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Notes on Neotropical Ephemeroptera. I. New and little known  
Leptophlebiidae.

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(With 4 figures)

The present paper treats primarily of some Neotropical Mayflies that I have been able to study through the kindness of my colleagues, Georg Ulmer of Hamburg, Germany, and D. E. Kimmins of the British Museum (Natural History), London. Dr. Ulmer sent me a small series of a new species of *Thraulodes* from Brazil which is described below and named in honor of him. He has also sent specimens of the Brazilian *Thraulodes ehrhardti* Ulmer and *Thraulodes maculipennis* Ulmer for me to examine. He previously had suggested to me (in letter) that these two species actually should be placed in the recently erected genus *Traverella* (Edmunds, 1948). Subsequent study has confirmed the fact that these two species are congeneric with *Traverella albertana* (McDunnough), the genotype, and they are hereby placed as *Traverella ehrhardti* (Ulmer) and *Traverella maculipennis* (Ulmer).

An examination of the figures of the female subgenital plates of *Thraulodes primanus* Eaton (Mexico) and *Thraulodes versicolor* Eaton (Costa Rica and Panama) given by Kimmins (1934, Ann. Mag. Nat. Hist., Ser. 10, 14:342) led me to suspect that these two species also were referable to *Traverella*. Kimmins responded to my query for further information by sending pencil sketches of the wings of the type specimens of both species. The wing venation (See Figs. 1a-b, 2a-b) indicates that my original suspicion was apparently correct and they are hereby placed as *Traverella primanus* (Eaton) and *Traverella versicolor* (Eaton). Kimmins has also examined the holotype of the European *Thraulodes bellus* Eaton, the genotype of *Thraulodes*, and has noted that Eaton's figures of the wings of this species are inaccurate in several details. He has very kindly sent me accurate figures of the wings which are herein reproduced (Figs. 3a-b).

It seems doubtful that the true genus *Thraulodes* occurs in the Neotropical region; further knowledge of the species now assigned to this genus will probably prove that it is confined to the Palearctic region.

Following is the description of the *Thraulodes* sent to me

by Dr. Ulmer. It is apparently a new species to which I apply the name:

*Thraulodes ulmeri*, n. sp.

Male. Length: body, 6.5 mm.; forewing 6.5 mm.; hindwing 1.2 mm. Head light purplish-brown on upper surface; ocelli white, broadly ringed with fuscous; ventral surface pale with irregular fuscous markings. Antennal scapes pale; pedicels deep brown; flagella pale. Lower portion of compound eyes black; upper portion dull orange; when viewed dorsally, slightly broader than long and broadly contiguous.

Pronotum pale yellow, margined narrowly with fuscous at the posterior median and lateral edges. Mesonotum yellowish-brown; outer parapsidal furrows deep brown cephalad of the wing bases (on both of the male subimago paratypes these furrows are also brown caudad to the junction of the two parapsidal furrows); a small fuscous streak behind base of forewings. Metanotum yellowish-brown; brown spot at the bases of the hind wings. Pleurae of the thorax pale yellowish-brown with numerous conspicuous fuscous markings, especially on the subalar, episternal, and epimeral sclerites, and above the metathoracic coxae. Sternum pale except for yellowish-brown furcisternal plates. Coxae pale, marked with fuscous on meso- and metathoracic coxae; trochanters pale; femora pale on proximal two-thirds, distal portion deep yellow-brown and separated from the pale area by a narrow fuscous ring, dorsal edge of yellow-brown area faintly to moderately fuscous, ventral edge distinctly fuscous; tibiae pale; tarsi faintly washed with brown on middle and hind legs. (Front left leg missing; rear left leg a short regenerated stump on the holotype). Relative proportions of the segments are given below in tabular form. The lengths of all segments are given as a proportion of the length of the fore femur. All measurements were made along the dorsal edge. Actual length of the fore femur is 1.33 mm.

Leg	F	Ti+T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>	T <sub>5</sub>
I	1.000	1.567	0.384	0.292	0.200	0.141
II	0.946	1.108	0.070	0.054	0.043	0.113
III	1.243	1.216	0.065	0.054	0.043	0.135

Wings hyaline; longitudinal veins pale amber; cross veins colorless; a stigmatic cloud in the forewings; distal portion of the costal braces and bases of subcosta and  $R_1$  as far as the

