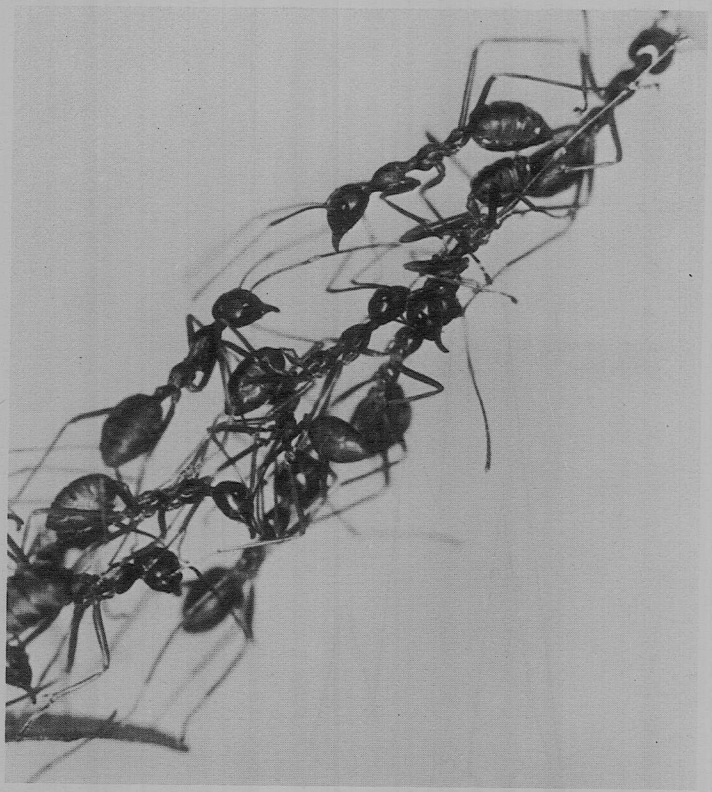

Fig. 10. Workers of *O. longinoda* form living bridges by linking their bodies into chains when exploring new terrain. The worker seen running over the upper portion of this bridge is laying an odor trail from her everted rectal gland directly onto the bodies of her nestmates. The trail will guide other members of the colony to a newly available foraging space

first reached this conclusion from the casual observation that when ants first enter a new space they periodically touched the tips of their abdomens to the substratum and extruded large drops of brown fluid from the anus. This material soon soaked into the surface or else hardened into shiny, shellac-like, shallow convex solids (Fig. 12). Several days after the ants had been fed the red dye, Azorubin S, the material began to appear in substantial quantities in newly laid anal spots, suggesting that the material originates at least in part from the rectal bladder.

When a colony was allowed access to a new arena the rate of spot deposition (spots/workers/h) increased. If the colony had been confined to the nest tree for a period of a few days previously, the deposition rate was extremely high. One colony containing several thousand workers deposited approximately 500 drops onto a fresh 71 × 142 cm arena surface during just the first hour. Thereafter the marking rate remained approximately constant.

The anal spots were not concentrated in a 'kitchen midden' or in any remote corner of the arena, the pattern used by workers of most other ant species