

URUGUAYAN MAYFLIES

Family *Leptophlebiidae*: Part III¹

by Jay R. Traver²

Genus "*THRAULUS*" in the New World

As noted in Part I of this series (Traver, 1959: footnote, p. 4), the genus *Thraulius* Eaton seems not to occur in the New World. Several of the Neotropical and Nearctic species originally described in *Thraulius* have been transferred to other genera. Thus, Ulmer (1920 and 1943) placed the following in *Thraulodes*: *laetus* Eaton, *lepidus* Eaton, *mexicanus* Eaton, *bomplandi* Esb. Petersen, *hilaris* Eaton, *valens* Eaton, *colombiae* Walker, and *trijuncta* Banks. Edmunds (1948 and 1950) transferred to the genus *Traverella* these species: *albertana* McDunnough, *presidiana* Traver, *ehrharti* Ulmer, *maculipennis* Ulmer, *versicolor* Eaton, and *primanus* Eaton. *Thraulius haarupi* Esb. Petersen has been placed by Traver (1959) in the genus *Ulmeritus*. Demoulin (1955) erected the genus *Homothraulius* for *Thraulius misionensis* Esb. Petersen. It is probable that *bradleyi* Needham and Murphy, *montium* Ulmer, and *valdemari* Esb. Petersen should be transferred to the genus *Traverella*. On the basis of Spieth's description, *convexus* apparently belongs in *Homothraulius*; it is quite possible that *maculatus* Needham and Murphy belongs in that genus also. Still remaining in the genus *Thraulius*, to which they quite certainly do not belong, are three species described by Traver—*demerara*, *caribbeanus* and *roundsi*, —and three others described by Navas—, *sallei*, *larensis* and *costalis*. The first three of these have the following characters in common with each other and

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- 1) Este trabajo ha sido realizado en su mayor parte sobre materiales del Uruguay, pertenecientes a las colecciones del Departamento de Entomología de la Facultad de Humanidades y Ciencias (Universidad de la República, Uruguay). La mayoría de los insectos estudiados fueron coleccionados en los viajes de estudio al norte del país organizados por los Departamentos de Zoología de Vertebrados y de Entomología de la Facultad nombrada, como parte de su proyecto conjunto denominado "Identificación y distribución de la fauna indígena del Uruguay", viajes que fueron financiados con partidas del rubro "Investigaciones Originales". Por esta razón debe considerarse que se exponen en el presente trabajo, resultados parciales del mencionado proyecto de investigación. Recibido para su publicación en julio de 1960. (Nota del editor).
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with *Homothraulius*: in fore wing, veins in Rs form two triangles, MA without sag in stem but with asymmetrical fork; costal angulation of hind wing prominent, MP not forked. They differ from *Homothraulius* in the reduced size of the hind wing and the more acute costal angulation; in *demerara* and *caribbeanus*, one of the longitudinal veins behind Rs (apparently the hindmost one) is lacking in this wing, and the vein immediately behind the Rs fork has its origin nearer the base of the wing. Another feature not found in *Homothraulius* which occurs in *roundsi* and *caribbeanus* but not in *demerara* is the presence of a backwardly-directed projection from the mid-ventral margin of the forceps base, extending between the forceps limbs. The subanal plate of the female of *demerara* is truncate to very slightly emarginate apically; distinctly emarginate in *caribbeanus*; obtuse in *roundsi*. These three species are probably not congeneric and evidence for placing any one of them in *Homothraulius* is insufficient. I propose to leave them in "Thraulius" for the present at least. Navas says of his species *costalis*: "*Similis missionensis* E. Pet. et *Ehrhardti* Ulm."; neither his figures nor description aid in the determination of the genus, but the colored strip on the costal margin of the fore wing is reminiscent of *Traverella* or perhaps of *Ulmeritus*. His *larensis* is said likewise to be similar to "*missionensis*", but his figure of the hind wing shows too many cross veins. The incomplete figure he gives of the genitalia of *sallei* bears some resemblance to *Thraulodes*; both fore and hind wings are shown as possessing many cross veins. Until the type material of these three species of Navas can be examined, I would leave them also in "Thraulius".

