

ease, described an organism which he considered to be the causal agent of "Black Brood." He gave the name of *Bacillus millii* to it, from its resemblance to millet seed. The *Bacillus millii* is a spindle-shaped organism, which forms spores, and, according to Howard's drawings, forms two spores in each cell, a rather remarkable occurrence, for in most bacteria, as a rule, only one spore is found in a single cell. No description is given of the germination of these spores, nor the cultural features of this organism, so that, except from its peculiar shape and its ability to form two spores, it would be a rather difficult matter to identify this organism.

Howard claims to have produced the disease by feeding bees with syrup containing *B. millii*.

This disease has also been the subject of an investigation by Moore and White, of the New York Veterinary College, Cornell University. These investigators have examined a number of specimens sent to them during the season, and which were labelled as "Black Brood." The ten specimens of "Black Brood" contained a bacillus which suggested by its constant presence that possibly it was the cause of the trouble. It was thought first that the bacillus so constantly associated with the "Black Brood" was the organism described by Howard as *Bacillus Millii*; but a more extended study of this organism showed that it resembled *B. alvei*, the cause of "Foul Brood." A very careful investigation of this organism from the specimens of "Black Brood" confirmed the identity of the species from the different sources, and the only conclusion they come to was that the prevailing bee disease in the State of New York was similar to, if not identical with, the "Foul Brood" of other states, Canada and Europe.

From this evidence there seems to be doubt as to whether "Black Brood" is a new disease, caused by a new or

partly described organism, or whether it is merely a disease closely allied, if not identical, with "Foul Brood," but occasionally showing appearances which are different from the typical appearance of "Foul Brood." Further investigation will be needed before this question can be properly settled.

"Pickled Brood."—"Pickled Brood" is said to attack the larvae about the time of pupation, and the appearance of the larvae is similar to those that are infected with "Black Brood," except that the brown spot is not present and no decomposition from putrefactive germs takes place in "Pickled Brood." The cappings are usually undisturbed and the decayed brood masses do not adhere to the cell walls. According to Howard, the infection in "Pickled Brood" is in bad pollen, and new pollen always causes it to disappear. The cause of this disease is said to be a fungus (*Aspergillus pollinis*). Moore and White, who examined five specimens of "Pickled Brood," report no fungi present, but various micro-organisms were found, none of which, however, were specific.

"Chilled Brood."—The cause of the death of the larvae from this calamity is cold, as the name correctly indicates. It generally occurs when, after warm weather, which has induced the bees to deposit brood freely, a sudden change takes place or very cold nights set in again. The brood in the outer combs, and where the bees cannot cover them sufficiently, generally suffer most. The larvae may be killed during all stages of their development, but the capped brood rarely suffers to any extent unless the change of temperature is much prolonged. In cases of "Chilled Brood" the larvae turn gray, afterwards the color darkens and in the final stages of decomposition it becomes black. No ropiness develops, and the putrid mass is more or less watery, and its smell is said to re-