Prey preferences and feeding

In the artificial nest arenas we offered eggs and nymphs of Dermaptera, eggs of beetles (Tenebrionidae, Lagriinae), of diplopods, earthworms, and gastropods, Tenebrionid larvae, termite workers, live and dead Collembola, dead Diptera, pieces of nuts, honey/water (1:1), sugar/water, pieces of sardine, raw meat, and cooked and fresh hen egg yolk. Workers seemed to concentrate around the meat, but only carried gastropod and diplopod eggs back to the nest. Eggs of apparently several species of diplopods were readily collected by nestmates, while those of the gastropods were abandoned within the chamber. Since it seemed that the ants were unable to open the gastropod egg chorion, we split them, but even then the ants did not eat the contents.

When offering diplopod eggs at the arenas we covered them with humid soil and small twigs. After some time, a foraging worker, exploring the arena surface, would concentrate on the spot were we had buried an egg, touched the place many times with the antennal tips, removed the earth, and then took the egg. We never saw them carrying twigs or pieces of earth which blocked their way to the egg, but they always pushed them back with their heads, assuming a characteristic position of the legs and trunk.

The first worker to find an egg would go back to the tunnel as far as the first chamber and holding the egg in the way described, always excitedly scratch the nest floor with the gaster apex. Other workers would then go out to forage in the arena. When encountering a carrier, the newly recruited workers try to "steal" the egg. This is especially true after a starvation period. Also in such periods the workers can spoil an egg while carrying it, and eat it before reaching the pile. The carrier worker "protects" the egg from being taken by another worker by lowering its head and keeping the antennae fully concealed within the scrobes. When strongly "attacked", these ants can start eating the egg before reaching the first chamber.

An egg is deposited in a pile at the main chamber only after one or more workers have actively cleaned every particle of dirt from it with their mouthparts. We wondered whether this procedure, which always occurs in the first chamber or in the expansions along the tunnel, would also clean adventitious bacteria and fungi from the eggs. The pile assembled by Colony 1 was kept beside the ants' immature pile, and included diplopod eggs of different sizes and colors, varying from white to light yellow, showing that the ants accept as prey the eggs of several diplopod species.

Incidentally, we had observed previously that other myrmicine species of *Solenopsis* and *Pheidole* also carry diplopod eggs, but only when found naturally free from their earth covering.

The pile of diplopod eggs in the main chamber, which is probably accumulated for regular feeding, but specially during the dry and cold seasons, grows continually throughout the wetter months. The workers can take one egg from the pile for feeding alone or share the egg with up to five nestmates. From January to July, 1990, Colony 1 collected 1091 eggs in our arena, all the eggs we offered.

One egg is taken from the pile at a time. Some may be offered intact to the larvae, at the larval anterior ventral region. The larvae will then break the chorion and eat the egg contents. We observed instances when the queen and/or workers shared the prey egg with the larvae. Queens are, incidentally, much harder to observe, as they are