

**THE DISCOVERY OF *EPIOPHLEBIA LAIDLAWI* TILLYARD, 1921  
IN THE KATHMANDU VALLEY, NEPAL (ANISOZYGOPTERA:  
EPIOPHLEBIIDAE)**

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*Received July 13, 1979 / Accepted July 19, 1979*

2 teneral ♀, 1 ♂ exuviae and 36 penultimate — 5-ultimate instar larvae of both sexes, collected May 2-3, 1979 in the Shiwapuri Hills, Kathmandu Valley (alt. 2300-2732 m), are brought on record. This is the second record of *E. laidlawi* from Nepal (cf. S. ASAHINA, 1963, *Tombo* 6: 17-20) and the first case of the adult and larval stages of this sp. being collected at one and the same locality. Since the original sp. description is based on the larval stage only (R.J. TILLYARD, 1921, *Rec. Ind. Mus.* 22: 93-107), the present material confirms ASAHINA's 1963 description of the supposed adult from eastern Nepal. Photographs of the adult, exuviae and of the 4 anteultimate instars are also provided.

**INTRODUCTION**

In a small consignment of Himalayan dragonflies, collected in June 1918 and sent for identification to the late Dr. F.F. Laidlaw, there was a single specimen of a male penultimate instar larva, taken from a rapidly running stream between Gham and Sonada, Darjeeling, India, at an elevation of 7000 ft. (2100 m approx.), and in which Dr. Laidlaw recognized a member of the anisozygopteran *Epiophlebia*, though the larval stage of the Japanese congener, *E. superstes* (Sel.), was still undescribed then. Upon Dr. Laidlaw's invitation, Dr. R.J. TILLYARD (1921) described the specimen under the name *E. laidlawi*.

Nearly four decades later, in March 1958, in the same stream, Dr. S. ASAHINA (1958) collected seven additional (ultimate to quartultimate instar) larvae and, after a careful comparison with *E. superstes*, confirmed

Tillyard's original identification (ASAHINA, 1958, 1961a, 1961b). The adult insect, however, still remained unknown.

It was by the members of the Japanese 1963 "Lepidopterological Research Expedition to Nepal Himalaya" that an adult male and an adult female were taken, July 1, 1963, "in a valley near Chittrey, eastern Nepal", some 100 km as the crow flies west from the type locality in Darjeeling. (For the itinerary of the Expedition cf. 1966, *Spec. Bull. Lep. Soc. Jap.* 2: III-V; — and 1970, *Spec. Bull. Lep. Soc. Jap.* 4: IX-XI; both with a map). These were described and assigned (by supposition) to *E. laidlawi* by ASAHINA (1963). (For colour photographs of the two specimens cf. EDA, 1973).

During a recent field survey the present authors and their party, Messrs. N. Doi, K. Harusawa, Y. Kano, K. Katsura, O. Tominaga and M. Umamo, succeeded in capturing, May 2-3, 1979, two further female adults and numerous larvae in the Shiwapuri Dara (= Hills), Kathmandu Valley, central Nepal, at an elevation of 2300-2732 m. This locality is situated some 330 km west of Darjeeling, and some 230 km west of Chittrey. It is of particular importance that this time the larvae and the adults were taken at one and the same spot; this circumstance allows a direct connection between the Darjeeling larvae and the Chittrey adults.

## MATERIAL AND OBSERVATIONS

**Material.** — Nepal, Kathmandu Valley, Shiwapuri Hills: 1♀ (observed feeding), alt. 2732 m, 3-V-1979, O. Tominaga leg.; — 1♀, alt. 2400 m, 3-V-1979, N. Doi leg. (Fig. 1). — 1♂ exuviae, alt. 2520 m, 3-V-1979, M. Umamo & K. Katsura leg. (Fig. 2 A). — 3♂, 4♀, penultimate instar (Fig. 2 B). — 7♂, 6♀, antepenultimate instar (Fig. 2 C). — 10♂, 2♀, 4-ultimate instar (Fig. 2 D). — 2♂, 5-ultimate instar (Fig. 2 E), all alt. 2300 m, 2/3-V-1979.

In view of the fact that the two adults were rather teneral, the emerging season is supposed to begin early in May. One of them was feeding at the top of the Shiwapuri, at approximately 1 km from the stream. Thus, young adults may cover a considerable distance shortly after the emergence.

Although many larvae were taken, we were unable to find a single ultimate instar, save for one exuviae floating in the stream. As observed in *E. superstes*, the ultimate instar larvae might have landed already prior to their emergence.

Like in *E. superstes*, stridulation was also noticed in our Nepalese larvae (cf. ASAHINA, 1939).

