

A NEW SPECIES OF *HABROPHLEBIODES* FROM CHINA
(EPHEMEROPTERA : LEPTOPHLEBIIDAE)*

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THE mayfly genus *Habrophlebiodes* was erected by Ulmer (1919) for the species *H. americana* occurring in Eastern United States. Since that time three other species of *Habrophlebiodes* have been described from the United States, one species from Java and Sumatra and another species from India. Through the kind co-operation of Dr. M. T. Gillies of the Malaria Institute, Amani, Tanganyika Territory, the following new species of *Habrophlebiodes* is described. He has provided specimens of this new species and notes concerning the biology and colour of specimens in life. I therefore take honour in naming the new species after Dr. Gillies.

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Habrophlebiodes gilliesi sp. n.

Male

Imago (in life).—Eyes, head and thorax chocolate brown, abdomen mainly chocolate, but segments 2-7 white medianly; fore femora chocolate, tibiae lighter, fore tarsi speckled, tarsal joints white; tails (caudal filaments, van Bruggen, 1955) white with dark annulations.

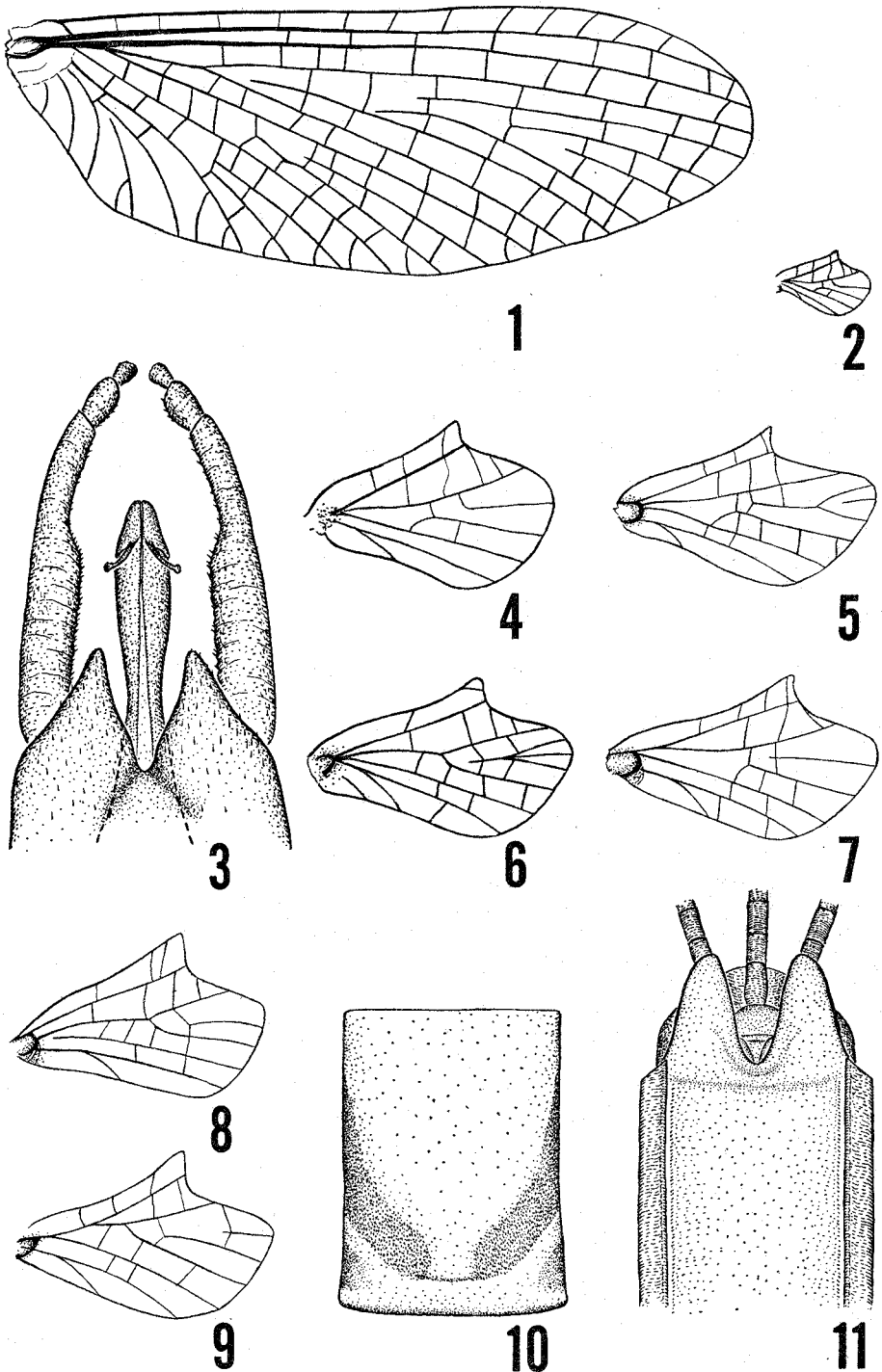
Imago (in alcohol).—Length: body 5.5 mm.; fore wing 4.9 mm. Eyes: upper portion purplish brown; lower portion darker. Ocelli and antennae pale yellowish brown. Head medium brown. Thorax: prothorax medium brown; pronotum, anterior portion of mesonotum and scutellum of mesonotum darker; outer parapsidal furrows and pleurae pale. Wings (figs. 1-2, 4-9): basal half of veins *Sc* and *R*₁ in fore wing light brown; remainder of veins in fore wing, veins in hind wing and wing membrane hyaline. Legs: fore femora 1.15 mm.; fore tibiae 2.20 mm.; fore tarsal segments 1-5, 0.10 mm., 0.80 mm., 0.60 mm., 0.50 mm., 0.10 mm.; coxae, trochanters and femora of prothoracic legs light brown, remainder of legs yellowish-brown; tarsi washed with medium brown. Coxae of mesothoracic and metathoracic legs light brown, remainder of legs pale brown. Abdomen: tergum 1 medium brown; terga 2-7 semihyaline, smoky brown bands on terga 2-7 and postero-lateral edges washed lightly with brown as in figure 10, spiracular marks darker brown; terga 8-10 light brown, washed with darker brown. Sterna 1-7 semihyaline, posterior half of each sternum washed with smoky brown; sterna 4-7 paler; sterna 8-10 light brown; posterior margin of sternum 10 deeply cleft as in figure 3. Genitalia (fig. 3) light brown. Caudal filaments (terminal filament and cerci) light brown, annulations at articulations darker brown.

