

A NEW GENUS AND SPECIES OF BORBORID FLIES FROM SOUTH AMERICA

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Through the courtesy of Dr. J. M. Aldrich, of the United States National Museum, I have received for study a most extraordinary acalyptrate fly, collected in Bolivia by Dr. William M. Mann, when he was a member of the Mulford Biological Exploration in 1921-22.

The fly belongs to the Borboridae. Owing to the conformation of the hind tarsi it is a member of the *Borboridae verae*,¹ and on account of the presence of a pair of strong ocellar bristles, it is more nearly allied with the genus *Borborus*, in the broad sense, than with the South American genus *Archiborborus* Duda, 1921. But it is abundantly differentiated from all the known genera by the following peculiarities: Form of face, presence of a pair of decussate bristles on anterior part of frons, great development of the prelabrum and of the proboscis, presence of three sternopleural bristles, great development of the postscutellum and of the meso-phragma, form and structure of the abdomen, rounded terminal bend of the fifth longitudinal vein, length of the sixth longitudinal vein, etc.

Especially the form and structure of the proboscis are very strange and different from what is observed in the acalyptrate flies, recalling the condition present in some Empididae, or in the Bombyliid genus *Empidideicus* Becker. In the Phoridae and in the Acalyptratae (with the exception of the Conopidae) forms with elongate proboscis are indeed rather scarce and they have as a rule the proboscis thin and geniculate. Thus *Psyllomyia* Loew, 1857, or *Rhynchomicropterum* Annandale, 1912, among the former; and among the latter certain Milichiidae, like *Eusiphona* Coquillett, 1897, *Paramyia* Williston, 1897, *Aldrichiella* Hendel, 1911, and even *Madiza* (*Mallochiella*); a number of Trypaneidae, like *Myiopites*, *Ensina*, etc.; some Chloropidae, like *Siphonella*; or Ephydridae, like *Rhynchopsilopa* Hendel, 1913, etc.

¹O. Duda, Tijdschr. v. Entom., vol. 64, 1921, p. 124, and Archiv. fur Naturgesch., vol. 89, Abt. A. 1923, pp. 42-52. See also A. Spuler, Proc. Acad. Nat. Sci. Philadelphia, vol. 75, 1923, pp. 369-378.

Curiously enough the nearest resembling form of proboscis found in the literature is that of a fly likewise from Bolivia, described by Professor Hendel under the name of *Drosophilura caudata*,² but this fly was subsequently recognized as the female of *Zygothrica dispar* Wiedemann, 1830,³ and as I can see in specimens from Brazil in my collection its proboscis is in reality very different from that of the new genus here described, and normally shaped.

Another striking feature is what I assume to be the exceedingly developed prelabrum or anterior swelling of the fulcrum of the proboscis (fig. 2, *prl.*) In other members of the family it is much less developed and of usual form, as figured by Wesche (who calls it labrum) for *Borborus equinus*,⁴ or by Peterson (who calls it *tormae*) for the same species,⁵ or by Frey for *Sphaerocera subsultans*.⁶ In other genera of Acalyptratae the prelabrum is conical and projecting, for example in *Coelopa*; and even in the Calliphorid genus *Bengalia* it is shaped as a prominent lamella; but I know no other fly in which it presents such a development as an entirely exposed organ.

PYCNOPOTA, new genus

Species of elongate body and of rather small size, with cylindro-conical abdomen and with the legs rather slender and simple in both sexes.

Head (fig. 2) not broader than the thorax, in profile a little more high than long, in front view distinctly more broad than high. Occiput convex, but very little prominent, the distance from the neck to the vertex being distinctly shorter than the length of the frons; vertex not carinate, gently rounded. Frons flat, parallel-sided or only a little broadening forward, a little longer than broad; ocellar spot rounded, small, but very little prominent, with 3 well-developed, equidistant ocelli; middle stripe twice as broad as one of the parafrontalia, with parallel sides, quite bare, with less differentiated triangle, with the anterior broader a little concave and produced above the root of the antennae; lunula very small, visible only from in front; parafrontalia curved below anteriorly, with only 3-4 isolated hairs between the frontal bristles. Face short and deeply concave, with distinct middle keel and with broad and prominent mouth border; parafacialia linear, peristomialia short but rather broad in front, only a little more narrow than the third antennal joint. Eyes with rather broad areolets, quite bare; they are regularly rounded on the upper half, but in the lower half they are rather narrowed on account of the deep concavity of the face.

