

an experienced bee-master to manipulate these nice points.

Regarding the capture of swarms, Mr. Pettit always keeps his queens clipped, so that they are not able to take flight with the swarm, but commonly fall on the ground in front of the hive. She is picked up and placed in a cage, which is placed in the entrance of a new hive, which takes the place of the old one, which is moved about two feet back and left there about six days. As soon as the issuing swarm find their queen is not with them, they return to the old stand, but new hive, find their queen, and at once proceed to occupy the hive.

Some of these ingenious methods may be used in general practice, but not a few of the most valued of them originated with Mr. Pettit, who delights in giving to the bee keeping world the benefits of his experience and invention.

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"The Vitality of Foul Brood Germs. How the problem now stands." Is discussed in the September Bee-Keepers' Review by critic R. L. Taylor, as follows:

The problem as to the amount of heat necessary to render honey infected with foul brood safe for feeding to bees is provoking some attention, as it ought, both from a practical and a scientific point of view. It will be remembered that editor Root of *Gleanings* recently gave up his opinion that "a few minutes" at the boiling point rendered such honey innocuous to bees, and went to the other extreme, now holding that two and a half or three hours' boiling is necessary to render it safe as food for bees. He appears not to have noticed that an experiment has been made by F. C. Harrison, B. S. A., Bacteriologist, Ont. Agricultural College, which appears to sustain him in his later opinion. Mr. Harrison prepared test tubes in three different ways, viz., with dry spores, spores in honey, and spores in water. These tubes were then suspended in boiling honey which reached the temperature of 113° C., to 116° C., which is equivalent to about 235° to 240° F. Every fifteen minutes spores were removed from the tubes and put in nutrient media kept at the proper temperature for promoting growth, with the result that growth was obtained from spores from each preparation after 2 hours and 15 minutes boiling, and from

two of the preparations after 2 hours and 30 minutes boiling. I say this experiment appears to sustain editor Root in his present opinion, but there is another side, for even scientists must reckon with practical affairs. It may be that the condition under which the spores were placed in the nutrient media were much more favorable to their growth than are any set of conditions in which they could find themselves in the course of nature. Practical experience, at least, seems to sustain this view. Doolittle related recently how his bees once happened to test the point pretty thoroughly. He had a quantity of honey affected with foul brood and desiring to prepare it for feeding to the bees he placed it over the fire, and when it was near the boiling point something called him away, with the usual result that the honey forthwith boiled up and ran over on the floor. A combination of circumstances prevented his gathering it up until his bees undertook the job, when he found it convenient to let them finish it. The bees of his entire apiary joined in the work, and yet without a single colony contracting foul brood. Mr. McEvoy, inspector of apiaries for Ontario, had also had large practical experience, and he holds that such honey is safe to feed to bees if just made to boil sharply. In my own experience I have fed a good deal of such honey to bees after boiling, making it my aim to boil it fifteen minutes, without finding in a single case any indication of foul brood as a result. I am strengthened in my opinion that such boiling renders honey safe to feed bees by the results of an experiment I made during the present season in feeding foul broody honey which was never boiled at all. The experiment was this. I procured some combs containing some honey and much brood dead of foul brood. These combs I placed in a solar wax extractor where they remained until both the wax and honey were pretty thoroughly extracted. The temperature in this extractor sometimes reaches 180° F., but I believe I never found it to go higher than that. After the honey was ready, just at the close of the basswood season when no nectar was coming in from the fields, I took a virgin queen with two or three pints of bees and put them in frames with starters and gave them the honey just mentioned, amounting to one or two quarts. The bees took the honey readily, and built comb amounting to more than a square foot, in all, storing