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UNDESCRIBED SPECIES OF *TIPULIDAE* FROM THE  
STATE OF SÃO PAULO, BRASIL (Diptera)

By

CHARLES P. ALEXANDER,

Professor of Entomology, Massachusetts State College, Amherst, Mass. USA.

I feel greatly privileged to be invited to contribute a paper to the memorial volume honoring the distinguished Brazilian student of the Rhopalocera, Professor ROMUALDO FERREIRA D'ALMEIDA.

In this report I am discussing five species of crane-flies of unusual interest, all having been collected by Messrs. D'ALMEIDA and LAURO TRAVASSOS FILHO, who have added most materially to our knowledge of the rich Tipulid fauna of the State of São Paulo. The types of the novelties will be deposited in the collection of the Departamento de Zoologia, São Paulo.

*Atarba (Ischnothrix) seticornis*, sp. n.

General coloration of thorax medium brown, opaque, the pleura more yellowish; antennae (male) longer than either the body or wing, the flagellar segments with outspreading setae of unusual length; wings with a weak brownish tinge, the stigma long-oval, ill-delimited;  $Sc_1$  ending about opposite two-fifths the length of  $R_s$ ; vein  $R_3$  perpendicular at origin; male hypopygium with the sternal horns long and slender, nearly straight.

MALE. — Length about 5 m.; wing 5.5 mm.; antenna about 6.5 mm.

Rostrum dark brown; palpi black. Antennae (male) brownish black, the scape a trifle paler; antennae very long, as shown by the measurements; flagellar segments long-cylindrical, the outer segments gradually shortened; segments provided with unusually long, outspreading setae throughout their length, on the intermediate segments (about four or five) these setae being approximately as long as the segments themselves; in addition to these strong setae, there

are more abundant shorter setae that exceed in length the diameter of the segment and abundant microscopic setulae. Head brownish black, sparsely pruinose.

**Pronotum** reduced, brown. Mesonotum chiefly medium brown, opaque; pleura more brownish yellow to yellow. Halteres weakly infuscated, knobs large. Legs with the coxae and trochanters testaceous yellow; remainder of legs brown; tibial spurs small but distinct. Wings (Fig. 1) with a weak brownish tinge, the prearcular and costal fields somewhat clearer yellow; stigma ill-delimited, long-oval, medium brown; veins brown. Veins with abundant macrotrichia over most of their length, lacking near the arculus. **Venation:** *Sc* moderately long, *Sc*<sub>1</sub> ending about opposite two-fifths the length of *Rs*, *Sc*<sub>2</sub> just beyond the origin of the latter; *Rs* square at origin; *R*<sub>2+3+4</sub> elongate, exceeding *R*<sub>4</sub> in length; vein *R*<sup>3</sup> perpendicular at origin; distance on *C* between *R*<sub>1+2</sub> and *R*<sup>3</sup> nearly equal to the length of the latter vein; cell *1st M*<sub>2</sub> relatively small, rectangular, much shorter than any of the veins beyond it; *m-cu* about one-fourth its length beyond fork of *M*; cell *2nd A* wide.

**Abdominal tergites** black, with an erect white vestiture; sternites a little brighter; hypopygium brownish yellow. Male hypopygium with the sternal horns long and stender, nearly straight. Both dististyles slender, the outer style on its lateral surface with seven or eight subappressed spines, additional to the short terminal point; basad of the spines with smaller appressed spinules virtually to the base.

**HOLOTYPE**, ♂, Boracea, São Paulo, altitude 900 meters, April 13, 1942 (ALMEIDA-TRAVASSOS).

*Atarba (Ischnothrix) seticornis* is most closely related to species such as *A. (I.) argentinicola* (Alexander) of Andean Argentina. It differs from all described members of subgenus by the unusual development of the vestiture of the antennae.

*Atarba (Atarba) almeidai*, sp. n.

General coloration polished yellow, very heavily patterned with black, including much of the head and thorax; antennal flagellum black; femora yellow, the tips broadly and abruptly blackened, on the posterior legs including about the distal fifth; tibiae yellow, with both the base and tip narrowly blackened; wings obscure yellow, very heavily patterned with brown, including darker brown seams over the veins.

FEMALE. — Length about 7 mm.; wing 6 mm.

R o s t r u m brown; palpi black. Antennae with scape and pedicel brown, flagellum black; flagellar segments subcylindrical, the outer ones passing into long-oval. Head with vertex chiefly polished black, the posterior portions more brownish.

