A total of 53.6 hours were devoted to observing two queenright colonies and 4,105 separate behavioral acts were recorded. Each observation period averaged 4-5 hours, and equal time was spent scan sampling the behaviors of ants inside and outside the nest in the manner described by Wilson and Fagen (1974). Behavioral frequency data were similar in both colonies, and any differences appeared to reflect only colony size and population. Data were pooled to provide a more accurate description of species-typical patterns and to increase sample sizes. Behaviors were described according to consequence. For grooming and trophallaxis, the identity of the individual performing the act (grooming another individual or donating food) was recorded.

Observations were made randomly throughout the day in four —to five — hour periods to avoid a bias resulting from diurnal variation in behavior. Data were collected over a two-week period. Repertoires were analyzed for completeness according to the methods described by Fagen and Goldman (1977), fitting behavioral frequency data to negative binomial and lognormal Poisson distributions.

Additional methodological details will be given concurrently with the description of experiments in the text.

RESULTS

Description of behavioral acts

The social ethogram of *A. simoni* is presented in *table I*, in which the behavioral frequency data recorded for two colonies are combined. Of the behavioral acts recorded, some are worthy of description and discussion.

Egg laying (behavior number 10)

In colony 1, of the two dealate females, one was observed laying on several occasions while the other was seen laying only one egg. Although the eggs of both females appeared identical and were handled similarly by the attendant workers, it is not absolutely certain that the colony was truly polygynous. It is possible that one of the dealate queens laid trophic or infertile eggs. No aggression between queens was observed in any colony with more than one dealate female. Neither the consumption of trophic eggs nor worker egg-laying was seen, although dissection of callow workers from both queenright and queenless colonies revealed ovaries containing well developed eggs. The presence of yolk remnants in mature workers that eggs are eventual resorbed.

Removing freshly laid egg from queen (behavior number 11)

The queen is not assisted during the egg-laying process. Once the entire egg has emerged, it is removed by a worker and placed in a pile with other eggs. The eggs are highly adhesive, unlike those of other primitive genera.