² Entom. Mittell., vol. 2, 1913, p. 387, fig. 2.

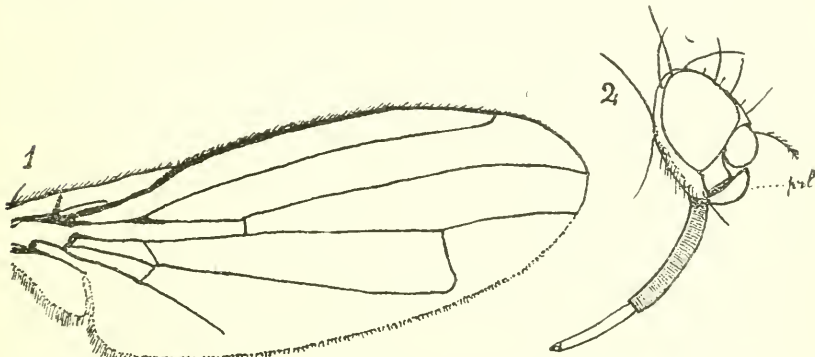
³ A. H. Sturtevant, Proc. U. S. Nat. Mus., vol. 58, 1920, pp. 155-158.

⁴ Journ. Royal Micr. Soc., 1904, p. 41, pl. 8, fig. 11.

⁵ Illinois Biolog. Mon., vol. 3, 1916, p. 221, pl. 4, fig. 63; pl. 10, fig. 188; pl. 15, fig. 342; pl. 24, fig. 565.

⁶ Acta Soc. pro Fauna et Flora Fennica, vol. 48, 1921, pl. 4, fig. 49.

Prelabrum exceedingly developed and prominent, shaped as a conical, erected organ, which is larger than the third antennal joint. Mouth opening small and closed by a membrane around the base of proboscis. Palpi not distinguishable. Proboscis very thick and strong, cylindrical, minutely ribbed, and of about the same breadth throughout its whole length, slightly curved and extending to the middle coxae; more than the basal half is shaped as a sheath, from which is exerted the terminal part, which is a little swollen and provided with a middle longitudinal furrow; the terminal flaps seem to be very minute. Antennae with the basal joints hidden below the anterior border of frons; third joint rounded; arista thin and short, inserted near the base of upper border, not longer than the breadth of frons, with short plumosity on the upper side, with only 2-3 hairs below.



FIGS. 1-2.—*PYCNOPOTA* MANNI, 1 WING; 2, HEAD; PRL=PRELABRUM. ALL FIGURES SCHEMATICAL AND GREATLY ENLARGED

Cephalic chaetotaxy: 1 postocular, 1 vertical, 1 ocellar, 2 orbitals directed inwardly, 1 decussate in front of the frontal stripe; vibrissae rather weak; no genal bristle; peristomial border with a simple row.

Mesonotum convex on the back, a little more long than broad, with rather prominent shoulders; transverse suture broadly interrupted in the middle; pleural sutures distinct; scutellum small and rounded; postscutellum greatly developed, of about the same size as the scutellum itself; mesophragma convex and likewise greatly developed, with a prominent rounded tubercle on each side. Halteres normal; calypters rudimentary, with long soft cilia at border.

Back of mesonotum bare and rather shining, destitute of longitudinal rows of setulae, with only one row of acrostichal on each side, extended from the fore border to the scutellum; 3 rather strong dorsocentral, one of which is before the suture; 1 humeral, 1 praesutural, 2 notopleural, 1 anterior supraalar, 1 posterior supraalar; just above the shoulder several bristly hairs, one longer and

erect on the shoulder itself; sternopleura with three bristles placed in a triangle, but no other pleural bristles. Scutellum with 4 marginal bristles, bare on the disk and at border.

Abdomen cylindroconical, in both sexes with 5 visible segments, the genital ones not counted. Tergites and sternites not always differentiated, the membrane sometimes running uninterrupted around the abdomen; there are no true bristles, but the tergites have long bristly hairs at hind border and sides; even the lateral membrane of the middle segments is clothed with short, thick setulae. Male hypopygium open, but of rather small size and narrow, not broader than the last abdominal segment. Female ovipositor thick; the basal segment (the only one visible) as long as the two last abdominal segments together, but more narrow; terminal lamellae small and pubescent; a strong projecting spine below.

Legs rather slender, femora not thickened, quite simple in both the sexes; femora and tibiae with short bristly hairs, the latter with only one preapical hair, tarsi of the hind pair with the basal joint considerably thickened but not much shorter than the following joint; claws short, curved, simple; pulvilli short.