## HABITAT

The larvae inhabit a small stream near its source, in the midst of the higher zone of the warm-temperate forest, at the elevation of 2300-2500 m. The stream bed contains several small rocks, the water flow seems rather constant,

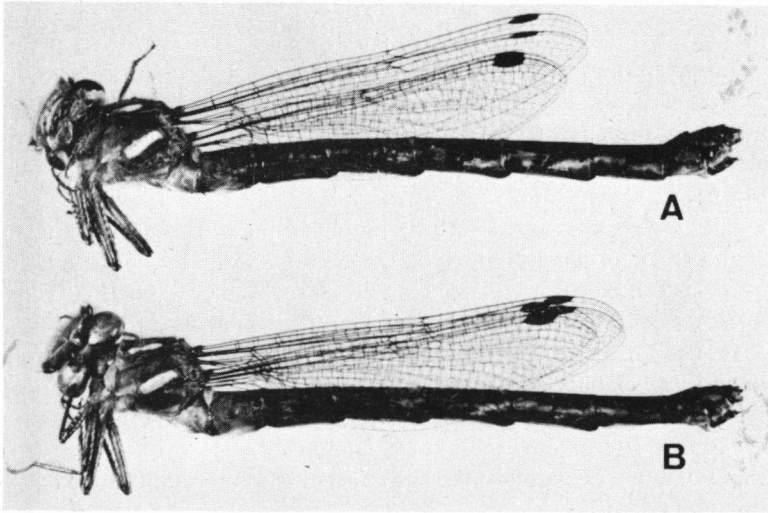


Fig. 1. *Epiophlebia laidlawi* Till., adult female specimens from the Shiwapuri Hills, 15 km NE of Kathmandu, Nepal, showing a slight variation in the metepisternal stripe: (A) alt. 2730 m; — (B) alt. 2400 m.

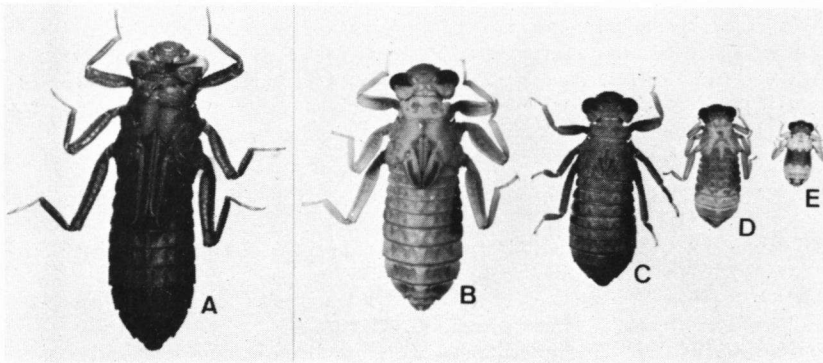


Fig. 2. *Epiophlebia laidlawi* Till., larval stages from the Shiwapuri Hills, Nepal, alt. 2520 m: (A) ♂ exuviae, 24.0 mm; — (B) ♀ penultimate instar, 19.6 mm; — (C) ♀ antepenultimate instar, 15.5 mm; (D) ♂ 4-ultimate instar, 10.2 mm; — (E) ♂ 5-ultimate instar, 5.4 mm.

and sunny sections alternate with shady ones. On May 3, 1979, at 08:00 hrs the air temperature amounted to 16°C, and water temperature was 12.3°C.

It is surprising that no plants suitable for oviposition were seen near the stream, while *Petasites*, *Ligularia* and *Arisaema* are usually found in *E. superstes* habitats. Thus, the habitat of *E. laidlawi* seems somewhat different from that of the Japanese congener. The latter lives in bigger torrents, with faster running water and with rich vegetation suitable for oviposition.

## DISCUSSION

Careful examination of the larvae in the present material and their comparison with the descriptions of those from Darjeeling revealed good agreement in measurements and in structural features. We, therefore, conclude that the material from the Kathmandu Valley should be identified as *Epiophlebia laidlawi*.

The adults were compared with the descriptions of those from Chittrey. Although similar in most characters, the Kathmandu material differs from that from eastern Nepal in having a slightly larger pterostigma (2.3-2.6 mm) and by the terminal process of the eighth sternite, which is well developed and hook-like, as in *E. superstes*. It should be stressed, however, that in the latter species too, the female sometimes has a less developed terminal process, similar to that of the Chittrey specimen. It can be assumed, therefore, that the Chittrey adults also are referable to *E. laidlawi*.

A more detailed account on the subject will be given elsewhere by Dr. S. Asahina.

## ACKNOWLEDGEMENTS

For his valuable comments and suggestions the authors are obliged to Dr. S. ASAHINA (Tokyo). Thanks are also due to Mr. K. INOUE (Osaka) and Mr. I. HIURA (Osaka) for their kind advice, and to the members of the party, Messrs. N. DOI, K. HARUSAWA, Y. KANO, K. KATSURA, O. TOMINAGA and M. UMANO, for their assistance in getting the material.

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