



APIARY.

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"FOUL BROOD."

Foul brood among bees, as the name denotes, is a disease of the bee while in the larvæ state. It does not effect the bee after it has attained its growth. The disease originates in this country, from infection only, and spreads rapidly because of its very insidious character. Brood may die in the hives from chilling, smothering, starving, or other cause, decay and create an unbearable stench at a time when colonies are too weak to remove the dead bodies. It will never create the disease "Foul Brood." We may hang these combs containing decaying larvæ in strong colonies, where they will be "cleared out" without the least bad result.

Among the hives of my country apiary I found, about the middle of last August, 2 colonies with fertile workers, which I broke up by removing the hives and giving the brood combs to a young swarm at short distance off. I went out to the farm again about 4 weeks afterward, accompanied by a bee-keeping friend. While I was otherwise engaged, my friend, who is a good bee-keeper, overhauled a number of colonies and found one with "foul brood." He had seen the disease at my home apiary, and knows chilled brood as well as any of us.

In this case, however, I doubted my friend's judgment. Not having salicylic acid at hand, we got brimstone ready and deferred looking at the colony until evening, after we had finished the halving of the bees. I was surprised at the sight; about 4 weeks previous I had put 6 combs full of drone and worker brood, from fertile colonies into the second story of this rather weak one, with all the bees adhering to the comb, and shaking all the bees of both hives in front of this one. The bees had all left to join their old hives; the brood was exposed thereby, and all had died.

It bore a striking resemblance to "foul brood," but the brood, although in an advanced state of decomposition, pulled out whole from every cell with the head of a pin. This is hardly ever the case with foul brood, where the skin appears to decay at the same time with the body, and the dead larvæ appears to be only a soft mass without any cohesion. In order to convince my doubting friend, I placed the combs in second stories of strong colonies, and buried only the most offensive ones. I am certain I made no mistake in the matter, and mention the above in order to bring more light on the subject of "foul brood," and to

contradict and put on their guard those of our friends who still claim that chilling creates "foul brood," or that a good or bad season has something to do with it.

So many sample combs infected with the disease, sent me for examination last summer from different parts of the country, convinces me that the knowledge of foul brood is one of the most important subjects to bee-keepers. Many are aware that my home apiary has been troubled more or less with foul brood for a number of years. I never made it a secret, but showed the disease to every visiting friend for his own information, when ever it was in my power. Foul brood never made any headway with me, and, in no case, was it spread by me, although I sold hundreds of colonies of bees, and a large number of queens. My apiary was free from the disease sometimes, for a year or more, with no sign of foul brood anywhere until the following fall or spring. I would discover again a cell of foul brood, or a number of them in one or more hives. Whenever I noticed these diseased cells in time, before they had thrown out their infectious spores, I made them harmless by means of an atomizer, and succeeded in the majority of cases. The hives with which I failed kept me in "hot water" for months and sometimes for all summer, and then "when patience ceased to be a virtue," they were subject to the radical cure as given in my pamphlet, "Practical Hints to Bee Keepers."

It was a mystery to me what caused the occasional re-appearance of foul brood in my apiary. I know that spores of the disease may be hid for years in crevices in or about the hives, that a diseased larvæ pulled out and dropped anywhere, may infect a bee accidentally alighting on it, but I was so particular to remove all such causes, aided by the peculiar location of my apiary, that I could not believe a friend correct, when he claimed that I infected my bees by the use of salicylic acid.

Light was thrown on the subject last spring and summer. A party about a mile from my house (beehive perhaps 1/2 mile) kept 12 colonies or more of bees for several years, and lost the last one last spring. I was well acquainted with him, but his black bees and old foggy style of keeping them had never excited my curiosity. He came to me about the latter part of May and related that he had kept bees now for 10 years, that he got less bees every year, and that the last colony had died this spring, that a lively robbing had taken place when his last colony fizzled out, and that the robbers were my yellow bees; "and now," he concluded, "can't you buy my hives and combs," etc. I went out and found him in possession of about 600 combs; every one of his colonies had died of foul brood. The combs showed it satisfactorily, and my bees, no doubt, had "saved the pieces," whenever any one of the colonies had given out.

