

of other genera, attributed the longer incubation period to delays and irregularities at the beginning of segmentation in the embryonic development.

The eggs did not all hatch at once. The duration of hatching in the laboratory extended from 7-17 days. As the eggs often formed clusters or clumps in the bottom surface of the dish, the eggs in the center of the cluster might obtain less oxygen. In nature, the eggs probably drift downstream far enough to be well dispersed. Attachment surfaces for the eggs are certainly plentiful on the rough stream bottom.

THE NYMPHS

EXTERNAL MORPHOLOGY

We found 12 nymphal instars in *Baetisca rogersi*. A set of morphological characters distinguish the first 11 instars, and all 11 descriptions are consistent and comparable. The twelfth instar nymphs are described fully. Recognizable differences between male and female nymphs first occur in the sixth instar. All characters described refer to both males and females unless otherwise noted.

First Instar Nymphs (Fig. 10 A): Body Length 0.40-0.60 mm; width of head 0.09-0.14 mm; thoracic notal shield: length 0.09-0.14 mm, width 0.15-0.19 mm; caudal filaments 0.05-0.07 mm. Head: opaque white, anterior margins smooth and dome-shaped. Compound eyes black and subspherical. Three ocelli present, all small, grayish, pale near margins. Antennae subequal to 1/2 length of head, 4-segmented, segment 2 longer than segments 1, 3, and 4 combined. Thorax: dorsum of thorax with transparent semirectangular notal shield which covers the entire surface of pronotum and metanotum; anterior margin of thoracic notal shield a little concave and smooth, lateral and posterior margins bare and a little convex; dorsal surface flat and bare. Legs: opaque; pro-, meso-, and metathoracic legs similar; femora cylindrical and bare; tibiae 1-segmented with a long spine on inner margin near apex; tarsi with a long spine on inner median margin; claws long, slender, without denticles. Abdomen: 10 visible tergal segments; first 5 segments subequal in length, compact, combined length equal to 1/3 total length of abdomen; posterolateral corners of terga 6-9 angular. Caudal filaments: whitish and bare; 4 short visible segments; apex of each filament thread-like, median filament a little longer than cerci.

Newly hatched nymphs were very active. First instars were colorless and opaque, and the whole body was filled with yolk globules. Immediately after eclosion, the young nymphs started to move either by crawling or swimming freely with strong undulations of the abdominal segments and caudal filaments.

Molting occurred 2-4 days after eclosion, the duration of the first instar averaging 3.2 days.

Second Instar Nymphs (Fig. 10 B): Body length 0.65-0.85 mm; width of head 0.15-0.20 mm; thoracic notal shield: length 0.13-0.21 mm, width 0.20-0.27 mm; caudal filaments 0.08-0.12 mm. Head: opaque white; a little flattened; frontal process a little developed with the anterior margins smoothly arched. Compound eyes a little larger than those of the first instar nymphs. Ocelli more prominent and slightly darker than those of first instar nymphs. Antennae whitish, 4-segmented with segment 2 greatly elongated. Thorax: posterior margin of metanotum overlapping abdominal segments 1 and 2; anterior margin of the thoracic notal shield a