

mentally by feeding pure cultures of bacillus larvae there are found the same large number of spores and rods as when the disease is produced by feeding the scales or when the disease is found in an apiary. Pure cultures of bacillus larvae have been obtained from the larvae dead from the disease produced experimentally by feeding pure cultures of bacillus larvae.

Some European investigators of brood diseases omit the symptoms, so that it is impossible to tell which disease they are investigating. Their descriptions of micro-organisms also are entirely too brief. These facts have led to much confusion, and they necessitate much additional work on the part of other investigators. They have also added to the present confusion. From what can be gained from their papers, the author is inclined to believe that Burri has been working with bacillus larvae and has been referring to it as the "bacillus difficult of cultivation;" that Maassen has been working with bacillus larvae and has been referring to it as bacillus brandenburgensis, and that von Buttel Reepen has referred to bacillus larvae as "B. burri." It is hoped that this confusion may soon cease to exist.

In the study of bacillus larvae on this new medium some interesting additional facts have been observed in the morphology and cultural characters of this organism which will be given in a bulletin from this Bureau in the near future. One fact is mentioned now because it seems to have caused one German investigator, Dr. Albert Maassen, to fall into error in the interpretation of certain findings. This fact is that this species, bacillus larvae, produces a large number of giant whips. (Giant whips are at present believed to be in some way a modification of flagella, the motile organs of bacteria. These giant whips appear in

pure cultures of bacillus larvae and persist there for a long time. The structures which Maassen evidently saw and reported in two different publications, naming them Spirochaeta apis, are nothing other than giant whips which normally belong to bacillus larvae, and which are formed by the growth of bacillus larvae in the larvae of the bee.

Maassen seems to have no further evidence that the structures which he saw are spirochaetes than what could be gained by a microscopic examination of the remains of the dead larvae which had suffered from this disease. The appearance which he interprets as a spirochaete in the process of division can be seen in the giant whips obtained from pure cultures of bacillus larvae. These giant whips are found in the decaying larvae which are dead from American foul brood experimentally produced by feeding pure cultures of bacillus larvae.

The author has observed these structures in a large number of examinations of American foul brood, especially in the hanging-drop preparations made directly from the dead larvae. There is nothing else contained in the dead larvae which can be seen that resembles a spirochaete, and since Maassen made no mention of the giant whips found there so abundantly, it is quite certain that he has made this mistake.

This preliminary note will be followed by a bulletin which will contain in full the results of recent investigations by others on the brood diseases of bees and a detailed account of the work done here.

The results may be summarized as follows:

(1) In previous publications the author has made no claim that bacillus larvae is the cause of American foul brood.

(2) A medium has been devised by