P r o n o t u m brownish black. Mesonotal praescutum polished, the ground color reddish, with a conspicuous black median stripe extending the entire length, the lateral borders behind the pseudosutural foveae broadly blackened; scutal lobes entirely blackened, the median region restrictedly testaceous yellow; scutellum and postnotum black, including the pleurotergite. Pleura with the mesopleura black, the propleura, meron and ventral sternopleurite obscure yellow; dorso-pleural membrane obscure yellow. Halteres with stem yellow, knob blackened. Legs with the coxae and trochanters obscure yellow; femora yellow, the tips broadly and abruptly blackened, including about the distal fifth (hind leg), the amount subequal on all legs; tibiae yellow, the extreme bases and slightly more extensive tips blackened; proximal two tarsal segments yellow, their tips narrowly darkened; terminal segments black. Wings (Fig. 2) obscure yellow, the prearcular and costal fields more saturated yellow; an unusually heavy brown pattern, as follows: Most of cells beyond cord, leaving only the centers pale; heavier brown seams at outer end of vein *Sc*, origin of *Rs*, cord, outer end of cell *1st M*<sub>2</sub> and as a broad seam along vein *Cu*, involving all of cell *M* excepting the subterminal portion and further including most of cell *Cu*; vein *2nd A* narrowly darkened; a small brown cloud in wing axil: stigma oval, still darker brown; veins yellow in the clear ground areas, deepening to brown in the clouded fields. Venation: *Sc* short, both  $\bar{S}c_1$  and *Sc*<sub>2</sub> ending shortly beyond origin of *Rs*, the branches of the latter diverging very gradually; cell *1st M*<sub>2</sub> a little shorter than vein *M*<sub>3</sub> beyond it; *m-cu* about one-third its length beyond the fork of *M*.

A b d o m i n a l tergites black, the sternites more reddish yellow, their lateral borders narrowly blackened; subterminal sternites black; genital shield fulvous; valves of ovipositor reddish horn color; cerci long and slender, nearly straight.

H O L O T Y P E, ♀, Boracea, São Paulo, altitude 900 meters, April 13, 1942 (ALMEIDA-TRAVASSOS).

I dedicate this species to Professor D'ALMEIDA, in recognition of his outstanding contributions to Brazilian entomology. The nearest described regional species appears to be *Atarba (Atarba) bifurcula*

Alexander, which has the dark coloration of the body, legs and wings much more restricted. The present fly has the wing pattern more conspicuously developed than in any other species in Tropical America. It seems probable that the male of the present fly will be found to have the aedeagus deeply bifid, as is the case in *A. (A.) bifurcula* and *A. (A.) punctiscuta* Alexander.

*Gonomyia* (*Gonomyia*) *gemula*, sp. n.

General coloration of mesonotum brownish black, pruinose; rostrum obscure yellow; palpi, antennae and legs uniformly blackened; wings with a grayish tinge, the stigmal region slightly darker; *Sc* short, both *Sc*<sub>1</sub> and *Sc*<sub>2</sub> ending opposite origin of *Rs*, the latter a little shorter than *R*<sub>2+3+4</sub>; *m-cu* nearly its own length beyond the fork of *M*; male hypopygium with the dististyles very unequal, the outer style a tiny blackened structure, bifid at tip; inner style a larger blackened hook, at its base with the usual fleshy lobe terminating in two powerful setae; phallosome consisting essentially of two slender lateral paired rods and a stout central structure that bears a third slender spinous rod near its base.

MALE. — Length about 4.5 mm.; wing 4.5 mm.

ROSTRUM obscure yellow; palpi brownish black. Antennae with scape black, restrictedly yellow at base; pedicel intensely black, flagellum more brownish black; flagellar segments passing into long-cylindrical, with long conspicuous verticils, these becoming much shorter on the outer segments. Head dark gray; anterior vertex relatively narrow, less than the diameter of scape, the eyes correspondingly large.

Pronotum light brown; pretergites yellow. Mesonotum almost uniform brownish black, pruinose; humeral region of praescutum more reddish yellow; posterior border of scutellum only vaguely brightened. Pleura brown, restrictedly variegated with obscure yellow, especially the mesepisternum and metapleura. Halteres weakly infuscated. Legs with coxae slightly darkened, the fore pair more heavily so; trochanters brownish yellow; remainder of legs brownish black. Wings (Fig. 4) with a grayish tinge, the stigmal region slightly darker but very ill-delimited; extreme wing base yellowed; veins dark brown. Venation: *Sc* short, *Sc*<sub>1</sub> ending opposite origin of *Rs*, *Sc*<sub>2</sub> at its extreme tip; *Rs* a little shorter than *R*<sub>2+3+4</sub>; *m-cu* nearly its own length beyond the fork of *M*, at near two-fifths the length of the cell.

