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The Nymph of *Ephemerella excrucians* Walsh¹

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The taxonomic status of *Ephemerella excrucians* Walsh was recently discussed by Burks (1947), who also stated that destructive ecological changes have drastically altered the type locality of the species. Special interest attaches, therefore, to two male specimens of *Ephemerella* which I reared from nymphs taken in the Au Sable River, Crawford County, Michigan, and which Dr. Burks has determined as *E. excrucians*.

The Au Sable River at the collecting site is about 80 feet wide, and flows with a midstream velocity of 2.5-3 feet per second over a bottom of glacial sand and gravel. The water is hard, and derived almost entirely from springs and seepage areas. Both nymphs were taken from a gravel bar covered with about 14 inches of water, and were at once seen to be distinct from other *invaria*-type nymphs in the sample. Color notes were made of the living specimens before they were reared to the imaginal stage. The description to follow was made from the exuviae, preserved intact from indoor rearing containers, supplemented by notes taken on the mature nymphs.

Nymph. Length of body 6 mm.; of caudal filaments 2.75 mm. Entire body very dark gray, nearly black, strikingly relieved by pale grayish white markings dorsally as shown in Figure 1. Pro-, meso- and metasterna, and abdominal sternites 1-6 and 10 medium grayish brown, appreciably paler than dark ground color of drosom, without distinct color pattern except for pale lateral flanges of abdomen; abdominal sternites 7-9 dark grayish brown, anterior and posterior angles of lateral flanges pale. Legs banded and marked as shown dorsally, the pattern indistinct on ventral surfaces of femora. Antennae and caudal filaments pale.

The maxillary palp, and the labium, are as shown in Figures 2 and 3. The head is devoid of tubercles, and no horns or tubercles appear on the abdominal tergites. Each tarsal claw bears 6 denticles in each of the two specimens. Gills are borne on segments 3-7; the pair on 7 are small, largely concealed by those on 6. The three caudal filaments are of approximately equal length, unbanded, and rather short in relation to body length. Their pale color appears unrelieved under usual magnifications, but viewed under a compound microscope the articulations in the basal third appear reddish brown.

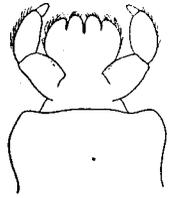
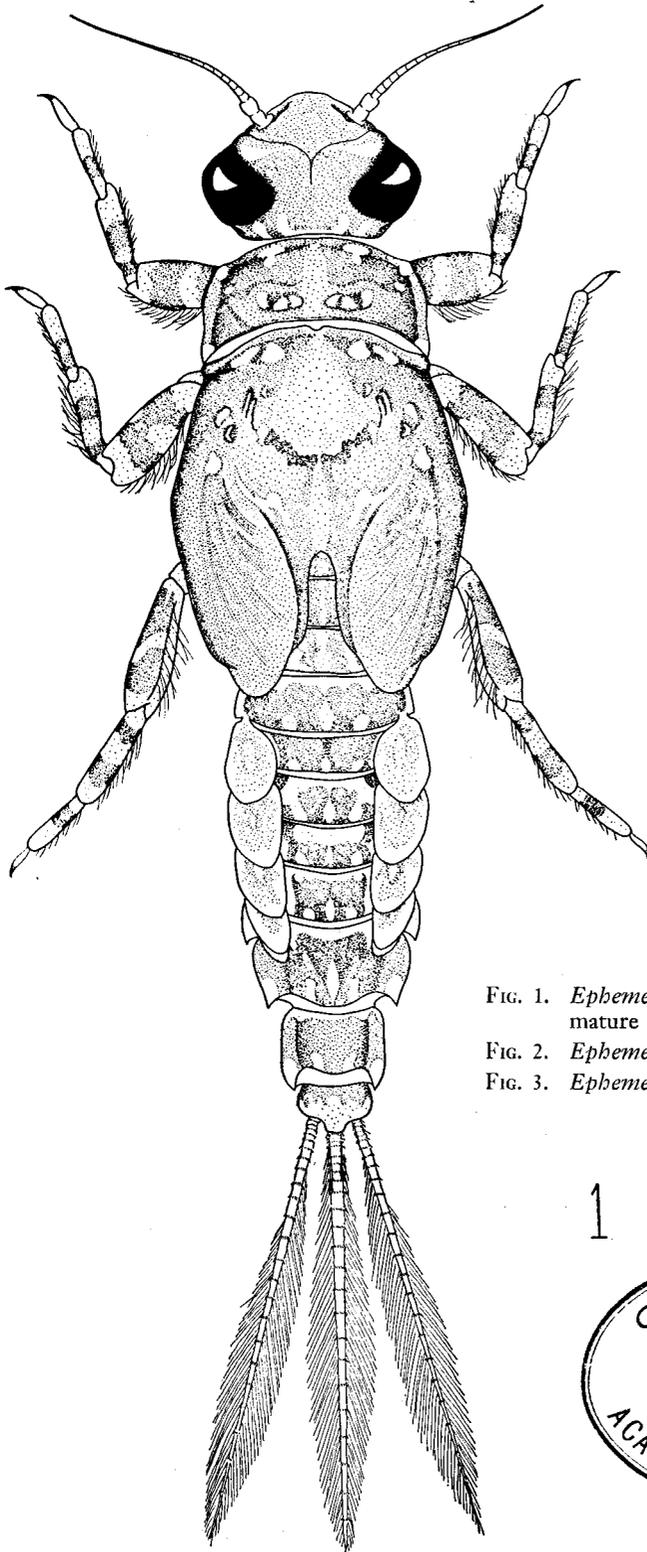
Material examined. Michigan, Crawford County, T. 26 N., R. 2 W., Section 13, Au Sable River, June 12-13, 1948, J. W. Leonard and F. A. Leonard. Exuviae of two male nymphs, preserved in alcohol with imagoes reared from them; placed in the collection of the Insect Division, University of Michigan Museum of Zoology.

On superficial characters, nymphs of *Ephemerella excrucians* can be separated readily from nymphs of other members of the *invaria* group. Nymphs of *subvaria* and *rotunda* are larger, present different color patterns, and possess at least rudimentary paired spines near the apical margin of the abdominal tergites. The nymph of *argo*, as described by Burks (1947) is appreciably larger than that of *excrucians* and bears proportionately longer caudal filaments, although it agrees with *excrucians* in lacking abdominal spines. Nymphs of *invaria* appear always to bear at least vestiges of abdominal spines; and although the color pattern of *invaria* nymphs appears to be highly variable, all color phases I have seen display prominent transverse bands, three to five in number, on the caudal filaments.

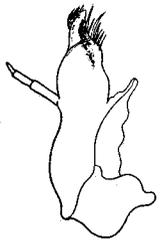
Reference

Burks, B. D. 1947. New species of *Ephemerella* from Illinois. *Can. Ent.*, 79 (11-12): 232-236. Figs. 1-7.

¹Contribution from the Institute for Fisheries Research.



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FIG. 1. *Ephemerella excrucians*, dorsal view of mature male nymph.

FIG. 2. *Ephemerella excrucians*, labium of nymph.

FIG. 3. *Ephemerella excrucians*, maxilla of nymph.

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