

*lucidus*) and their slaves, and in *Odontomachus clarus* and *Pachycondyla harpax* (a species allied to the kelep ant). The habit has been emphasized by Wasmann because it is of importance in his discovery of the interesting relations of *Formica* to the parasitic beetles *Lomechusa* and *Atemeles*:

Both *Lomechusa* and *Atemeles* larvæ are assisted in their pupation by their hosts, exactly as are the ant larvæ. The adopted larva is placed on some soft sand, and while it moves the anterior portion of the body slowly to and fro, it is surrounded with a ring of earth, which is soon built over it like an arched roof. Within this the adopted larva spins a very fine web which merely keeps the surrounding sand particles together.

This is the critical moment in the development of the *Atemeles* and *Lomechusa*. The ants are in the habit after a few days of unearthing their own larvæ which spin a dense, tough cocoon, in order to cleanse and stack up the cocoons. They attempt the same with the adopted larvæ, unfortunately, since they are thereby prevented from pupating and perish, if they are not again buried and left to themselves. Only such adopted larvæ develop, as are forgotten by the ants after they have been embedded. For this reason I obtained only one imago from thirty *Lomechusa* larvæ and not a single one from more than fifty *Atemeles* larvæ.

In this connection it is perhaps timely to call attention to the fact that C. Janet\* some years ago emphasized the bearing of the presence and absence of the cocoon in ants on the theory of development by discontinuous variations, or mutations as they are now called:

We are without doubt confronted in the ants with the disappearance of this protective envelope [the cocoon] which has become unnecessary through the incessant care lavished on the progeny by the workers.

From the point of view of the evolution of instinct it is interesting to observe that this disappearance does not take place gradually by evanes-

\* 'Les Fourmis,' *Soc. Zool. de France*, Conf. 28, Fév. 1896, Paris, 1896, pp. 3, 4.