They lost a good friend in him.

After his death the grant for bee disease investigations ceased. The Bee Advisory Committee urged upon the Rothamsted authorities the desirability of securing funds for the study of Bee Diseases.

Enquiry showed that no Government grants were available for the purpose, and the matter was held in abeyance. The Advisory Committee insisted, however, that steps should be taken to make an attack on the foul brood diseases, and the Rothamsted Committee agreed to do so if funds could be obtained. The decisive move was made by the British Bee Keepers' Association, who secured from their constituent bodies subscriptions enabling them to guarantee a sum of £250 a year for three years, with every probability of continuance, if the Ministry of Agriculture would put up a like sum. The Agricultural Research Council was so impressed with this practical proof of the urgency of the problem and of the deep interest of beekeepers that it made an equal grant, £250 per annum, to bring the income up to £500 per annum, on which sum it was possible to carry out a proper investigation. The Rothamsted Committee placed a very good laboratory in the Entomology Department at the disposal of the bee workers, and provided all ordinary appliances; Dr. Williams, the Head of the Department, entered enthusiastically into the scheme. Dr. Ledingham and the managers of the Lister Institute kindly offered the use of their wonderful laboratories for such bacteriological work as required special technique and costly equipment, and finally several gentlemen came forward, among them Mr. P. C. Thornton, Editor of *Bee Craft*, Mr. L. Garvin, of The Bear Honey Co., and others, to provide funds for the special appliances, which will cost £250 in all, and which are needed over and above those already contained in the well-fitted Rothamsted laboratories. It may safely be said that no investigation on bees has ever been started with such enthusiastic support as this, and the Rothamsted Committee and Staff feel a deep sense of gratitude and responsibility to all those who have made the work possible.

Dr. H. L. A. Tarr, of the British Columbia and McGill Universities, who has for some time been carrying out biochemical investigations under Sir F. G. Hopkins at Cambridge, was appointed in charge of the work, and took up his duties early in 1934. The laboratory thus inaugurated is the first in this country to be devoted exclusively to bee investigations, and the Staff are fully determined that, so long as they are furnished with means of doing research, its work shall come fully up to the high standards of the other Rothamsted Departments.

This Conference was called at the outset of the investigations so as to give the Rothamsted Staff an opportunity of taking council with practical beekeepers and learning whatever is known about the foul brood diseases. The papers here published represent the best existing knowledge on the subject and they form the starting point of Dr. Tarr's work. Like Mr. Morland, he will do his best to keep in touch with practical beekeepers, and, as his work will preclude visiting on any important scale, it is hoped to call two conferences annually, one in summer at the apiary, and one in winter, so as to ensure that beekeepers may know what we are doing, and we may know what their problems are.

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The papers presented at the Conference and the discussions on them bring out clearly a number of important points. There is much uncertainty as to the prevalence of foul brood diseases: some County Secretaries reported that their counties are free, while experts with a wide knowledge of the subject declare they are not, suggesting that the diseases are not always recognised. There is much confusion between the various foul brood diseases: the so-called American foul brood (although it has apparently nothing to do with America except that an American bacteriologist, Dr. G. F. White, first worked at it), the European foul brood (again having no special connection with Europe) and another which Dr. Morison tells us is different from either. There is also much uncertainty about the causal agents. Mr. Chalmers kindly placed before the conference the whole of the results which he and Mr. W. Hamilton obtained in their interesting investigations at Leeds: these will be carefully reviewed by Dr. Tarr. Something is known about the way in which the diseases are spread about the country. Derelict hives apparently constitute a considerable source of danger of infection; and some of the dealers in bee stocks do not appear to take adequate precautions to ensure that their stocks are free from disease. In these various ways the disease is spread; and matters are often made worse by the fact that the amateur, coming new to the work, does not always recognise the initial stages, and with the best will in the world, and the fullest recognition of his responsibility to his bee-keeping neighbours, he may quite unwittingly cause them much loss. As to cures: a common piece of advice is to burn every infected hive, including all its contents. However, nothing can be done with certainty until clear and accurate knowledge is obtained about the causes of the diseases and the life history and properties of the agents concerned. With definite information before them the scientific workers in consultation with some of the ingenious-minded people among the practical beekeepers will find a way of dealing with these diseases and so removing one of the obstacles to a greater spread of the interesting occupation of beekeeping.