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NOTES ON EPHEMEROPTERA.

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Baëtis longicauda of Stephens.

WHILST studying the British species of Ephemeroptera, I have noticed that the name *Baëtis longicauda* Stephens has, of recent years, been mis-applied. Stephens (1836) described the species as follows:

"Sp. 3. longicauda. *Ochraceo-lutea pedibus pallidioribus, geniculis abdominisque segmentorum marginibus fuscis, setis longissimis.* (Exp. Alar. 14 lin.; Long. corp. 5½ lin.; l. set. 14½ lin.)

"Pale luteous-ochre: eyes fuscous; thorax glossy; abdomen pale ochreous at the base, the apex darker, the segments edged with fuscous; filaments considerably above twice the length of the insect, pale ochreous, with faint fuscous spots; legs pale ochreous, tips of femora fuscescent; wings transparent, with the costa and nervures yellowish.

"Taken near Hertford, towards the middle of June."

Pictet (1844) cites it with three other species in an appendix to the genus *Baëtis*, observing that they closely resembled his *Baëtis cerea* and *Baëtis sulphurea* Müller (both now placed in the genus *Heptagenia*). In 1871 Eaton transferred *longicauda* to the genus *Heptagenia*, and quoted *Baëtis subfusca* Stephens 1836 as a synonym. Later he decided that his 1871 identification of *Baëtis longicauda* Stephens was incorrect, and in his Revisional Monograph (p. 273) placed *longicauda* Stephens 1836 in the synonymy of *Heptagenia flavipennis* Dufour, 1841, quoting *longicauda* Stephens, which has priority, as a *nomen ineptum*, and (p. 284) cited *Heptagenia longicauda* Eaton 1871 (together with *Baëtis subfusca* Stephens) as synonyms of *Ecdyurus venosus* (Fabricius). In 1888 (*Ent. Mon. Mag.*, **25**: 32) he definitely quotes "*H. longicauda* (not of Steph.)" with a reference to the 1871 monograph, in the synonymy of *E. venosus* (Fabr.), and *Baëtis longicauda* Stephens is again placed as a synonym of *Heptagenia flavipennis* Dufour.

Stephens' description agrees better with *Heptagenia flavipennis* than with *Ecdyonurus longicauda* Eaton, *nec* Stephens, which latter could scarcely be described as "pale luteous-ochre." The abdomen of *longicauda* Eaton is reddish brown at the base and the legs are fuscous or yellowish brown.

Eaton's action in rejecting on the grounds of inappropriateness the name *Baëtis longicauda* Stephens, 1836, in favour of *Ephemera flavipennis* Dufour, 1841, is unjustifiable, and were such a practice

to be followed, it would open the way for innumerable changes of nomenclature, and cause far more confusion than the present change will entail. His action is, moreover, contrary to Article 32 of the International Rules.

Heptagenia flavipennis (Dufour, 1841) must therefore give place to *Heptagenia longicauda* (Stephens, 1836), with synonymy as follows :

Heptagenia longicauda (Stephens, 1836).

1836. *Baëtis longicauda* Stephens, Ill. Brit. Ent. Mand., **6** : 63.
1841. *Ephemera flavipennis* Dufour, Mem. par divers savans, Inst. de France, **8** : 580, note.
1844. *Baëtis cerea* Pictet, Hist. Nat. Névr., **2**, Éphém. : 183, pl. xxiii, 2.
1844. *Baëtis longicauda* Pictet, *op. cit.* : 193.
1863. *Baëtis longicauda* Hagen, Ent. Ann., **1863** : 24.
1871. *Heptagenia flavipennis* Eaton, Trans. Ent. Soc. Lond., 144, pl. vi, 17–17*c*.
1885. *Heptagenia flavipennis* Eaton, Trans. Linn. Soc. (2) Zool., **3** : 273.
1929. *Heptagenia flavipennis* Ulmer, Tierw. Mitteleur., **4** : 30.
1930. *Heptagenia flavipennis* Schoenemund, Tierw. Deutschl., **19** : 25–6, 79, fig. 32.