Abdominal tergites brownish black; sternites paler, light brown to yellowish brown; hypopygium obscure brownish yellow. Male hypopygium (Fig. 6) with the basistyles, *b*, relatively short and stout, the apex narrowly blackened and sclerotized, the outer angle produced into a small dark lobe. Dististyles, *d*, about as figured, the outer style a tiny blackened structure, bifid at tip; inner style a much larger, strongly curved hook, narrowed gradually to the acute tip; fleshy lobe at its base terminating in two fasciculate setae (in figure, the outer style is shown on the inside, due to the torsion of the dististyles in the slide mount). Phallosome, *p*, consisting of two long slender lateral rods or spines, their tips acute; central mass near base bearing a third slender blackened rod, this about one-half as long as the laterals, terminating in a long black spine, before the latter microscopically roughened; beyond this spine, the central mass is stout, bearing three blackened spinous points in a transverse row, the entire surface near this point roughened and scabrous by coarse setae; apex of phallosome broken.

HOLOTYPE, ♂, Juquiá, São Paulo, altitude 300 meters, at light, February 22, 1941 (TRAVASSOS).

*Gonomyia (Gonomyia) gemula* is entirely different from the most similar described regional species, *G. (G.) serpentina* Alexander, which has the male hypopygium entirely distinct.

### GONOMYINA, subgen. n.

Characters as in the typical subgenus, *Gonomyia* Meigen, differing as follows: Antennae 16-segmented, the outer flagellar segments becoming elongate-cylindrical; all segments with conspicuous verticils. Wings (Fig. 3) with vein *Sc* long, *Sc*<sub>1</sub> ending about opposite mid-length of the long *Rs*, *Sc*<sub>2</sub> far from its tip so that *Sc*<sub>1</sub> alone exceeds *R*<sub>2+3+4</sub>; vein *R*<sub>3</sub> indicated only by a spur of variable length, opposite tip of *R*<sub>1</sub>, so only two branches of *Rs* reach the wing margin; vein *R*<sub>2</sub> atrophied; cell *1st M*<sub>2</sub> closed, elongate, with *m-cu* more than one-third its length beyond the fork of *M*; anterior arculus weakly preserved. Male hypopygium (Fig. 7) with three dististyles, the outermost bifid at apex.

Type of subgenus. — *Gonomyia (Gonomyina) durabilis*, sp. n. (Neotropical Region).

Among the now numerous subgenera into which *Gonomyia* has been divided, the present group comes closest to *Progonomyia* Alexander, differing in the venation, particularly of the radial and medial fields, and in the structure of the male hypopygium.

To this group also belong *G. (Gonomyina) parishi* (Alexander, 1913) and *G. (Gonomyina) persimilis* (Alexander, 1920), both described as being aberrant species of the genus *Teucholabis* Osten Sacken. The receipt of the present material indicates that these various species actually belong to the genus *Gonomyia* rather than to *Teucholabis*.

*Gonomyia (Gonomyina) durabilis*, sp. n.

General coloration of mesonotum dark brown, the pleura vaguely striped longitudinally with paler; head gray; male hypopygium with the intermediate dististyle nearly straight; aedeagus conspicuously sinuous.

MALE. — Length about 4 mm.; wing 4.4 mm.

FEMALE. — Length about 5 mm.; wing 4.6 mm.

R o s t r u m and palpi brown. Antennae dark brown throughout. Head dull gray; anterior vertex broad.

Pronotum with scutum dark brown scutellum obscure yellow. Mesonotum almost uniformly dark brown, the pleura paler on the dorso pleural region and as a vague stripe across the dorsal sternopleurite and meral region. Halteres with stem dusky, obscure yellow at base, knob dark brown. Legs with the coxae and trochanters yellow, the fore coxae darker; femora yellow, the tips vaguely and weakly darkened; tibiae and basitarsi obscure yellow, their tips weakly darkened, remainder of tarsi black; fore legs of male much longer than the other pairs. Wings (Fig. 3) with a weak brownish tinge, the prearcular and costal fields light yellow; stigma oval, brown; a very vague darkening over the cord, best indicated by a slight deepening in color of the veins; axillary angle weakly darkened; veins brown, more yellowed in the brightened fields. Venation:  $Sc_1$  ending opposite or shortly beyond midlength of  $R_s$ ; base of vein  $R_3$  well preserved in female, provided with three trichia; in male, the spur shorter, with a single trichium; cell  $Ist M_2$  subequal to (male) or somewhat shorter than the distal section of vein  $M_{1+2}$ ;  $m-cu$  from about one third to one-half its length beyond fork of  $M$ .

