

THE LIFE-HISTORY OF APANTELES GLOMERATUS, L.*

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During the past summer, while doing some work on the larva of the cabbage butterfly (*Pieris rapæ*), I was struck by the lack of information regarding the life-history of one of its most important parasites, *Apanteles glomeratus*, L. In none of the publications on Economic Entomology could I find any definite information, and the text-books were equally as unsatisfactory.

Reaumur, in his Memoirs, Vol. 2, pp. 417-, states that the females of this parasite deposit their eggs, one at a time, laying in all about thirty eggs in each larva. He further adds that they select the intersegmental areas as the place of oviposition, particularly between the eighth and ninth and ninth and tenth segments. W. T. Bree, in the Mag. of Nat. Hist. for 1832, pp. 105-109, states that he observed several females in the act of oviposition, and his description corresponds closely with that given by Reaumur. Both writers emphasize the fact of the fearlessness of the parasite during oviposition, and that only one egg is deposited each time. Evidently what Reaumur and Bree observed was the oviposition not of the true *Apanteles glomeratus*, L., but of *Pteromalus puparum*, L.†

Seurat, '99, in his "Contributions à l'étude des Hyménoptères Entomophages," states that the females of *Apanteles glomeratus* oviposit in the young larvæ, depositing a large number of eggs in each.

In rearing a large number of these parasites I was able to observe the act of oviposition as well as to trace their life-history. The adults, on emerging, do not immediately fly away, but remain walking back and

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†(I had an excellent opportunity for observing the manner of oviposition of this latter parasite, and it corresponds exactly with that given by Reaumur and Bree for *Apanteles glomeratus*. I found *Pteromalus puparum* at work late one afternoon. It was not at all disturbed by my removing the larva to a small box. Taking them to the laboratory, I was able to observe the act of oviposition under the microscope, without in the least disturbing the insect. I watched it oviposit at intervals of about twenty minutes till nearly 11 p.m., and next morning I found it still ovipositing. It ceased early in the forenoon, so that in all probability it had laid over thirty eggs in the one larva. The conclusion, that both Reaumur and Bree had observed the oviposition of this species rather than of *Apanteles glomeratus*, is strengthened by the fact that Reaumur states that the larvæ of these parasites are sometimes found in the chrysalids of *Pieris rapæ*, but after the fourth day exhaust the food supply, and do not transform. This is the condition we would expect to find in the case of *Pteromalus puparum* during the latter part of August and the first of September, as it passes the winter in the larval state, and does not spin its cocoon till the following spring.)