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(Mecoptera: Meropeidae): Simply dull or just inscrutable?

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Etymology of the earwigfly, *Merope tuber* Newman
(Mecoptera: Meropeidae): Simply dull or just inscrutable?

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Abstract. The naturalist Edward Newman did not provide an etymology for the mecopteran *Merope tuber* when he described it in 1838. In 1872 Asa Fitch asserted that the genus was named after Merope one of the Pleiades sisters of Greek mythology; however, he provided no reason for his assumption. We researched several etymological alternatives. We concur with Fitch and conclude that Newman did indeed name the genus *Merope* after the dullest of the Pleiades sisters.

Merope tuber Newman, the North American earwigfly, has been an inscrutable enigma to entomologists since a single female specimen was first collected by Edward Doubleday in Trenton Falls, New York, in 1837, and subsequently described by Edward Newman (1838; Fitch 1872). The holotype is currently held in The Natural History Museum, London (NHML) (Walker 1853; Byers 1962; D. Goodger pers. comm. 2005). The earwigfly's vernacular name is clearly derived from the male genital claspers (basistylia and dististylia) that superficially resemble the forficulate cerci of dermapterans (Fitch 1872; Esben-Petersen 1921; Byers 1973, 2005; Kalténbach 1978; Skelley et al. 2007). This meropeid, representing a monotypic genus, is the only member of this family in North America, and its only confamilials are the extant Australian earwigfly, *Austromerope poultoni* Killington, and the extinct *Boreomerope antiqua* Novokschonov from the Middle Jurassic of Siberia (Esben-Petersen 1915, 1921; Killington 1933, Lameere 1936; Grassé 1951; Brues et al. 1954; Byers 1973, 2005; Kalténbach 1978; Novokschonov 1995, 1998; Grimaldi and Engel 2005; Abbott et al. [in press]). Its phylogenetic position may place it close to Eomeropidae (Tillyard 1926, 1935; Grassé 1951; Remington 1968; Grimaldi and Engel 2005), probably basal to more derived mecopterans (Willmann 1987, 1989; Whiting 2002), and could provide a clue to the phylogenetic link between mecopterans and siphonapterans (Richards 1965).

Merope tuber occurs in mesic deciduous forests of eastern and central North America, from southeastern Canada southward to the Florida panhandle, and westward to Iowa and eastern Kansas (Byers 1973, 1993; Dunford and Krauth 2005; Schiefer and Dunford, 2005; Dunford et al. 2007). For more than 150 years specimen records for *M. tuber* had been scarce and somewhat serendipitous; however, recent collecting techniques (i.e., pitfall, light, and various flight traps) reveal that this nocturnal, secretive mecopteran is more abundant than what was once thought (Byers 2005; Dunford et al. 2005, 2006). The Florida Natural Areas Inventory (FNAI) lists it as critically imperiled (S1S2) in Florida due to its presumed rarity (Dunford et al. 2007). To date almost nothing is known of its life history and its larvae have not been recognized (Byers 1973, 1987, 2005; Dunford et al. 2006). We herein provide an etymology of the scientific name of *M. tuber* as part of a broader study currently underway reviewing its entire published biology and distribution (Dunford et al. 2005, 2006, 2007 [in preparation], and unpublished records), and because Newman (1838) provided none for this puzzling insect.

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Figure 1. Merope and her sisters in all their nubility. An F. E. Fillebrown engraving of *The Dance of the Pleiads* by Elihu Vedder. Modified from a version provided courtesy of Steven Gibson.

sisters (Fig. 1), a daughter of Atlas (Fitch 1872; Alspach et al. 1947; Graves 1955; Jaeger 1955; Simpson 1968; Pickett 2000; Gibson 2007). Her name has been variously translated as “bee-eater,” “eloquent,” and “mortal” (Graves 1955; Simpson 1968; Gibson 2007). Merope married Sisyphus of Corinth. She hid her head in shame because her husband was a mortal and ended up in the Underworld; a criminal no less (Graves 1955; Pickett 2000; Gibson 2007). Thus, her star was thought to be the dimmest of the six stars visible to the naked eye in the Pleiades star cluster (Alspach et al. 1947; Graves 1955; Simpson 1968; Pickett 2000). The lost seventh sister is not always visible to the naked eye and has been identified by various mythographers as Electra, Celaeno, and even Merope (Bulfinch 1894, 1942; Gibson 2007). The Pleiades star cluster, M45, actually shows hundreds of stars when viewed through most telescopes, and the star designated Merope is not quite the dimmest but one of several sisters shrouded by dust that receives illumination as reflection nebulae (Menzel and Pasachoff 1983; Gibson 2007).