A b d o m e n brownish black, the eighth and ninth segments abruptly yellow. Male hypopygium (Fig. 7) with the tergite,  $9 t$ , transverse, its caudal margin gently emarginate, on either side near outer margin with about eight setae of very unusual length. Basistyle,  $b$ , produced slightly beyond level of insertion of the dististyles, the apex broad, unequally bilobed. Three dististyles, the outer style,  $od$ , largest, unequally bilobed at apex; intermediate style a very

slender, very gently curved rod, its tip narrowly obtuse; inner style, *id.* straight, at near apex produced laterad into a slender spinous point. Aedeagus, *a*, powerful compressed-flattened blade, strongly angulated at about one-third and again near two-thirds its length, the basal half provided with strong setae, including two unusually strong ones at the first angle.

HOLOTYPE, ♂, Juquiá, São Paulo, altitude 300 metres, February 22, 1941 (TRAVASSOS).

The only near relatives are *Gonomyia (Gonomyia) parishi* (Alexander) and *G. (G.) persimilis* (Alexander), of Pará, Brasil, which differ in the details of coloration and venation, and, especially, in the structure of the male hypopygium. It is possible that these two supposed species from Pará may prove to represent a single species.

### *Styringomyia paulista* sp. n.

General coloration reddish brown to castaneous, the head more yellowed; setae of head and thoracic notum long and conspicuous but unmodified; halteres uniformly yellow; legs yellow, the terminal tarsal segment abruptly black; fore and middle legs with faintly indicated brown rings on femora and tibiae, the posterior legs clear yellow; wings yellow, with a small darkened cloud over *r-m*; abdominal segments bicolored; male hypopygium with the basistyle elongate, slender, with several strong flattened black setae; dististyle broadly flattened, its margin provided with blackened lobes or spinous points.

MALE. — Length about 7.5 mm.; wing 5 mm.

FEMALE. — Length about 6.5 mm.; wing 4.5 mm.

ROSTRUM pale; palpi brown. Antennae with scape and pedicel pale brown, flagellum brownish yellow; flagellar segments oval to long-oval, the verticils conspicuous. Head yellow; vertical setae long and black but slender and not particularly modified.

Pronotum obscure yellow, pale brown medially, the long setae black. Mesonotum chiefly reddish brown to castaneous, the central portion of praescutum, scutum and scutellum a little more yellowed; praescutal bristles relatively sparse. Pleura chiefly yellow. Halteres uniformly pale yellow. Legs with the coxae yellow, the fore pair somewhat darker; trochanters yellow; femora yellow, the fore pair with indications of two pale brown rings, the middle femora with these rings less clearly indicated, particularly the more proximal one; posterior femora uniformly pale yellow; tibiae yellow, the fore and middle pairs with indications of a pale brown subbasal ring, the posterior tibiae uniformly yellow; tarsi yellow, the terminal

