the other makes any attempt whatever to justify this charge of ignorance against Cheshire, but Mr. Doolittle proceeds at once to find fault with his teaching, as to the means by which the disease is propagated, and Mr. Jones does his best to back Mr. Doolittle up.

Mr. Doolittle says "the fact remains that where no honey goes no disease goes." This is not true. Hon. R. L. Taylor says there are other means of carrying the disease besides honey, and so many other accurate observers agree with him that the fact is as well established as is the fact that Mr. Doolittle breeds and sells queens.

Mr. Doolittle says "Jones and Root have proven the fallacy of Cheshire's conclusions." They have done nothing of the kind. On the contrary, their conclusions, drawn from experiments exposed to so many sources of error, are wholly unreliable. Mr. Jones, for instance, will feed boiled honey taken from a diseased hive, and if no disease developes he will ask us to believe that the germs were killed by boiling. Although he has no proof whatever, and in fact does not know that the honey contained germs in the first place. He will next feed honey from the same lot without being boiled, and, if foul brood afterward appears, he will ask us to believe that this proves that honey from infected hives always carries the disease, although, from anything he knows to the contrary, it may have been started by germs floating in the air, by bees from diseased hives, or by germs adhering to Mr. Jones' own foulbroody fingers.

Both Mr. Jones and Mr. Doolittle assume that the fasting plan is an infallible method of cure. This is not so. Hon. R. L. Taylor tried it with forty colonies, and he says "in a considerable per centage the disease soon reapperred, and in others after a time." It failed with Dr. Deziertzon in 1848, and with Berlipsch in 1865 and 1867. Cowan and others say they have known it to fail in England. Has it ever occurred to Mr. Jones that it requires very strong faith to believe that it is possible to know when the last particle of honey in every individual bee of the 20,000 or more under treatment has been assimilated. In all Cheshire's theories he never makes such a heavy draft on our credulity as this. There is another explanation for the success attending the fasting cure, and if Messrs. Jones and Doolittle will undertake to study Cheshire without prejudice they will probably find out what it is.

As to honey being a medium for spreading foul brood, after the disease has progressed so far that the decayed matter adheres to the feet and antennae of the bees, and, later on, when the decayed matter dries up, and spores rise from it in clouds, it would be strange, indeed, if the spores were not caught in cells of unsealed honey. Cheshire admits this; he says "such minute bodies as bacilli, produced in inconceivable numbers in the hive—a dead larva containing frequently 1,000,000,000 spores—must occur in honey as an occasional contamination; the bees cannot perambulate the combs without bringing their pulvilli, and the hairs of their bodies, into dangerous contact with them, and so the visits of robbers are likely enough to result in infection of the stock whence they came, while the honey would, by its adhesiveness, aid in carrying away the terrible spores."

Both Mr. Doolittle and Mr. Jones are very emphatic in condemning Mr. Cheshires' statement that foul brood may be introduced with diseased queens. Prof. McLain, Cowan, Schonfeld, Hilbert, and Dr. Lortet, found the bacilli in mature bees, and Hon. R. L. Taylor is certain that worker bees die of the disease in his yard. With such men as these making independent investigations, in different countries, and agreeing as to the results, there is not much danger that there is any mistake about the matter.

Some years ago Pasteur traced the disease called Pebrine to the microbes in the eggs laid by the moth of the silkworm, and from a knowledge of this fact he devised a successful method of extirpating the disease. Cheshire found the microbes of foul brood in larvae just hatched from the egg. He then dissected the queen which laid the eggs, and found the same microbe in her ovaries and eggs unlaid. Through the columns of the B.B.J. he asked for queens from diseased stocks in which the larvae were affected when very young. Amongst the queens sent him he found dozens of cases in which the queen was diseased.

Mr. Cheshire did not find that all queens from diseased stocks were affected. He says probably a majority are not diseased. Hilbert found that out of twenty-five queens taken from diseased colonies, indiscriminately, three were diseased with bacillis alvei. Surely with such evidence before him there was no other conclusion possible to Cheshire but that the disease may be communicated by a diseased queen, although Mr. Jones and the late Adam Grimm may never have observed such a case. And with such evidence before him was Cheshire not justified in saying that it is as absurd to speak of *foul brood in a queen* as it is to talk of toothache in the liver, or rheumatism in a wooden leg. His new name, Bacillus Alvei, is now adopted by biologists the world over.

The true inwardness of Mr. Doolittle's oppo-