There were at least four other, less commonly known females in Greek mythology named Merope. These include (1) an orphaned daughter of Pandareus, (2) the mother of Æpytus, (3) the daughter of Oenopion, who was unsuccessfully pursued by Orion, and (4) an individual more often known as Periboea, wife of Polybus and adopted mother of Oedipus (Bulfinch 1894, 1942; Graves 1955; Gibson 2007).

During the 19th Century the word “meropia” was a medical term used to indicate partial blindness, dullness of or obscured vision (Simpson and Weiner 1991; Pickett 2000). However, Newman’s description of *M. tuber* predates the first written use of meropia in 1856 (Simpson and Weiner 1991). The word itself is a Latin modification of a Greek combination: *meros* (μέρος) meaning “part” or “fraction,” and *opia* (ωπία) for “eye” (Berry 1948; Feyerabend 1985; Simpson and Weiner 1991).

Newman (1838) used the words “dingy brown” and “*fuscescens*” to describe the holotype of *M. tuber*. The Latin *fuscescens* not only means dark or brown, but also indistinct (Simpson 1968). Both historically and recently the adjectives “dull” or “dingy brown” commonly have been used to describe the color of *M. tuber* (Fitch 1872; Byers 1973, 2005; Dunford et al. 2006), with the exception of a single, partially melanistic individual collected in Florida (Dunford et al. 2007). Newman’s only references to eyes or vision in his description of *M. tuber* are “eyes are quite black” and “*oculi nigri*” as distinct from the “dingy brown” body (Newman 1838).

Edward Newman was a contemporary of Henry W. Bates, Charles Darwin, Thomas H. Huxley, and Alfred Russel Wallace (Slotten 2004). He ran a rope business, was a polymathic naturalist, writer and printer of scientific books, editor of numerous journals, founder of *The Entomological Magazine*, *The Entomologist* and *The Zoologist*, cofounder and president of the Entomological Society of London (later to become the Royal Entomological Society), and president of the Zoological Society of London (Anonymous 1876a, b, 1877; [Westwood] 1876; Slotten 2004). He was passionate about poetry and classic literature (Newman 1841, [1853]; Anonymous 1876a, b, 1877), and during the same year that he described *M. tuber* he was criticized for his obsession with classic language (K. 1838). Newman strongly promoted the democratization of scientific knowledge and in latter years championed the use of “readable” and “pure, plain, intelligible English” in scientific publications (Newman 1841, 1850; Anonymous

It is apparent that the specific epithet of the earwigfly’s binomen, *tuber*, Latin for swelling, knob, hump or protuberance (Jaeger 1955; Simpson 1968), is a reference to the jugum, a distinct lobe on the basal posterior margin of the forewings (Fitch 1872; Esben-Petersen 1921; Byers 1973, 2005; Dunford et al. 2005, 2006). The jugum of *M. tuber* was originally described as a “*tubere*” and “knob” by Newman (1838), and is used to produce audible stridulations (Sanborne 1982) or could function as part of a wing interlocking mechanism (Hlavac 1974; Gorb 1998, 1999).

Fitch (1872), without providing his reasoning, assumed that Newman named the genus *Merope* after one of the stars in the Pleiades star cluster. In a commonly known legend of Greek mythology, Merope (Μερόπη) was one of the seven Pleiades

1876a, b, 1877; Slotten 2004). However, given his earlier predisposition toward Greek and Latin, his love of the classics, his description of the color of the earwigfly's body as distinct from his description of eye color, and his choice of spelling, we conclude, and concur with Fitch's (1872) assertion, that Newman named the genus *Merope* after Merope, dullest of the Pleiades sisters.

Merope tuber is a unique mecopteran that continues to vex North American entomologists. Its taxonomic position is challenging, perhaps pivotal within the Holometabola, and its overall biology remains unknown (Byers 2005; Grimaldi and Engel 2005; Dunford et al. 2006, 2007). Moreover, future efforts to discover and unravel the complete distribution and overall ecology of *M. tuber* should offer critical insights into the biogeography of eastern deciduous forests and the eastern Coastal Plain of North America (Dunford et al. 2007). Although most of the biology of *M. tuber* remains an intriguing question, we at least seem to understand why Edward Newman chose the name *Merope* for this inscrutable insect.

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