Genus *HOMOTHRAULUS* Demoulin

Homothraulius Demoulin, 1955. Bull. Inst. Roy. Sci. Nat. Belg. 31 (20): 11-13

The following diagnosis of the adult forms is based primarily on specimens taken at various stations in Uruguay by Dr. C. S. Carbonell and his colleagues, during the past several years. Demoulin's description of his new genus was based primarily on characters of nymphs which he postulated as representative of the genotype, although these were described under the heading, *Homothraulius* sp. *Thraulius misionensis* Esb. Petersen was designated as the genotype.

Turbinate eyes of male large, slightly oval, not contiguous apically; head wider than thorax. Head of female almost straight on posterior margin; pronotum at mid-line fully as wide as head when viewed from above. In fore wing, double triangles formed in region of Rs; stem of MA straight, no sag; fork of MA asymmetrical (see Fig. 17, in Part I of this series); wing circa three times as long as its greatest width. No cross veins in costal space

basal of bulla, in type specimens; 12 - 15 cross veins beyond bulla, single, slightly aslant. Hind wing 0.16 as long as fore wing, 0.6 as wide as its own greatest length. Costal angulation acute; Sc ends just below peak of this angulation; fork of Rs-MA wide, in length fully twice as long as its stem; MP not forked; no cross veins in costal space, nor in basal half of subcostal space, two beyond angulation in latter space; very few other cross veins. Fore leg of male circa 0.92 as long as fore wing; tibia c. 1½ times length of femur, slightly longer than tarsus; tarsal joints range in descending order as: 2, 3, 4, 5, 1. Hind leg of male 0.58 of fore wing; tibia very slightly longer than femur, almost three times length of tarsus; tarsal joints: 2, 3, 5, 1 subequal to 4. Fore leg of female c. 0.58 the length of fore wing; femur and tibia subequal, tibia c. twice length of tarsus; tarsal joints: 5, 2, 3, 1 subequal to 4. Hind leg 0.55 of fore wing; tibia slightly longer than femur, tibia c. twice length of tarsus; tarsal joints: 5, 2, 3, 1 and 4 subequal, or 2 subequal to 3. Claws dissimilar on all legs in both sexes. Forceps base of male not divided; no slender rod-like processes; forceps bowed, rather stout, apical joints short, basal joint long and slightly swollen basally; a U-shaped or rounded notch separates the divisions of the penis apically, bases united; from each division a spear-shaped process extends ventrally, arising from apical margin (in subimago, usually lateral in position). Subanal plate of female sometimes obtuse on apical margin, in other specimens truncate or slightly retuse.

Nymph described by Demoulin as that of *Homothraululus*

Demoulin gave several excellent figures of a nymph which he postulated to be that of *Homothraululus*. On pg. 13 of his 1955 paper he wrote: "Des ailes subimaginales dissequées d'une larve mature presentent nettement l'asymetrie de MA, caracteristique du genre". On pg. 11, in comparing this nymph with that of *Thraululus bellus*, he stated: "J'estime ces diverses differences structurales suffisantes pour justifier la creation d'un genre nouveau, *Homothraululus*, dans lequel se placeront tous les ex-*Thraululus* americains que G. F. Edmunds n'a pas transferes dans son genre *Traverella*". Inasmuch as I have in my collection several Neotropical nymphs in addition to those of *Ulmeritus*, all of which exhibit gills of the type of *Ulmeritus* and of Demoulin's nymph, but with MA of the fore wing symmetrical and MP of the hind wing forked, I communicated this information to Dr Demoulin. In correspondence with me, in 1956, he wrote that he had re-examined his material, none of which he said had been in very good condition, and continued; "Aujourd'hui, faute de pouvoir examiner une autre larve mature je me suis adressé à un exemplaire plus jeune, dont le ptérothèques, heureusement,

sont encore visibles.A l'aile I de mes larves, la MA est symétrique. A l'aile postérieure, MP est fourche, sans IMP marquée". It thus became evident that his nymph could not be that of *Homothraulius*, since neither of the above features occur in that genus. Dr. Demoulin has authorized me to publish the follo-

