

A Note on the Daily Life of the Honey Bee

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The following few pages are a preliminary statement. The results are of one season's observation. It had been intended to continue the work through the past season, but mishaps in obtaining the required material prevented. I take pleasure in acknowledging my indebtedness to Prof. C. F. Lodge for suggesting the work, and for kindly furnishing me with material. The object of the task outlined was to determine through closer and more prolonged observation than has usually been the case some questions that appealed to the writer and others as of fundamental interest. The observations were carried out mainly for the purpose of seeing, first, what was the daily rhythm of rest and activity of the bee, and second, what the differences were, if any, between the activities of the young bee and the old. The second problem was obviously the wider and more difficult one. One season of study yielded some scattering results of considerable interest along this line. The present note will limit itself to a statement of the results on the first question. These, in the writer's opinion, decide the main object of the inquiry, although more observations are admittedly needed to decide a number of interesting details, questions the present results themselves have raised. The observations were made on two colonies in single comb hives, the comb being covered with glass sides, placed in half an inch of the surface of the cells of the comb. All the bees could thus be seen at work in the hive.

Each colony contained about 1800 worker bees. Both queens were of the Italian variety, but had been mated with a mixed variety that was mostly Italian. The queen of the first colony was an old one, being in its third year. That of the second colony emerged in July in the hive on which the observations were made. The observations on the first colony were made in May and June, while most of the fruit trees were in blossom. Those on the second colony were made in July, August and September. The method was that of pure observation, the life and activities of the bees being in no way interfered with, excepting that they were given an empty comb when the old one became crowded with brood, and that, during actual observation, the comb was exposed to diffuse daylight during the day, and to a weak artificial light at night. When more light was required to see what they were doing with antennae, mandibles, or tongue a small artificial light was turned on at close range on the individual bee under observation, for a few seconds at a time. None of these things seemed to seriously affect their behavior, not at all noticeably to ordinary observation. It was particularly desired to make the observations as minute and detailed as it was possible to do, so that some sort of quantitative statement of the results could be made. Consequently they were summarized in notes at least every five minutes, generally oftener, and the exact time the bee was en-