Female

Imago (in life).—Thorax and abdomen chocolate brown. Wings translucent colourless, but all veins sooty brown with slight infiltration of adjacent wing membrane.

Imago (in alcohol).—Length: body 4.4 mm.; fore wing 5.2 mm. Eyes brown. Head light brown. Ocelli and antennae pale yellowish-brown. Thorax as in male imago. Wings: membrane of fore and hind wings hyaline; veins medium brown, those in the anterior half margined with smoky brown. Legs: fore femora 1.05 mm.; fore tibiae 1.45 mm.; fore tarsal segments 1-4, 0.30 mm., 0.25 mm., 0.10 mm., 0.15 mm.; coxae, trochanters and femora of prothoracic legs medium brown, remainder of legs light brown. Coxae of mesothoracic and metathoracic legs chocolate brown, remainder of legs light brown. Abdomen: chocolate brown, washed variably with dark chocolate brown, the pattern similar to that of the male except that it is more

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FIGS. 1-11.—*Habrophlebiodes gilliesi* sp. n. : (1) fore wing, male paratype ; (2) hind wing (drawn to proportion of fore wing), female paratype ; (3) male genitalia, male paratype ; (4) enlarged hind wing, female paratype ; (5) enlarged hind wing, male paratype ; (6) enlarged hind wing, male subimago paratype ; (7) enlarged hind wing, female allotype ; (8) enlarged hind wing, female subimago paratype ; (9) enlarged hind wing, male holotype ; (10) tergum 5, male holotype ; (11) sternum 10, female allotype.

diffuse; a darker brown spiracular mark on each segment; ovipositor extending to posterior margin of segment 9; posterior margin of sternum 10 deeply cleft as in figure 11. Caudal filaments light brown.

The male and female subimagos are similar in coloration and markings to the male and female imagos, except that the general appearance of the former is greyer. All veins, and the membrane of the male and female subimaginal fore and hind wings, are dull greyish brown.

Holotype: ♂ imago, CHINA: Fan Ling near Kowloon, 16.iii.1947 (*M. T. Gillies*).
Paratypes: ♀ imago (allotype), same data as for holotype; 1 ♂ imago, 3 ♀ imagos, 4 ♂ subimagos, mountain streams, HONG KONG ISLAND: Tai Tam Tak, 20.ii.1947, (*M. T. Gillies*), 1 ♀ subimago, same data as holotype. All specimens are preserved in alcohol. The holotype and nine paratypes are deposited in the collections of the University of Utah. One male subimago paratype is deposited in the collections of the British Museum (Natural History), London.

Dr. Gillies records collecting this species on several occasions during the period between February 20th and March 27th, 1947. Air temperatures ranged from 47° to 73° F. at time of capture. Subimagos were seen hatching in the afternoon and the male imagos were once seen dancing in the late morning.

Considerable variation in the venation of the hind wings (figs. 4-9) occurs among specimens of *H. gilliesi*; this variation occurs even in specimens from a single population. Hind wing variation is frequent among the Leptophlebiidae; however, little has been recorded in the literature. Biancheri (1953 and 1956) has shown the extensive hind wing variation in the species *Habrophlebia (Habrophlebia) fusca* (Curtis) and *H. (Habroleptoidea) modesta* (Hagen).

The male imago paratype from Hong Kong Island is much darker brown and the markings on the abdominal terga are more extensive than in the holotype. The female imagos from both localities are very similar in colour.

Habrophlebiodes prominens Ulmer (1939) and *H. gilliesi* are closely related to the American species of *Habrophlebiodes*. The fore tibiae of the male imago of species from the Eastern Hemisphere are twice as long as the femora, whereas the fore tibiae of the American species are only slightly longer than the femora. No other adult character successfully separates *Habrophlebiodes* of the Eastern from those of the Western Hemisphere.

The nymphs of *H. prominens* are also closely related to the American species and fit well within the variability of the American species. Until additional material of the Eastern Hemisphere group is available, I feel it is not advisable to create a new group for them.

Habrophlebiodes prominens and *H. gilliesi* can be distinguished from each other by the male genitalia and female ovipositors. *Habrophlebiodes semicastanea* Gillies (1951) does not belong to *Habrophlebiodes* and will be transferred in a subsequent paper.

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