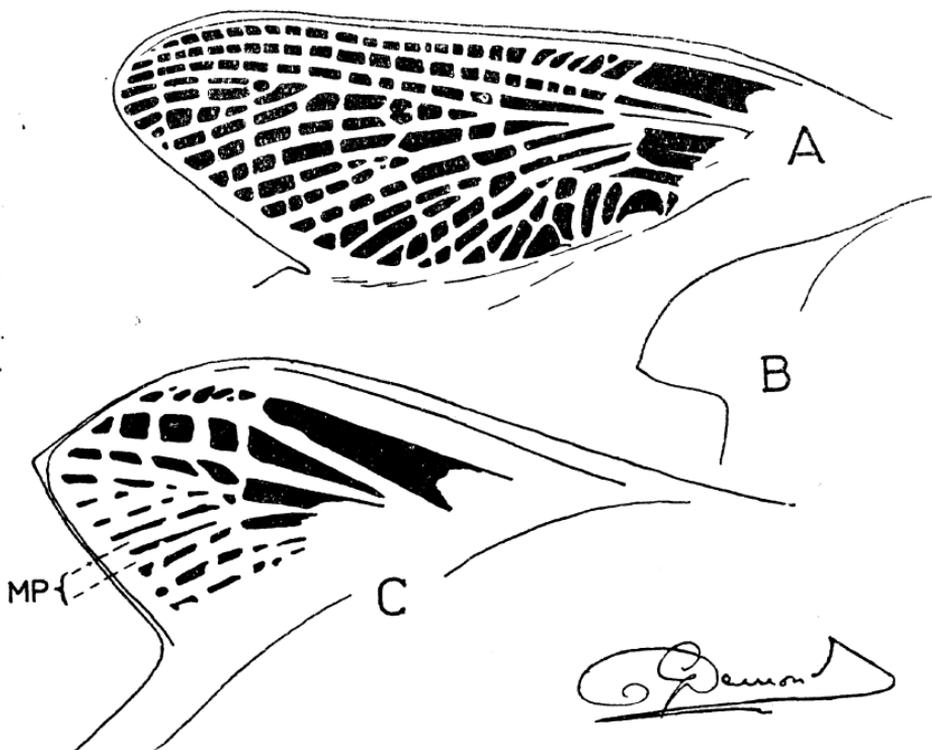


Fig. 1. Revised figure by Dr. G. Demoulin: fore and hind wings of nymph he described originally as that of *Homothraulius* sp.
A, fore wing x46; B, hind wing x46; C, hind wing x113.

wing revised figure which he prepared, showing the venation of this younger nymph; it appears herein as fig. 1. As noted in my paper of 1956, Addendum, p. 12, Demoulin's nymph and that of *Ulmeritus* are quite similar but not identical. Dr. Demoulin also agreed with me (in the same correspondence) that there is insufficient evidence for the transfer to *Homothraulius* of all other Neotropical species not currently placed in some other genus.

Presumed nymph of *Homothraulius*

Nymphs which I believe to be those of *Homothraulius*, on the basis of the venation of almost mature nymphs and of the

incipient genitalic structure of the subimago dissected out from mature male nymphs, are herewith described. As in the case of any nymphs which have not been reared, determination of the genus to which they belong must be based on such structural features. The size of the nymphs relative to that of the imagos to which they appear related by the above features must also be considered.

Head of nymph almost rectangular, widest between the eyes, narrowed ahead of antennae; clypeus slightly wider than base of labrum; head capsule at widest point slightly wider than prothorax but narrower than mesothorax. Antennae arise from dorsal surface of head, one and one-half times as long as head; mandibles visible on each side, rounding out the contour of the anterior half of the head; mouthparts as shown in figs. 2, 3, 4, 5, 6, 7, 8, and 9. Pronotum excavated medially on posterior margin. Legs rather slender, long and rather flattened; third leg (see fig. 10) longest, about as long as abdomen, fore and middle legs only slightly shorter; large tooth next to tip of claw, about fifteen smaller pectinations following this large tooth (see fig. 11). Venation of almost mature nymphs essentially similar to that of the winged forms believed to be of this genus; hind wing of one specimen shown in fig. 12. Gills on abdominal segments one through seven; all gills essentially similar in structure, bilamellate, each lamella lanceolate and tapering to a slender terminal process, upper member of each pair slightly shorter and narrower than the lower member on the basal gills; seventh pair smaller than any of these preceding. Gills of first, third, fifth and seventh pairs as in figs. 13, 14, 15, and 16. Lateral spines present on abdominal segments eight and nine; spine on eight turned outward slightly, that on nine practically straight, parallel to the margin of the tergite, and not attaining the apex of segment 10 (see fig. 17). Tails three, middle tail slightly the longest, as long as or a little longer than entire body. Incipient genitalia of subimaginal male appears essentially similar to that of the winged forms (see fig. 18).