Wings (fig. 1) rather long and narrow, parallel-sided, with smooth, unspotted membrane. Costa extending to the end of fourth vein, with short ciliation and with minute setulae on the 2 basal segments; an isolated rather long bristle near the extreme base. Auxiliary vein free, extended to a little beyond middle of first vein and ending very close to it; humeral crossvein rather thick. First vein short, meeting the costa before the first third of anterior wing border, and considerably before the small crossvein. Second vein long and rather straight, upcurved at end, the third segment of costa being less than one-third of the length of the second. Third vein rather straight but distinctly curved down at end, ending precisely at wing tip. Small crossvein short and perpendicular, placed a little before the first third of the discoidal cell. Fourth vein straight, its last section being not much longer than the half of the preceding section. Fifth vein toward the end curved up in a rounded bend very near hind border of wing, and thus forming the hind crossvein, which is placed perpendicularly and parallel with the small one. Sixth vein straight, much longer than in allied forms, completely chitinized throughout its whole length, but ending considerably before hind border of wing. Anal crossvein inwardly oblique, meeting at fifth vein in one point or nearly so with the middle basal crossvein, the anal and second basal cells being thus of about the same length. Auxiliary lobe broad, alula rather rectangular, both with long, soft ciliation at border.

Genotype.—*Pycnopota manni*, new species.

PYCNOPOTA MANNI, new species

A small, reddish-brown fly with yellowish legs and whitish abdomen, of which the sclerites are sometimes blackish.

Length of body: (male) 2.5 mm., (female) 4 mm.; of wing 2.8-3 mm.

Head blackish, opaque, with reddish frontal stripe and reddish or yellowish peristomalia. Antennae pale yellowish. Prelabrum shining reddish; sheath of proboscis shining black, finely wrinkled; terminal portion of proboscis shining reddish; buccal membrane white. All the cephalic bristles and hairs black.

Mesonotum shining reddish-brown or black, blackish along the middle stripe and on a rounded spot on each side of the transverse suture; pleurae more pale and less shining, but the mesopleura more or less darkened. Scutellum shining reddish, more or less darkened red; postscutellum and mesophragma opaque, reddish. All the bristles and hairs black. Halteres dirty whitish, their rounded knob snow-white.

Abdomen dirty whitish; but the sclerites, when developed, are opaque blackish or even black; in the male type only the tergites of the first two segments are well chitinized; in the female type all the tergites and the much smaller sternites of all the five segments are well developed; one additional female specimen has the tergites on first, second, and fifth segments chitinized and the sternites only on fifth segment; in another female there is distinct only the tergite of the first segment. The bristly hairs are black, the smaller hairs are dark reddish; the setulae on sides of middle segments (type female) are placed on small blackish dots, very distinct on the whitish membrane when the abdomen is distended. Hypopygium dirty whitish, blackened below. Basal segment of the ovipositor (sixth abdominal segment) dirty whitish, but always with well developed, black tergites and sternites, in one case only the tergites being not distinct. Terminal lamellae dirty brownish; terminal spine quite black.

Coxae and legs entirely reddish-yellow to the end of tarsi; hairs dark reddish, front femora with a complete row on outer side, the posterior ones with only 2-3 apically; front tibiae with but one long hair toward the middle; hind tibiae with a row of 5-6 scattered long hairs at hind side. Claws blackish, pulvilli dirty whitish, in the male only a little more developed than in the female.

Wings slightly grayish, iridescent, with dark yellowish veins, the costa being more dark, chiefly along the but little thickened second segment.

Described from one male and three females collected on the Mulford Biological Exploration at Huachi Beni, Bolivia, September,

1921, by Dr. W. M. Mann, in whose honor this strange insect is named.

Type.—Male, Cat. No. 28291, U.S.N.M., allotype female, and one female paratype; another female paratype in the writer's collection.

One of the female paratypes shows a cluster of six gamasid nymphs attached on back of abdomen, between the second and third segments; there is moreover one isolated nymph on venter, between the first and second sternites. This fact may perhaps be considered as an indication of fimicolous habits of the fly; while on the other hand the physogastric condition of the female is suggestive of some myrmecophilous forms. And the unchitinized abdominal sclerites are very like those observed in *Termitoxenia* and allied forms.⁷

⁷ E. Wasmann, Verhandl. des V. Internat. Zool.-Congress. zu Berlin, 1901 (1902), p. 854, No. 2.

