

THE OVIPOSITION OF *PROSEVANIA PUNCTATA* (BRULLE):  
A HYMENOPTEROUS PARASITE OF COCKROACH  
EGG CAPSULES<sup>1</sup>

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During the past year the writer has been carrying on a study of the biology and life history of a wasp, parasitic during its larval life in the egg capsules of roaches. Oviposition into the egg capsules of the American roach has been observed and is summarized as follows.

On October 9, 1950, the writer received a female *Prosevania punctata* (Brulle) from Dr. Carl Venard. He found the wasp at the window in the basement of a residence in Columbus, Ohio. For careful study and observation the insect was placed in a glass cage, under an electric light.

Fortunately the writer had cultures of three different kinds of roaches. They were the American roach, *Periplaneta americana* (Linné); the Oriental roach, *Blatta orientalis* Linné; and the Woods roach, *Parcoblatta pennsylvanica* (De Geer). Egg capsules were obtained from each species of roach and were placed on the floor of the cage containing the ensign wasp.

The wasp left the wall of the cage almost immediately and began to examine the capsules of the American roach, completely ignoring the other kinds. On approaching the first roach capsule, she examined it very carefully by stroking it many times with rapidly vibrating antennae. Finally she settled down on her right side laying on the cage floor with her ventral surface facing the long axis of the egg capsule, as the capsule lay upon its right side. While in this position the ovipositor was extended and it punctured the egg capsule between the fifth and sixth egg cells of the left side, and remained there for 17½ minutes. During oviposition, the wasp moved backwards due to the constant activity of the three legs next to the floor of the cage and as she moved she pulled the capsule along with her. Upon withdrawing the ovipositor she stood up, paused for a few seconds, and walked away paying no further attention to the egg sac.

The next day, all the capsules were removed from the cage, and a fresh egg sac of the American roach was put in their place. This time the egg case was put on its left side, to see if oviposition would take place while it was in this position. The evaniid found the capsule and walked about it, examining it very carefully with its antennae. Then she repeatedly ran over the middle of the capsule while, dragging her hind legs which hooked the flanged edge of the egg sac. After several minutes and numerous trips over the capsule she turned it from its left to its right side.

After the capsule was on its right side, the oviposition act previously described was repeated. This time the ovipositor was left inserted in the capsule for approximately 30 minutes. The time from when she first stroked the capsule until she finished oviposition and walked away was 43 minutes.

The capsules that had been exposed to oviposition were incubated at room temperature of approximately 72° F. On the ninetieth day of incubation several capsules were opened and the contents examined. Within one of the capsules a plump white larva was found which had consumed the entire contents of the egg case. The remaining egg capsules were left intact to continue incubation. One hundred and twenty seven days after oviposition had taken place, three adult wasps emerged, each from an individual egg capsule.

<sup>1</sup>Presented in part at the meeting of the Ohio Academy of Science, Oxford, Ohio, April, 1951.

The parasite emerges by chewing a round hole through the dorsal surface of the egg capsule near one of the ends, and then crawls out through the opening after it is large enough to permit exit. Upon emergence from the ootheca the wings of the adult are fully expanded and the body appears quite as dark and dry as those of older adults.

The egg capsules into which it was known oviposition had occurred, were examined closely during the period of incubation. It was found in the late larval stages, that if the capsules were held between the fingers and in front of a bright light, the outline of the evaniid larvae or pupae could be seen inside of the egg case. This technique was applied in studies of egg capsules collected under natural conditions, and those which were parasitized could be readily recognized and sorted out.

Examinations made of egg capsules after the adult wasps have emerged demonstrates a consistency in appearance and the result of parasitism. The entire contents of the capsule are consumed during the period of larval feeding.

Acknowledgment is made to Dr. Carl Venard of The Ohio State University for his valuable assistance in this study.

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