Male nymphs: body 6 - 6½ mm.; female nymphs: body 7 mm.

A considerable number of nymphs were collected at Laguna del Sauce, Maldonado, Uruguay, Dec. 17, 1950 (C. S. C.), a few others at Lavalleja (Río Santa Lucía, Arequita), on Jan. 2, 1951 (C. S. C.). Most of these I believe to be the nymphs of *H. misionensis*, because of the color pattern discernible on mature nymphs, which pattern matches that of adult specimens of this species. Body reddish brown. Black scroll-like markings on pronotum of each sex. Legs largely reddish brown; femur with dark gray pre-apical band and faint indications of a dark median band incomplete except at the margins; tibia alternately dark and pale, the dark areas at base and beyond middle; tarsus nar-

rowly pale at base, a wider pale area apically. Claws reddish brown. Gills deep purplish to blackish gray. Abdominal tergites shaded with dark gray and with pale areas on male specimens similar to those of the adult forms; posterior margins of all tergites narrowly black. Tails reddish brown, darker at joinings; near base, every second or third joining is wider.

Homothraulius misionensis (Esben-Petersen, 1912)

Thraulius misionensis Esb. Petersen, 1912. Deutsch. Ent. Zeit.: 339, fig. 8.

Thraulius misionensis, Ulmer, 1943. Stett. Ent. Zeit. 104: 29-30, figs. 50-52.

Homothraulius misionensis, Traver, 1959. Rev. Soc. Uruguay Ent. 3: figs. 14, 17.

The species was described from two males taken at Bompland, Argentina. "Thorax dark brown above, paler at the sides. Abdomen dorsally reddish brown with the front border of segments 2-8 translucent white. At the sides of dorsum of segments 3-7 a triangular whitish yellow spot extends backwards from the whitish border; the spot is enclosed by two fine dark brown longitudinal lines, which converge to a point in the hind border of the segment. The lateral margin of segments 2-8 with a fine dark brown longitudinal line. The venter yellowish brown. Penis yellowish white. Forceps dark brown. Setae yellow with fine black annulations. Femora and tibia of intermediate and hind legs light brown; knees blackish brown. Tarsi paler than femorae and tibiae. Fore wings hyaline with a yellowish tinge in the marginal area. The nervures and cross veins yellowish brown and darker than the membrane. The costal area without cross veins at the base and with 10 cross veins in the pterostigmatal region. The subcostal area with two cross veins in the inner half".

"Length, 5,5 mm.; wing 7 mm., setae circa 10 mm."

"The description is made from two males from Bompland, prepared in alcohol. The specimens have lost their fore legs" (Esb. Petersen).

Ulmer re-described these two type males at some length, and gave figures of the abdomen from lateral aspect, and two views of the genitalia. As his description is rather long, I do not quote it here, but refer the reader to his article. The following account of male and female imagos is presented from material taken at several areas in Uruguay, by Dr. Carbonell and his colleagues. The specimens agree well enough with descriptions by Esben Petersen and by Ulmer, so that I do not hesitate to place them in the above species. Differences between the Uruguayan and the Argentine specimens are indicated, and the female is described for the first time. Figures of wings and genitalia of *misionensis* were presented in Part I of this series of articles (Traver, 1959). It should be noted that the male imagos from which the following description is drawn are somewhat

smaller than the type specimens, although as noted below, males from another locality are fully as large as the types.

Length of fore wing 6-6½ mm. Head dark reddish brown, paler between the ocelli; posterior margin outlined in black; turbinate eyes oval, reddish brown, basal portion of eyes black, eyes not contiguous apically; basal segments of antennae light reddish brown, filament paler. Thoracic notum dark reddish brown, metanotum rather paler than mesonotum. Principal sclerites of pleura dark reddish brown, paler areas between them; sternites slightly paler, mid-areas yellowish brown. All femora quite deep yellowish brown, apices darker, outer margins dark brown; no distinct median bands but black streaks on margin at points where such a band if present would terminate; blackish longitudinal line across central portion of outer surface. Tibiae paler than femora; knees dark brown, as is middle of outer margin of fore tibia. Tarsi yellowish, a small dark mark at each joining. Fore wing faintly yellow-tinged, especially along costal border, veins on this margin deep golden to reddish brown; other longitudinals same color but less intense; cross veins similar in color, less prominent than longitudinals. Small dark spot at extreme base of this wing. Hind wing whitish except base and veins of costal margin, which are faintly reddish brown.