The species *Ecdyonurus longicauda* (Eaton, 1871), referred to by Blair and others as *Ecdyonurus longicauda* Stephens, must also of necessity suffer a change of name. This species proves to be identical with *Ecdyonurus dispar* (Curtis, 1834), a name which has been long in the synonymy of *E. venosus* (Fabricius). My attention was first called to this species by Dr. Blair, who had collected some examples of *Ecdyonurus* from Windermere in June, 1929. These were not *E. venosus* and he suspected that they might be *dispar* of Curtis, the type locality for which is Ambleside. Curtis's types of this species are in the National Museum, Melbourne, and examples of Dr. Blair's series were compared with the type ♂ by Mr. J. Clark and found to be identical. In 1941 I was able to collect further material of this species from the shores of Windermere, and I am convinced that *dispar* and *longicauda* Eaton *nec* Stephens are only summer and autumn forms of the same species. On Windermere, *dispar* occurs from June to October, with a main hatch in June and a secondary one in September. The June flies are decidedly larger than those in the autumn. *E. longicauda* Eaton *nec* Stephens appears to have its main hatch in the autumn, but I have seen large specimens taken in June which are indistinguishable from the June *dispar*. I can detect no significant difference in the male genitalia and the wing pattern of the subimagines is the same.

Ecdyonurus dispar (Curtis, 1834).

1834. *Baëtis dispar* Curtis, Lond. and Edinb. Phil. Mag., ser. **3** : 120.
1836. *Baëtis subfusca* Stephens, Ill. Brit. Ent. Mand., **6** : 64.
1871. *Heptagenia longicauda* Eaton, *nec* Stephens, Trans. Ent. Soc. Lond., 152, pl. vi, 25.
1887. *Ecdyurus venosus* Eaton (*partim*), Trans. Linn. Soc. (2) Zool., **3** : 283–6.
1930. *Ecdyonurus longicauda* Blair, *nec* Stephens, Ent. Mon. Mag., **66** : 56.

Ecdyonurus helveticus (Eaton).

In 1871 Eaton described the species *Heptagenia alpicola*, his type-series consisting of examples from Savoy, Les Contamines and Carinthia. In his Revisional Monograph (1885, p. 239) he restricted this species to the Savoy specimens, transferring them to the genus *Epeorus*. The Carinthian specimens were referred to in the bibliography of *Epeorus alpicola* thus: " (excl. Carinthian examples and pl. vi, 19, detail of *Ecdyurus zelleri*)." In the succeeding part of the same publication (1887, p. 286) Eaton again refers to these Carinthian examples, placing *E. zelleri* in the synonymy of *Ecdyurus forcipula* (Pictet).

In his description of *E. forcipula* (Pictet) he says of the male fore-leg, " 1st tarsal joint of normal length," i.e. about half as long as the second. The Carinthian specimens in the McLachlan Collection, however, have the first tarsal segment distinctly less than half the length of the second. Specimens determined as *forcipula* in this collection from Val Anzasca and a large proportion of those from the Apennino Pistojese also possess this very short first tarsal segment, which is a distinguishing character of Eaton's *Ecdyurus helveticus*. The male genitalia of these short-segmented examples were compared with those of *helveticus*, and were found to be very much alike, but different from those figured as *E. forcipula* by Ulmer (1929) and Schoenemund (1930).

The differences between the Carinthian and the Swiss forms are tabulated below:

Carinthia.	Switzerland.
♂. Anterior leg pale brownish.	Pale piceous.
Anterior wing hyaline, colourless, costal cross-veins, especially at base, weak and often pale.	Hyaline, slightly brownish-fumose, costal cross-veins distinct.
Pterostigma slightly fumose.	Generally distinctly suffused with piceous.
Forceps-base with a tooth on each side, often acute and somewhat incurved, margin between the teeth convex but not generally triangularly produced.	With a tooth on each side, variable in size, but generally rounded at its apex and rarely incurved; surface of forceps-base between the teeth generally triangularly produced, often extending beyond the margin.
Apical sclerites of penis larger and rounded at apex; stem of penis generally longer than broad.	Apical sclerites generally narrower; stem of penis usually about as long as broad.
Setae brownish, usually without annulations.	Setae brownish at base, becoming paler apically, usually with distinct fuscous annulations.

It will be seen that the differences are not very great and they tend to grade one into another. This is especially noticeable in examples from the Apennines, of which it is difficult to decide to which division any particular individual belongs. On the basis of my present material, and being without knowledge of the habits of either form, I am inclined to consider them all to belong to one species.

