

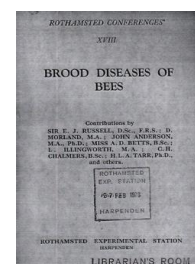
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## Brood Diseases of Bees

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## BROOD DISEASES IN SCOTLAND

BY JOHN ANDERSON, M.A., PH.D.

IN recent times brood diseases do not appear to have been prevalent in Scotland, and there is no evidence that the incidence is increasing with the recent considerable extension of beekeeping. When the late Mr. D. M. Macdonald, examiner for Certificates in Beekeeping for the S.B.A., used to insist that candidates must have seen foul brood, there was usually difficulty in finding samples.

Nine years ago when a stock with foul brood was brought to the "Highland" Show at Glasgow it was found that very few of the experienced beekeepers in the South-West of Scotland had ever seen F.B. Mr. Tinsley, in charge of Beekeeping Instruction in that area, reports very little F.B. in the region. I have heard Mr. Avery, until lately in charge of the South-Eastern Area, say that there was very little F.B. in his district.

The 11 counties attached to the Northern District contain more than half the stocks of bees in Scotland, and I have been touring the area for 18 years. My impression is that brood diseases are not serious.

The North Eastern Area, centred round Aberdeen, comprising the counties of Kincardine and Aberdeenshire, with large parts of Forfar, Banff and Moray, is organised by the Aberdeen District B.K.A., and there are 10 Touring Experts who visit each of the 1,300 members once per annum. The reports of these experts are printed in the Annual Report of the Association and refer to diseases if present. The general impression is that Acarine Disease is less formidable than it used to be and that brood disease is almost negligible. Sometimes the report states that no case was encountered, sometimes a single case, and usually the treatment is by extermination.

By American foul brood we mean that the brood has died after "sealing," the cappings becoming darkened, sunken, and later pierced with ragged holes. In some of the affected brood "ropiness" will be present.

In European foul brood the larvae die usually before sealing. They turn yellowish, and become extended in the cells, losing the characteristic position (like the letter C) on the base of the cell. I have not seen a case of European foul brood for several years. It is believed to be due to general weakness in the stock, and is therefore probably due to a microbe which is frequently present but unable to produce symptoms in well-nursed larvae. Italian bees are said to be less liable than brown bees to contract this disease.

Some stocks have been observed to have some A.F.B. for years without having efficiency sensibly affected. Cases have even occurred in which an affected stock was able to throw off the disease. On various grounds we are beginning to think that some stocks are more liable to be affected than others.

We frequently requeen brown stocks with Italian Queens obtained from a very famous Italian breeder, and quite often the Italian brood in such cases develops A.F.B. We think that this may be due to the Italians, carefully protected from contact with disease, becoming more susceptible, and developing the disease from germs that were unable to produce symptoms in the brood of the brown bees.

In some seasons and districts Chalk Brood may be quite prevalent. It begins in drone brood and sometimes never gets further, but I have known quite half of the worker brood to be affected, and Dr. Morgenthaler reports the same for Switzerland. The larvae become white friable masses, which the bees ultimately throw out. Some may die before sealing but others are capped. The sealing over affected larvae assumes a characteristic membranous appearance, probably due to the removal of some of the pollen and wax in the caps. Extensive infection may almost disappear in quite a short time, but the loss of so many larvae must reduce efficiency.

"Addled Brood," first observed at Inch, Aberdeenshire, was described in the "Scottish Beekeeper" for October, 1925. In advanced cases the whole of the brood dies just before the bees are due to emerge from the cells. The cappings become markedly sunken, and at first one might suspect advanced A.F.B. But when the cappings are removed, by beekeeper or bees, it will be seen that the young bee is fully formed and pigmented. It lies on its back, indicating that it never moved since pupation.

At an earlier stage there may be three categories of brood: (1) normal bees that can fly and work; (2) bees that cannot fly; and (3) bees fully formed and pigmented that do not emerge from the cell.

If the queens of a normal stock and a stock with addled brood be exchanged it will be found that addled brood is due to the queen, and the substitution of a normal queen for the defective queen will remove the trouble.

Parent stock and swarm may display the same symptoms. We are inclined to think this is because the queens are related, for clearly the disease is not infectious.

I have encountered one case in 1934.