Background of abdominal tergites light grayish brown, apical tergites with reddish tinge; anterior margins of tergites 2-8 translucent whitish, widest on tergites 4 and 7; this pale area extended backward and laterally in a somewhat triangular pattern almost to the posterior margin, enclosed by dark lines along pleural fold on one side and by darkened strip of brownish ground color on the other, this latter strip more or less crescentic in shape. Distinct blackish stigmatic spot within the dark line along pleural fold. Mid-area of tergite 4 wholly pale. Narrow dark median line on tergites 1-2; on 6 and 7 a dark submedian lens-shaped mark surrounds a pale gray median line; on 8 and 9, mid-line narrowly pale. Sternites very pale yellowish brown; anterior margins of middle segments pale; sternite 1 shaded and margined with brown. No indication of darker ganglionic areas or of any other dark markings ventrally. Genitalic forceps reddish brown, penes yellow. Tails yellowish, joinings narrowly dark, most noticeable in basal portion.

The male imagos described above were taken at the following localities in Uruguay. Artigas, Sepulturas, Jan. 15, 1952, attracted by light at night on banks of Cuareim river. Artigas, Arroyo de la Invernada, Feb. 21, 1954, attracted by light near the banks of stream, rocky and sandy bottom with rapids. Artigas, Sepulturas, Dec. 15, 1957, attracted by lights at night on banks of Cuareim river; river shallow, rapid, with bottom of loose boulders and sand in some places, but in other places deep pools of slow

current, with bottom of sand or silt. Lavalleja, Rio Cebollati, Feb. 28, 1958; exact locality known as "Picada de Rodriguez"; bottom of river with sand and rocks; rapids of shallow water and deep pools with slow current; insects collected at sunrise, flying over river.

Other male imagos, with wing length of 7 mm., taken at Durazno, Paso de la Cruz, on Feb. 2, 1953, show the following differences in color. Femora uniform in color throughout except for dark apical bands and a dark area extending backward from these bands; tibiae and tarsi practically concolorous. Both tergum and sternum of abdomen rather uniform light reddish brown, with only faint indications of the paler lateral areas and the enclosed pale spots which are so evident on the other males; posterior margins of all tergites, and pleural fold, narrowly black. Since the genitalia of these specimens do not differ from those described above, it is probable that they are merely color variants. These specimens were taken in the morning, flying over the waters of the Cordobes stream (L. C. Zolessi, leg.).

Female imago: Fore wing 6 - 6½ mm.; body 5 - 5½ mm. Head largely rather dark reddish brown; triangular area posterior to median ocellus pale gray, widest in area adjoining eyes, head reddish brown behind this gray "shelf"; antennae reddish brown. Pronotum dark reddish brown, with blackish scroll-like lateral markings; black line above leg bases. Mesonotum dark reddish brown, scutellum outlined in black. Metanotum somewhat brighter reddish brown. Pleura similar in color to metanotum but with narrow paler areas around bases of middle and hind legs. Thoracic sternum light reddish brown. Legs pale reddish brown; femora narrowly blackish at apex and along mid-area of outer margin; tibiae and tarsi concolorous, slightly paler than femora. Venation of fore wing mainly reddish brown; brown stain on membrane at wing base; membrane between subcosta and radius in basal half distinctly yellow-tinged, elsewhere a faint fawn color; cross veins almost as prominent as longitudinals. Bullae, present on veins Sc, R2 3, R4 5 and on MP1, more distinct in female than in male. Pale reddish brown stain in basal costal space of hind wing, faint extensions of this stain along costal margin to and including costal angulation. Longitudinal veins and cross veins in the subcostal space paler reddish brown stain on membrane at wing base; membrane between brown than veins of fore wing (fig. 19).

