

by me, whereas the scale I observed, *Pseudococcus phoradendri*, lives hidden away in the hollow bases of the stems.

Schwarz's observations and my own, which were made independently in different parts of Arizona, thus reveal the existence of a peculiar cœnobiotic association, in which at least five or six different organisms regularly coöperate: a live oak, a mistletoe, a weevil larva, one or two scale insects and an ant. The mistletoe is a parasite on the oak, the weevil and the scales are parasites on the mistletoe and the ant is, in a sense, a parasite on the beetle-larva and the scales, since it owes its dwelling to the former and derives its food-supply from the latter. The Scolytid beetle and the Lycænid caterpillar observed by Schwarz may also belong in this association, since the former perhaps finds the proper conditions for its existence only in mistletoe branches that have been injured by the weevil larva, and the Lycænid caterpillar may court the attentions of the ants. Some resident entomologist in Arizona will probably find that the exhaustive study of the cœnobiotic association here briefly outlined has not only a theoretical but also a practical interest, for the *Cremastogaster* is to be regarded as a useful forest insect, since it cultivates scales that are injurious to a serious plant parasite of the live oaks and other trees.

Each of the *Cremastogaster* nests, which I opened, contained a single queen and in one nest a male specimen was taken. As these phases have not been seen before I subjoin a description of them:

***Cremastogaster arizonensis* Wheeler.**

*Female (deûlated).—*Length 5.5–6 mm.

Head large, rectangular, as long as broad, with straight lateral and posterior margins. Mandibles with 5 subequal teeth. Anterior border of clypeus sinuately excised. Antennial scapes reaching nearly half way between the eyes and the posterior corners of the head. Terminal joint of the two-jointed funicular club scarcely twice as long as the basal joint. Thorax elliptical, flattened dorsally, narrower than the head; posterior border of scutellum overarching the metanotum. Epinotum abrupt, on each side with a small tooth, which is not longer than broad at the base. Petiole and postpetiole similar to those of the worker.

Smooth and shining; mandibles and front of head more opaque; the former, clypeus, front and cheeks longitudinally striated, the mandibles and clypeus also punctate. Remainder of the body with small, scattered, piligerous punctures.

Hairs pale yellow, erect, varying in length, rather sparse, mostly confined