On April 2, 1965, the same experiment was repeated, substituting n-butyric for n-valeric acid. Results were essentially the same. Fifty-five minutes after the start, 3 of the 4 triethanolamine-treated cocoons had been transported for distances of 40″, 21″, and 25.5″ from the nest entrance and dropped; although none of the n-butyric or oleic acid cocoons had been moved, there was a considerable deposit of earth particles about them. One control cocoon had been moved about 2″, but none had been carried into the nest. Twenty minutes later, the triethanolamine group was still being moved at frequent intervals, and the oleic acid group was being heavily banked with earth grains. No attention was paid to the n-butyric acid groups.

The strong impression left by these trials, and others like them, was that oleic acid, and to a lesser degree caproic acid stimulate in *Myrmecia vindex* both a burying reaction and sometimes the transport of objects so contaminated to refuse middens. No evidence of overt digging was seen. Formic acid seemed without effect. Triethanolamine, however, functioned as an efficient excitant and attractant in higher concentrations. In lower concentrations it stimulated necrophoric behavior. The "conflict" behavior exhibited in the handling of some larvae and cocoons treated with several of these substances, when immatures were repeatedly taken into the nest, brought out again and discarded on a midden, then returned to the nest, sometimes through three or four cycles, was in several cases striking.

Field Tests

Reactions of workers of *Myrmecia vindex* to Oleic acid; Caproic acid; Formic acid; Methylbenzylamine

It was of interest to conduct essentially similar tests with wild colonies in the field. A large and active colony of *M. vindex* in Kings Park, Perth, West Australia (a part of the same population from which the colonies had been taken for laboratory tests), was selected. It included approximately 200 workers, had a single large entrance-hole, and a well-defined crater. Since workers of this population show a predominantly crepuscular and nocturnal foraging pattern in warm weather, tests were begun in the evening.

At 7:25 p.m., as dusk was gathering, 5 white cards, of dimensions 3″ × 5″, were mounted on the nest crater, approximately equidistant from the entrance. Twenty-five cocoons, obtained from a neighboring colony, were impregnated with 3 drops of test substance, with 7 retained as untreated controls. The arrangement and treatments were as shown below: