trail in a strong artificial light to which they had been accustomed, very few were diverted by the artificial trail. But when the light was turned off, so that the only illumination came from a night sky outside a nearby window, many more ants were diverted, although the majority of ants still followed the natural trail. We interpreted the difference to be due to the fact that the emigrating ants learn visual cues in a well-lighted room and rely at least in part on them when presented with a choice between the original, natural trail and deviating artificial trails.

c) Recruitment to Different Kinds of Food. Regardless of the degree of hunger of individual colonies, workers were recruited much more strongly to honey and sugar water than to insect prey (cockroaches of the genus *Nauphoeta cinerae*), even when the prey were large in size and had been fixed in position with pins. We offer the following hypothesis to explain the difference. Under natural conditions sugar is normally obtained from the honeydew excretions of fixed populations of homopterous insects (Leston, 1969, 1973). Cooperative retrieval of this kind of food therefore depends on long-range recruitment. In contrast, insect prey are captured and carried to the nests by workers operating singly or in small groups (Way, 1954; Gotwald, 1972). It appears to be of adaptive value for colonies to recruit more strongly to sugar sources than to insect prey.

2. Exploration of New Terrain

a) Description of Behavior. When foraging workers of *Oecophylla longinoda* were permitted to enter a new area close to the nest but not previously visited by the colony, they explored it excitedly and without hesitation. During this time the ants were alert and aggressive. When objects were moved within their field of vision they often shifted into a distinctive hostile posture: facing the source of the stimulus, the ants raised their bodies slightly, pointed the abdomen straight up, and opened the mandibles (Fig. 8). Following variable intervals, some of the workers returned directly to the nest tree while dragging the tips of their abdomens along the ground. This part of the behavior appeared identical to that observed in *Oecophylla* workers engaged in the deposit of odor trails during food recruitment. The rectal gland was extruded and dragged over the ground in the same manner. We have interpreted the full procedure as recruitment of nestmates to the new terrain.

As the returning worker encountered sister workers on her homeward journey, she usually halted and antennated them vigorously. Also, she frequently displayed a jerking motion, which was answered by the recipient with one to two jerks. She then often turned back and dragged her abdomen for at least a brief journey back into the new terrain before turning around again in a homeward direction.

Upon arriving at the web nests, the trail-laying ants entered without hesitation. Within seconds a strong new activity was detected: groups of workers emerged and proceeded down the nest tree and out in the direction of the unexplored terrain, without laying trails of their own. The number of workers