Abdomen dorsally grayish brown with reddish tinge, the latter most evident on apical segments; anterior margins of middle tergites narrowly pale yellowish white, this pale area wider near pleural fold and variable in amount in different specimens, in some quite irregular in outline. Posterior margins very narrowly darker, those on apical segments distinctly blackish;

narrow pale middorsal streak on segments 4 or 5 to 8 or 9 (somewhat variable in different specimens). A prominent darker line margins the pleural fold, distinctly black in some specimens, so that the dorsal surface contrasts strongly with the paler ventral areas. Sternites very pale fawn color, apical segments somewhat deeper in color than those preceding; intersegmental areas pale. Subanal plate usually slightly obtuse. Tails yellowish white, joinings in basal portion reddish brown. The above description is drawn from 25 specimens taken at Artigas, Sepulturas, Uruguay, Dec. 15, 1957 (C. S. Carbonell). Variations from the above are indicated below.

Females from Durazno, Uruguay, taken Feb. 2, 1953 (L. C. Zolessi) are paler than those from Sepulturas; venation more yellowish than reddish brown, dark stain seems lacking from wing base, cross veins in cubito-anal region fainter; femur yellowish brown, darker at apex and with black longitudinal streak in middle of outer surface, black line near center of outer margin. Wings of these females measure $7\frac{1}{2}$ mm., body $5\frac{1}{2}$ mm. Several females taken at Quebrada de los Cuervos, Treinta y Tres, Uruguay, Dec. 17, 1952, (C. S. Carbonell) are likewise considerably paler than those from Sepulturas; longitudinal veins of hind wing same color as those of fore wing, cross veins fainter; these females measure 8 mm. for the fore wing, $6\frac{1}{2}$ mm. for the body. These specimens were attracted by light, at night, on the banks of Yerbal Chico stream. Other records for females of this species are: Tacuarembó, Headwaters Arroyo Laureles, Feb. 10, 1954 (C. S. Carbonell), attracted by lights near the stream, which there has a rocky bottom, rapids and a nearby waterfall; Lavalleja, Rio Cebollati, Jan. 5, 1957 (C. S. C.), same data as given for males. It might be noted that the females from Durazno, mentioned above, were taken in the morning, over the water of the Cordobes stream.

Nymphs believed to be those of *H. misionensis* have been described above.

Homothraululus lucretiae, sp. nov.¹

This species is described from subimago specimens, usually an unwise procedure. In this case however the markings on both male and female are so distinctive that the establishment of a new species from the first winged stage seems justified. Specimens from which description is drawn are nearly mature.

1) This species is named in honor of Mrs. Lucrecia Covelo de Zolessi.

Male subimago: Body 6 - 6½ mm.; fore wing 6 - 6½ mm. Head reddish brown; three to four discontinuous blackish submedian dashes in narrow space between compound eyes; dark median streak posterior to median ocellus, oblique dark streaks from each lateral ocellus to median line; on ventral surface, black lateral patches below each antenna; turbinate eyes large, reddish brown, not quite contiguous apically, basal portion blackish; basal segments of antenna light reddish brown, filament rather dusky. Thoracic notum light reddish brown. Three wavy black transverse lines cross the pronotum, leaving the median line narrowly pale; black scroll-like lateral lines; black line parallels lateral margin. Mesonotal shield outlined in black; a pale patch on each side anterior to scutellum; tip of scutellum pale, preceded by black submedian marks. Transverse black markings laterally on metanotum. Pleura paler than notum, somewhat grayed; inconspicuous darker shading near bases of meso- and metathoracic legs. Prosternum largely yellowish, anterior margin of mesosternum and areas anterior to mesothoracic legs shaded with grayish brown.

Fore femur quite bright reddish brown, indistinct dark spot near middle on outer surface; tibia black in basal third, remainder of tibia and all of tarsus yellowish white, joinings of latter narrowly darker. Dark markings on coxae of all legs. Middle and hind femora bright reddish brown in middle portion, pale at base and in triangle along lower edge next to reddish area, apex narrowly black preceded by pale band. Tibia of mesothoracic leg purplish red in basal half, remainder yellowish white; hind tibia deep purplish red except for narrow pale apical area; tarsi of middle and hind legs yellowish white, very narrowly darker at joinings. On fore wing, a crescentic brownish gray mark at extreme base; all veins appear yellowish. Basal half of costal space on hind wing conspicuously black. Shape of hind wing differs somewhat from subimaginal wings of *H. misionensis*: see fig. 20.

