

periments of that kind until he came to the conclusion that in the early morning there are sent out from the colony searchers; that is the bee on which he put the first spot and which he named "A" was a searcher, and in some way it communicated to the colony or to the other six bees that came that there was a certain amount of material to be collected. He does not attempt to say how that communication was made, whether there was some sign or whether the other bees simply followed it on its way back or what, but what he claimed was this, that "A" was a searcher; a searcher did not collect anything but returned to the hive. Immediately after that "A" became then a gatherer like the other six, and nothing would have been a temptation to "A" in the way of a fresh supply after that. He concluded that in the mornings searchers were sent out, and when the searchers found enough to keep the colony busy there were no more searchers. He also concluded the reason why the bees did not find out what he put out for them in the afternoon was because the searchers had all found something, and had become gatherers, and that there were no searchers in the afternoon. He repeated this a number of times with honey which he placed out in the afternoon and in the morning and at different hours of the day. If the nectar supply in the field was scant there would be searchers in the afternoon, and they would find the honey he placed out for them almost right away. If on the other there was an abundant supply of nectar in the field there would not be any searchers in the afternoon, but if he left it there until the next morning there would be searchers to take it up. Whether that is all true or not, I am simply giving you what Bonnier claimed for the bees, and I hope some of you will try some of these things.

One other thing that perhaps should be mentioned before I show the slides, and that is a discussion of the question of

how much bees remember and how much they get by experience—whether the bee is simply a machine that responds as if a button were pressed and it would do a certain thing, or whether it does more than that; whether it gains anything through its experience, and whether it remembers certain things that have happened to it in its past life. Now, you all know if you move a colony of bees a foot or two off to one side the bees return to the old location. It is pretty well demonstrated that the reason they come back to the same place is because in their first flights out as young bees, in the play flight which you see on sunny afternoons when your young bees fly out of the hive and circle around in front of the entrance in their early efforts, when they got to the field they carefully observe the surroundings. Any change in the environment is observed by the bees, and they mark it carefully. If you move a hive back a foot or two they will stop when they come to the place where the old entrance was. This is often something of a nuisance to the beekeeper when he wants to make a few shifts he has to make his move slowly so that the bees learn the new location. These things show conclusively that the bee has a memory, that it learns to know by doing something in its activity. There is another proof of the fact that bees remember certain things and that is that we can compel those bees to forget; some of these things which they learn in this way by experience they can be brought to forget entirely. For instance in swarming; a colony of bees has been in the habit of coming back to a certain location, but when they swarm and are put into another hive or find a place for themselves under natural conditions in the woods they no longer come back to the old place but go to the new. That is they have forgotten or have quit considering the old location. But even better than that is what we can do experimentally with bees showing that they

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have a memory. of bees is checked are stupid and a board, and then live and become they are chloroformed kill them—if they come to they have things which through previous experience, a foot or two away the old place and turn to the new turn to the place returned and which through memory. be done by tobacco immersing them in water they are almost dead us if we can teach certain things we that the animal has had actually remembered. I want now to show will readily recognize are a great many things which cannot be shown a picture at all. I will show a few have on the anatomy you will know a little which it has to do. (Dr. Phillips then lighted the audience of excellent slides of the bee, which had slides were shown.)

NOTES FROM THE PAGE

Honey and Wax Am
In early times, according to the Romans did not use the method of bee-keeping themselves with the bees that were quartered in trees. A great honey or wax was recorded.