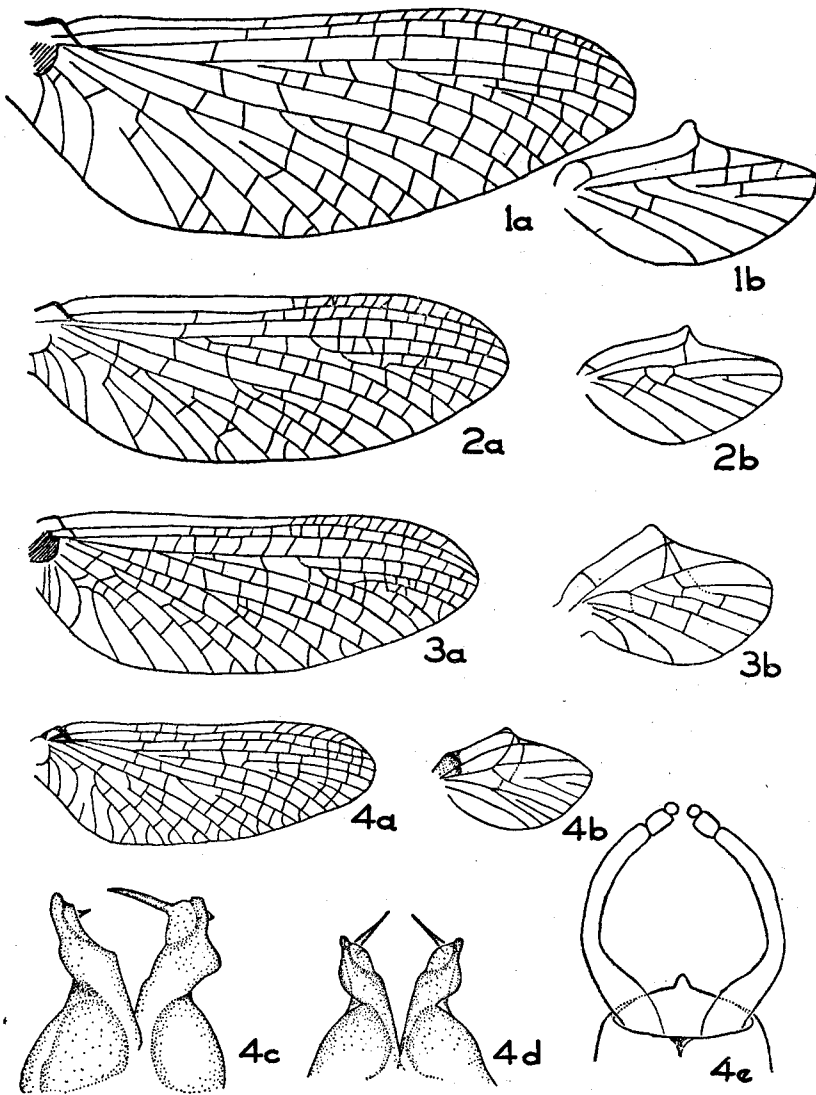


Fig. 1. *Traverella versicolor*. 1a, forewing of male type; 1b, hindwing of male type. — Fig. 2. *Traverella primanus*. 2a, forewing of male type; 2b, hindwing of male type. — Fig. 3. *Thraulodes bellus*. 3a, forewing of male type; 3b, hindwing of male type. — Fig. 4. *Thraulodes ulmeri*. 4a, forewing of male type; 4b, hindwing of male type; 4c, penes, ventro-lateral view, 4d, penes, ventral view, 4e, forceps and forceps base, ventral view.

costal braces marked with fuscous on both pairs of wings. Venation as in Figs. 4a-b.

Abdominal segments 1-6 semi-hyaline with the following markings on each side; fuscous spots at spiracular openings; a brown spot on each side near the anterior margin of each tergite

half way between median and pleural lines; faint nebulous submedian spots on tergites; tergite 6 with paramedian brown spots on anterior margin and narrow purplish-brown band on posterior margin. Segments 7-10 opaque, yellow-brown; fuscous spiracular spots on 7; *anterior* margins of tergites 7 and 8 narrowly banded with purplish-brown. Genitalia as in Figs. 4c-e; forceps pale; penes yellowish-brown. Tails missing from holotype. Two paratype male subimagos have pale tails banded with purplish-brown. The bands vary in width from narrow to one-third as wide as the segment. Both specimens show a tendency to have wide and narrow bands on alternate segments.

**Female.** Length: body, 5.5-7; forewing, 6-8; hindwing, 1.2-1.3 mm. With usual dimorphic differences. Head similar to male except that median area behind ocelli is pale; lateral areas marked with fuscous; a pair of fuscous spots postero-mediad of lateral ocelli. Thorax as in male except that there is a distinct dark median line on the prothorax. Legs and wings as in male except for proportions of segments of legs. Abdominal segments 1-7 with fuscous spiracular spots; diffuse brown spots near the anterior margin of the tergites about halfway between median and pleural lines. Tergites 1-7 washed with brown, narrowly banded with darker brown anteriorly. Tergites 8-10 paler. All sternites pale. Subanal plate broadly emarginate at the distal margin.

**Holotype, male:** Sta. Catarina, Hansa-Humboldt, Brazil, Sept.-Oct., 1931, W. Ehrhardt. **Allotype, female;** **Paratypes,** one male imago, one female subimago, two male subimagos, same data. Additional specimens of the same series are in Dr. Ulmer's collection.

**Taxonomy.** In the key given by Needham and Murphy (1923, Bull. Lloyd Library 24; Ent. Series 4:40) smaller specimens of *T. ulmeri* will run to *T. lepidus* (Eaton) and larger specimens will run to the closely related *T. telegraphicus* Needham and Murphy. From the former, *T. ulmeri* can be readily distinguished by the abdominal markings and by the predominantly pale forelegs with the yellow-brown bands of the distal third of the femora. From *T. telegraphicus* it is distinct by means of the absence of dark ganglionic markings and by more extensive dark markings on the thoracic pleura. From *T. prolongatus* Traver it is readily distinguished by the less extensive dark abdominal markings. The genitalia appear to be distinctive.