MEANS OF LOCATING COLONIES TO BE RAIDED

Polyergus raids were definitely not exploratory forays. There was no set pattern of pathways. The ants went directly to the nest to be raided (except that they might follow a contour of the land), and a nest visited twice on different days might be approached by quite different routes. This suggested that individual ants do the scouting and locating of colonies. This was verified, to my satisfaction, during the study. Observations made on July 6, 1965, gave an especially clear picture. During that morning an occasional *Polyergus* worker appeared on the surface; but between 11:15 AM and 2:55 PM none came out, although the temperatures were not especially high (81°-85°F 10 inches above the surface and 91°-95°F on the surface). At 2:55 PM 3 workers emerged, moved hurriedly across the bare soil and disappeared into the grasses. For the next 40 minutes there were one or 2 *Polyergus* on the nest area at all times, and at least 10 of these slipped off into the grasses. Gradually more *Polyergus* joined those on the nest until there were 3 to 10 running about, and 2 per minute left the nest until 4 PM. After that time most stayed on the nest and only a few left, but in the whole time from 2:55 PM to 4:15 PM 52 ants were seen to depart. During this time none returned. Then at 4:15 PM a *Polyergus* was seen 3 feet from the nest, coming directly home. It went into the nest entrance, and within a few seconds a whole stream of ants began pouring out. They spread thickly over the nest area and within 5 minutes had started a raid to the west where the scout had come in.

On other days the departure of scouts was less conspicuous, and seldom was one lucky enough to spot a scout coming in. But whenever an ant came in hurriedly from the grass and went directly into the nest, there was an outpouring of ants. It was thus assumed that whenever a sudden emergence occurred it was in response to a messenger arriving with news of a located colony. If this was correct and if the scouting ant, which found a colony, laid down an odor trail on its way home, then the odor must have been quite long lasting, for it sometimes took an ant 30 to 45 minutes to return from a raided nest. It seemed unlikely that a raiding group could be following anything but an odor trail, for it moved rapidly, did not maintain leaders, and usually stopped at exactly the right place.

In contrast to raiding activity, which seemed mechanical and stereotyped, activities of workers while scouting for colonies must require a high degree of individual action and response to the con-