Abdominal tergites mainly deep reddish to blackish brown, but with conspicuous yellow areas as follows. Rather wide yellow band adjoining pleural fold on tergites 2-8, narrowest on 2; on 3-8 this yellow area is partially divided by a dark brown longitudinal stripe from the posterior margin, not reaching the anterior margin on middle segments. Tergite 4 largely yellow, except for narrow dark posterior margin, narrow dark submedian triangle based on posterior margin and not attaining anterior margin, plus the previously mentioned dividing line on yellow lateral area. Tergite 5 resembles 4 except that the pale median area is now overlaid by brown shading. Tergites 6 and 7 dark in median portion except for narrow pale submedian triangle and line dividing lateral yellow area. This yellow submedian triangle is

faintly indicated also on tergites 8 and 9 but shaded deeply with brown. Narrow pale median line on all tergites, widest on 4, 5 and 8. Pleural fold narrowly dark brown. Sternites quite bright yellow; lateral areas of sternite 2, median area of 8 and all of 9, dark-shaded. Genital forceps deep blackish brown; penes slightly paler, spear-like processes on these paler and directed laterally as in most subimagos of *misionensis*. No evident differences in structure between genitalia of *lucretiae* and *misionensis*, in the subimaginal stage. Tails quite bright yellow except for black area at extreme base; joinings in basal half conspicuously black, alternately wide and narrow; in apical half, black joinings present but narrower, not alternating in width.

Female subimago: body 7 mm.; fore wing 7 mm. Differs from male only as indicated. Head flesh-color; oblique dark lines from lateral ocelli to middle of posterior margin; submedian dashes not in evidence; antennae paler, surrounded at base by black areas. Lateral scroll-like markings on pronotum more pronounced. Somewhat more dark shading on pleura. Femora not as bright reddish, this middle area more reduced on fore and middle femora and bordered by dark mark on each margin; almost entire basal half of fore tibia and two-thirds of middle tibia purplish brown. Dark crescent at base of fore wing less conspicuous, but black area in costal space of hind wing more extensive, a portion of it reaching almost to costal angulation. On abdominal tergites the lateral yellow area is crescentic, discontinuous, shaded with reddish; on each stigma a purplish black mark; posterior margins of all tergites narrowly blackish. Adjacent to the lateral yellow crescent and continuous with the dark background is another crescentic mark, this mark purplish brown; just median to this crescent is a pale spot (sometimes two such spots) entirely surrounded by dark background. Median line more conspicuous; very wide on 4 and 5, slightly narrower on 8-10, still narrower on other tergites; bounded by narrow black submedian streaks, most prominent on tergites 6 and 7. Tergite 8, instead of 4 as in the male, may be largely yellow, on some specimens. Background of tergites reddish rather than blackish brown. Sternites 1-7 flushed with reddish, this color often forming a wide median band. Subanal plate gray-shaded, retuse apically. Tails much as in male.

Type designations as follows:

Holotype. Male subimago. Rio Cebollatí (Picada de Rodríguez), Lavalleja, Uruguay, February 28, 1958 (C. S. Carbonell). In private collection of J. R. Trayer.

Allotype. Female subimago. Sepulturas (Picada del Negro Muerto, on the Cuareim River), Artigas, Uruguay, December 15, 1957 (C. S. Carbonell). In the collection of the Departamento de Entomología, Facultad de Humanidades y Ciencias, Montevideo.

Paratypes. 16 male and one female subimagos. Sepulturas (Picada del Negro Muerto, on the Cuareim River), Artigas, Uruguay, December 15, 1957 (C. S. Carbonell); Río Cebollatí (Picada de Rodriguez), Lavalleja, Uruguay, Jan. 5, 1957 (C. S. Carbonell). Divided between collection of the Departamento de Entomología, Facultad de Humanidades y Ciencias, Montevideo, and private collection of J. R. Traver.