Three of my colonies, apparently, had been participating in the last feast, during the beginning of that beautiful spell of pleasant weather in March. Two of them were put on foundation, and were cured in the same month, while the bees of the third were sold to a druggist (for medicine), and the combs burned. I did not know the source of my trouble until my neighbor saw me in the latter part of May.

If I here give my experience in detail, it is done because I think that in this manner it is more likely to "stick" with the majority of bee-keepers. I purchased the hives referred to above, with the proviso that they be scraped off nicely, and the combs and frames burned before the hives were delivered. This was done. The hives were placed against a dark wall in my

stable, until I should have time to disinfect them. No flowers were then (about June 1) yielding honey, and bees went anywhere to find sweets, in this neighborhood. A lot of honey was lying in the stable, and several barrels were leaking, and when I came into the stable one day, I was surprised at the number of bees rising from the floor, alighting and resting on those bee hives and then making for some small windows under the ceiling. The thought struck me at once that the bees alighting on those hives would take home with them the spores of foul brood. I proceeded at once to disinfect those hives by cleaning them out and moistening every part thereof with the medicine by the means of paint brushes. It was, however, too late. Of my 80 colonies of Italian bees, only 5 or 6 were not infected, and these now remain uninfected. The mischief just being done and finding only a few, say from 1 to about 10 or 12 infected cells in a hive, I expected to cure the most, if not all, by a few good attempts of atomizing, and I succeeded with 7 or 8 colonies. I examined all the hives at least once or twice a week thoroughly, and when September commenced, and I still found from 1 to 4 cells diseased in every one of the balance, my patience was exhausted, and I immediately proceeded to the radical cure I shall describe further on, what should have been adopted at once, and which is the only complete cure for foul brood known to me.

It was no small job, and I had accomplished but little; about 4 gallons of water was mixed with 10 gallons of honey and a lot of quart Mason's jars filled therewith; to every jar was added an ounce of foul brood medicine, thoroughly mixed and a perforated cover put on. I use the Langstroth 10-frame hive. The first infected hive was put to one side and replaced by the lower story of another clean hive, provided with 10 sheets of foundation, covered, and a jar of medicated honey, inverted over a hole above it; a platform was now placed against the alighting board, and the bees of every comb of the infected hive were brushed on the same and made to enter together with all the rest. It will not take them long to empty these jars, which should be replaced by full ones as soon as empty until all the foundations are built out, and the bees have honey enough to winter on. The old combs can be extracted and rendered into wax, but great care should be taken that no bee alights on them nor on anything else pertaining to an infected hive.

It is stated by good authority that the spores of foul brood are made harmless through the boiling process, but I bury the remnants of combs and render wax at night, so that bees are excluded entirely. The hives and frames are disinfected thoroughly by means of a good atomizer, or the medicine is applied by a paint brush, not a part must be missed. After the first hive is disinfected, as described, it answers the purpose of a new one, and can be used for the next infected colony which is subjected to the same treatment as the first, and so on. My atomizer is a ways ready, filled with the medicine, and my fingers and knife are disinfected at intervals, and when I leave an infected colony. This cure is complete and has been tried by me, perhaps, a hundred times or more. No combs from an infected colony should be used again in a healthy one, because one of those spores smaller than a speck of dust, invisible to the naked eye, attached to the comb, is sure to breed mischief.

My foul brood medicine is the same as given at our last meeting and in "Practical Hints." It will do no harm to repeat it. The following is the formula: 16 grains salicylic acid, 16 grains soda borax, and 1 ounce of water. It is cheap, can be put up by

every druggist, and every bee keeper should have a bottle of it ready for an emergency.

As time is money in this country of ours, it may be best and cheapest for us to apply brimstone to every colony affected with foul brood. This, however, should be done at night, when all the bees are at home. The hive should be closed below, at the entrance, with a pan of brimstone ignited, on the top of the frames, and a tight cover placed over the whole. The fumes of sulphur being heavier than the air, descend, and kill most effectually all life inside of the bee hive. Bury or burn all its contents, and be sure to disinfect the hive before you leave it.—C. F. MURR, before National Bee-Keepers' Association.

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