In deciding the name of this species, one must also take into consideration *Ecdyurus italicus* Eaton. This name first appeared on Plate XXIV, fig. 46*c* (1883) of the Revisional Monograph. The figure depicts a ventral view of the penis lobes of a freshly killed

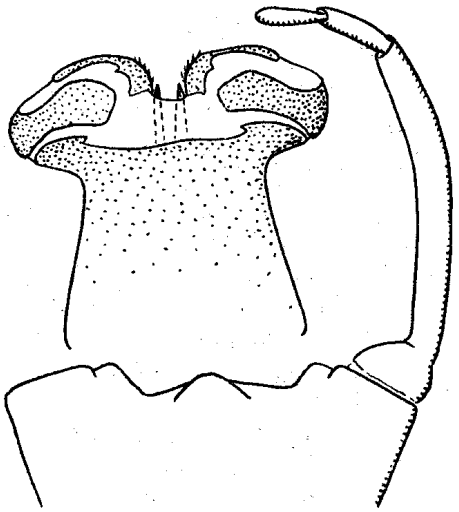

FIG. 1.—*Ecdyonurus helveticus* (Eaton), ♂, paratype, Habkern Thal. Forceps-base and right clasper, ventral; penis, dorsal, more enlarged.

specimen. Eaton later considered *italicus* to be conspecific with *zelleri* and in 1887 placed both in the synonymy of *E. forcipula* (Pictet). This figure would pass easily as either *zelleri* or *helveticus*, and as the majority of Eaton's examples of "*forcipula*" are of this pattern, with the short first tarsal segment, it may be assumed that he was correct in considering *italicus* to be conspecific with *zelleri*.

The name *E. helveticus* also appears for the first time on the same plate, fig. 46*a*, a figure of the male fore tarsus, and is thus of the same date as *italicus*. As *helveticus* bears an earlier letter (equivalent to page precedence) and the name has been in general use for many years, I am selecting the name *helveticus* in preference to *italicus*. There appears to have been no previous fixation of types of these species, and I have therefore selected the following specimens:

Ecdyonurus helveticus (Eaton, 1883).

Type ♂, " Helvetia, Eaton " on green-faced paper, " Val d' Illiez, Champéry, 4060 ft." on a round ticket with " 14 c. viii.1879 " on the reverse, " Ecdyurus helveticus Etn., det. A. E. Eaton " and " McLachlan Coll., B.M. 1938–674 " on blue paper.

Ecdyonurus italicus (Eaton, 1883).

Type ♂, with the apex of abdomen mounted in Canada balsam, labelled " Apennino Pistojese. Eaton, 1882 " on blue paper, " 27*a*.vii.82 " on a round white label, " Ecdyurus forcipula Pict., det. A. E. Eaton " and " McLachlan Coll. B.M. 1938–674 " on blue paper, and my own determination label.

Ecdyonurus zelleri (Eaton, 1885).

Type ♂, " Zeller. Carinthia," " 27.6.67," " Heptagenia alpicola Etn." in McLachlan's handwriting, " Ecdyurus forcipula Pict., det. A. E. Eaton " and " McLachlan Coll. B.M. 1938–674 " on blue paper, and my own determination labels, " Ecdyurus zelleri Etn." and "Ecdyonurus helveticus Etn."

The synonymy of *E. helveticus* may be quoted as follows :

Ecdyonurus helveticus (Eaton, 1883).

1844. *Baëtis venosa* Pictet (*partim*), Hist. Nat. Nevr., **2**, Ephém., 167, pl. xx.
1871. *Heptagenia alpicola* Eaton (*partim*), Trans. Ent. Soc. Lond., **1871** : 148, pl. vi, 19 (Carinthian examples).
1883. *Ecdyurus helveticus* Eaton, Trans. Linn. Soc. (2) Zool., **3**, pl. xxiv, 46*a*.
1883. *Ecdyurus italicus* Eaton, *op. cit.*, pl. xxiv, 46*c*.
1885. *Ecdyurus zelleri* Eaton, *op. cit.*, 239.
1887. *Ecdyurus helveticus* Eaton, *op. cit.*, 282.
1887. *Ecdyurus zelleri* Eaton, *op. cit.*, 286.
1887. *Ecdyurus forcipula* Eaton, *nec* Pictet (*partim*), *op. cit.*, 286–7 (Carinthia, Val Anzasca, Apennino Pistojese, *partim*).
1929. *Ecdyonurus helveticus* Ulmer, Tierw. Mitteleur., **4** : 31–2, fig. 116.
1930. *Ecdyonurus helveticus* Schoenemund, Tierw. Deutschl., **19** : 21–2, fig. 24.

Wray Castle,
Ambleside,
Westmorland.

FIRST APPEARANCES, 1942.—After the prolonged winter weather of 1941-42, the hibernated butterflies did not appear on the wing until much later than is usual. The first *Gonepteryx rhamni* Mr. Pounds noted at Dorking, Surrey, was on March 14, whilst on March 25 *Polygonia c-album* and *Aglais urticae* were seen. In Sevenoaks *G. rhamni*, *A. urticae* and *Nymphalis io* were flying on March 25.—WILLIAM E. BUSBRIDGE ; " Gresham," Bradbourne Park Road, Sevenoaks.

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