Nymph of *H. ?lucretiae*. Among the nymphs described above, which seem to belong to *H. misionensis*, are a few which have much more extensive pale areas on the abdominal tergites, these being most noticeable on the male specimens. Size, mouthparts, legs, venational features, gills and abdominal spines are essentially as in those considered to be *misionensis*. It is quite possible that these, whose color pattern is not too unlike that of recently transformed subimagos of *lucretiae*, may be of that species. There is no indication in these nymphs of the pale dorsal stripe on the abdomen, nor of the dark markings on the femora and tibiae such as occur in the older subimaginal forms of *lucretiae*; however, recently transformed subimagos of this species do not show the leg markings seen in the older ones. Veins of the fore wings in the female nymphs are distinctly gray; a dark area occurs in the basal region of the costal space of the hind wing, as in subimagos of *lucretiae*. In spite of the absence of the pale mid-dorsal stripe on these nymphs, I am assigning them tentatively to the species *lucretiae*.

REFERENCES

- DEMOULIN, G., 1955. *Une mission biologique au Brésil. Éphéméroptères*. Bull. Inst. R. Sci. Nat. Belg. 31 (20): 11-13, figs. 6, 7.
- EDMUNDS, G. F. Jr., 1948. *A new genus of mayflies from western North America (Leptophlebiinae)*. Proc. Ent. Soc. Wash. 61: 141-146, figs. of Traverella.
- EDMUNDS, G. F. Jr., 1950. *Notes on Neotropical Ephemeroptera. I. New and little known Leptophlebiidae*. Rev. de Entomolog. 21 (3): 551-554, figs. 1, 2.
- ESBEN PETERSEN, P., 1912. *New and little-known species of Ephemera from Argentine (Neuropt.)*. Deutsch. Ent. Zeit. 1912: 339, fig. 8.
- NAVAS, L., 1924. *Insectos Suramericanos. Novena serie*. Rev. Ac. Madrid 31: 26, fig. 38.
- NAVAS, L., 1926. *Ephemeropteros nuevos de la República Argentina*. Rev. Soc. Ent. Arg. 1: 33, fig. 1.
- NAVAS, L., 1935. *Decadas de Insectos nuevos. Decada 27*. Broteria 31: 102, fig. 120.
- NEEDHAM, J. G. and Helen MURPHY, 1924. *Neotropical mayflies*. Bull. Lloyd Lib. 24, Ent. Ser. 4: 44-47, figs. 137-139.
- SPIETH, H. T., 1943. *Taxonomic studies on the Ephemeroptera. III. Some interesting ephemerids from Surinam and other Neotropical localities*. Amer. Mus. Novitates 1244: 10-11.
- TRAYER, Jay R., 1943. *New Venezuelan mayflies*. Bol. Ent. Venezolana 2 (2): 79-82, figs. 1, 2.
- TRAYER, Jay R., 1947. *Notes on Neotropical mayflies. Part. II. Family Baetidae, subfamily Leptophlebiinae*. Rev. de Entomolog. 18 (1/2): 149-154, figs. 1-10.

- TRAYER, Jay R., 1956. *A new genus of Neotropical mayflies*. Proc. Ent. Soc. Wash. 58 (1): 1.
- TRAYER, Jay R., 1959. *Uruguayan mayflies*. Rev. Soc. Uruguay Ent. 3: 4, figs. 14, 17.
- ULMER, G., 1920. *Übersicht über die Gattungen der Ephemeropteren*. Stett. Ent. Zeit. 81: 16-17.
- ULMER, G., 1943. *Alte und neue Eintagsfliegen (Ephemeropteren) aus Süd- und Mittelamerika*. Stett. Ent. Zeit. 104: 28-33, figs. 50-57.
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PLATE I

Figures 2 to 18, presumed nymph of *Homothraulius*.

Fig. 2, labrum; fig. 3, detail of distal margin of labrum; fig. 4, left mandible; fig. 5, right mandible; fig. 6, details of canine-lacinial region of mandibles; fig. 7, maxilla; fig. 8, labium; fig. 9, hypopharynx; fig. 10, third leg; fig. 11, claw, enlarged; fig. 12, hind wing of male nymph; fig. 13, gill 1; fig. 14, gill 3; fig. 15, gill 5; fig. 16, gill 7; fig. 17, abdominal segments 8, 9, and 10; fig. 18, incipient genitalia of subimaginal male, dissected from mature nymph.

Fig. 19, *Homothraulius misionensis*, wings of female imago. Details of hind wing not shown.

Fig. 20, *Homothraulius lucretiae*, hind wings of male subimago; both wings from same specimen.

