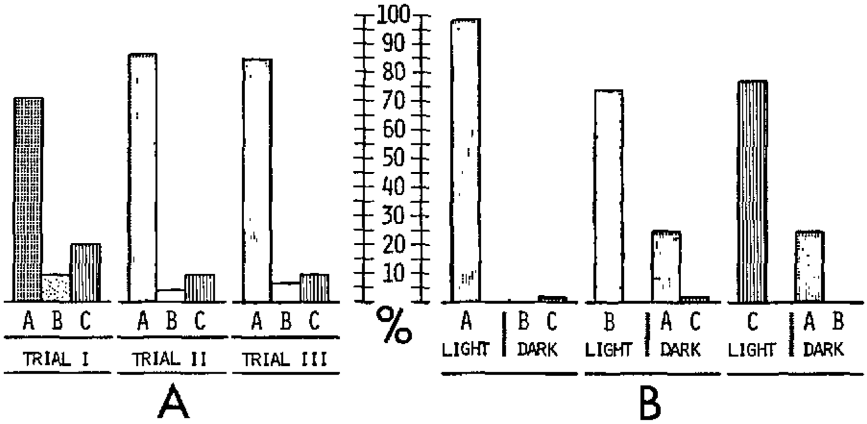

FIGURE 19.—Importance of substratum and light on habitat preference of *B. rogersi* nymphs: A shows %of nymphs frequenting a substrate when all are in light; B shows % of nymphs on each substrate when one substrate is in light and the others are dark. Substrates are stony (A), sandy (B), or with leaf-litter (C).

Results show 11 (73.3%) nymphs were found in Section B, 3 (20%) in Section A (dark, stones), and 1 (6.7%) in Section C (dark, leaf-litter). When Section A (stones) was lighted, all of the nymphs (100%) moved to this section. Similar results were obtained in trials II and III. A majority of the nymphs confined themselves to the lighted division of the tray regardless of the type of substratum. Light appears to be more significant than substratum in influencing the habitat choice of *B. rogersi* nymphs. The fact that a few nymphs remained in the stony bottom portion of the tray even when dark suggests that the nature of the stream bed and light combined influence the distribution of nymphs in the stream. Hughes (1966b) reported a number of mayfly species that exhibit the same light response but offered no explanation as to the mechanism involved.

Current also limited the distribution of *B. rogersi* nymphs in the stream. Nymphs were usually in running water. Those in quiet portions of the stream were last instar nymphs and their presence was probably associated with their search for objects or places to emerge.

The nymphs of *B. rogersi* are morphologically adapted for life in flowing water. Their tarsal claws (Fig. 15 H) are heavily sclerotized, curved, and sharply pointed, enabling them to hold firmly to objects in the substratum. The thoracic notal shield with its dorsal elevations and dorsal and lateral spines apparently helps decrease resistance to current. Hora (1930) suggested that spines on blepharocerid larvae are developed as a means of diminishing resistance to strong current; the spines create a layer of calm water against the body of the larva.