

Lewis Berner

## An Immature Fossil Ephemeroptera (Ephemeridae) from the Ruby River Basin (Oligocene) of Southwestern Montana<sup>1</sup>

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### ABSTRACT

A fossil impression of part of an immature *Hexagenia* (Ephemeridae) from paper shales of Ruby Basin

(Oligocene) of southwestern Montana is reported.

One fossil impression of a portion on the body of a mayfly nymph (Ephemeroptera: Ephemeridae) was recently discovered from the paper shale deposits of the Ruby River Basin of SW Montana. This specimen probably belongs to the genus *Hexagenia* Walsh. As far as is known, it represents the 1st immature specimen of this family and genus to be described from the Oligocene of North America. Other mayfly nymphs described from the Ruby Basin have been placed in the families Neophemeridae and Siphonuridae (Lewis 1977).

The specimen was found in layered shale of Oligocene age between Peterson and Mormon Creeks, sec. 23, T.75., R.S.W., Madison County, MT. The digging sites are located ca. 13 mi from the town of Alder. A brief description of the geological history of this region can be found in a previous taxonomic work from this area (Lewis 1971).

*Hexagenia* sp.

(Fig. 1)

Described from an incomplete nymph, with ca.  $\frac{1}{2}$

of body present; length and width of portion present at its extremes 10.0 and 4.0 mm, respectively.

*Head*.—Head not well preserved, with frontal process missing; antennae absent; upcurved mandibular tusks long, slender and smooth, with no rasp-like teeth; mandibular tusks 2.7 mm in length and 0.5 mm wide at base. One eye faintly preserved, placed laterally and back toward pronotum. Head shape somewhat circular, with length and width ca. 2.1 and 2.3 mm, respectively.

*Thorax*.—Pronotum accommodating the head anteriorly, forming a wide U-shaped structure. Width of pronotum 3.2 mm; length at center 1.2 mm. Pronotum showing a definite patterning of dark and light brown. Wing pads patterned, 4.6 mm long.

*Legs*.—Portions of forelegs present (femur and tibia) but not preserved well enough to use taxonomically.

This specimen fits the general physical form of the genus *Hexagenia* as characterized by Burks (1953). Because of the lack of critical morphological features, such as the frontal process of the head, the gill-type, and the leg comparison, it is placed provisionally in the genus *Hexagenia*, with no species

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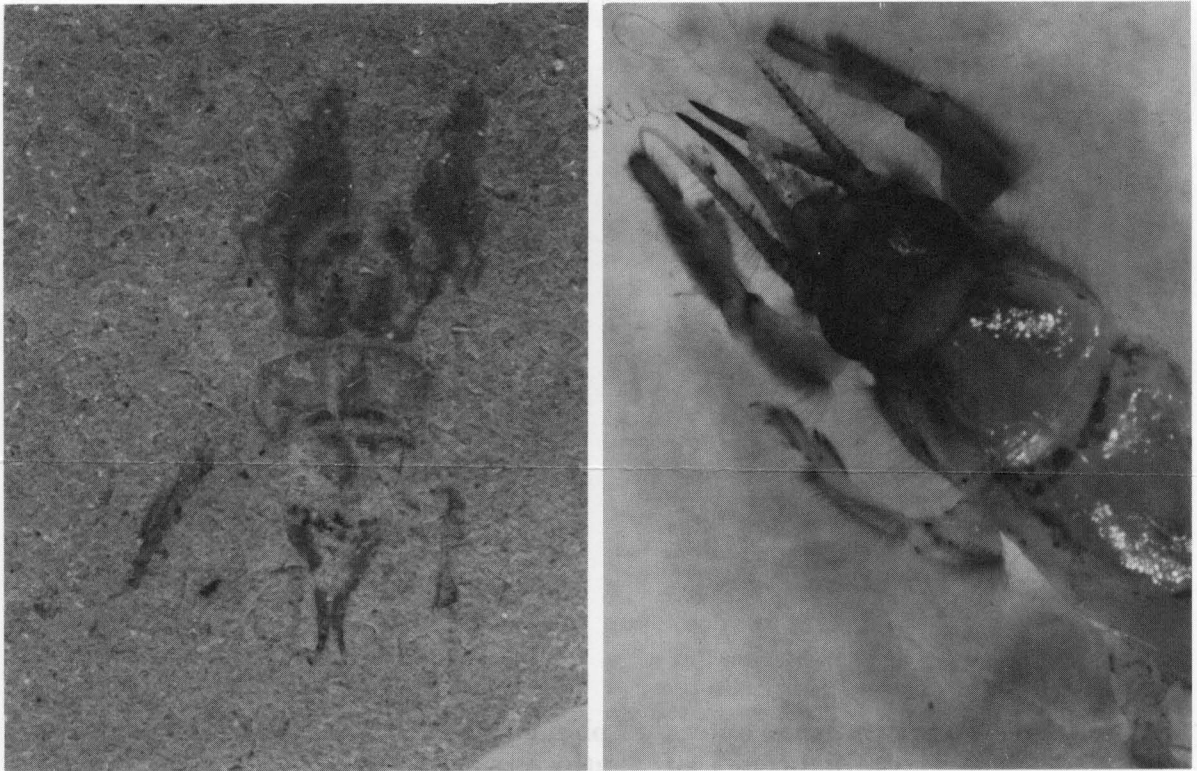


FIG. 1.—Left. Photograph of the dorsal view of portion of body of an immature mayfly, *Hexagenia* sp. (7.6 $\times$ ). Right. Photograph of *Hexagenia limbata* (Serville).

name proposed. Figure 1b shows a present day species of *Hexagenia limbata* (Serville), illustrating the similarities between this species and the fossil specimen described herein.

This specimen will be maintained at St. Cloud State University by Standley E. Lewis (Specimen Number B-86).

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