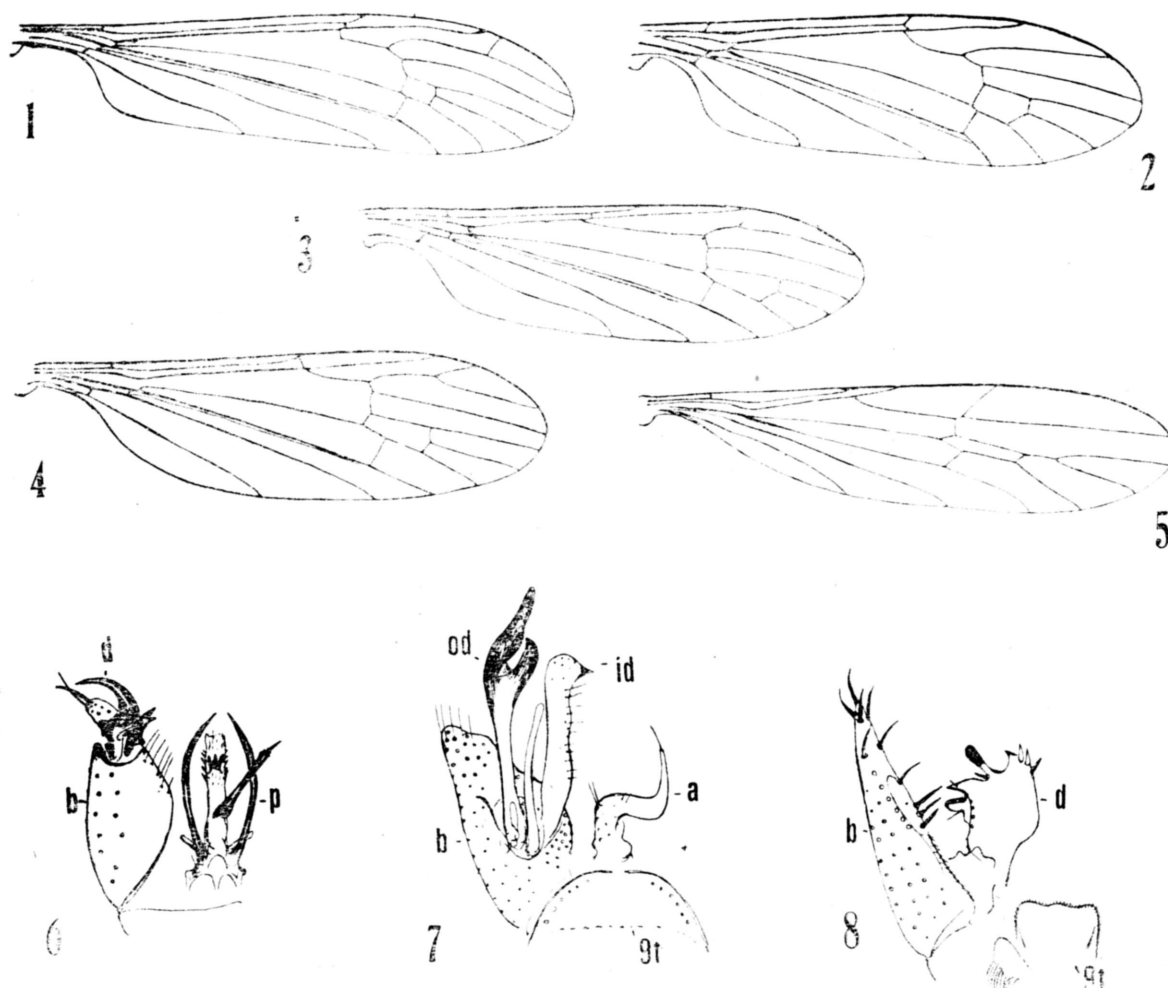
segment abruptly blackened. Wings (Fig. 5) light yellow, with a small darkened cloud over *r-m*; vein *Cu* in cell *M* less evidently infuscated; veins yellow, darker in the patterned areas and in the medial field. Venation: *r-m* a short distance before fork of *Rs*;  $R_2+3$  oblique; cell 2nd *M*<sub>2</sub> petiolate, in cases this subequal in length to *m*.

Abdomen of male with segments bicolored, yellow, the caudal borders rather broadly infuscated, involving the outer third of the segment or more; outer tergites in male with slightly paler brown areas on basal rings, this supplementary darkening not indicated on the sternites; in the female, the abdominal tergites more uniformly darkened, both the basal and apical portions of the segments extensively brown, leaving a narrow yellow subterminal ring; sternites yellow. Male hypopygium (Fig. 8) with the basistyle, *b*, elongate, slender, narrowed outwardly, the distal half with about ten powerful blackened setae, the five closest to apex somewhat more flattened and subangularly bent at near midlength; only one bristle apical in position; elsewhere, the style provided with elongate normal setae. Dististyle, *d*, broadly flattened, with three blackened points on the lateral margin, the outermost one obtuse at tip; apex of style terminating in a further small darkened point, with three flattened setae close to apex. Apex of tergite, *9t*, generally truncate but vaguely trilobulate, the central lobule smaller.

HOLOTYPE, ♂, Juquiá, São Paulo, altitude 300 meters, at light, February 22, 1941 (TRAVASSOS). ALLOTOPOTYPE, ♀.

*Styringomyia paulista* is quite distinct from the four other species of the genus now known from Tropical America, the male hypopygium being entirely different in structure. The fragmentary specimens from the Bolivian Chaco that I had earlier recorded as representing *S. americana* Alexander (Knowia, 12: 46; 1933) are almost certainly not this latter species and may pertain to the present fly or to some other still undescribed species.





### EXPLANATION OF FIGURES

- Fig. 1. *Atarba (Ischnothrix) seticornis*, sp. n.; venation.  
Fig. 2. *Atarba (Atarba) almeidai*, sp. n.; venation.  
Fig. 3. *Gonomyia (Gonomyina) durabilis*, sp. n.; venation.  
Fig. 4. *Gonomyia (Gonomyia) gemula*, sp. n.; venation.  
Fig. 5. *Styringomyia paulista*, sp. n.; venation.  
Fig. 6. *Gonomyia (Gonomyia) gemula*, sp. n.; male hypopygium.  
Fig. 7. *Gonomyia (Gonomyina) durabilis*, sp. n.; male hipopygium.  
Fig. 8. *Styringomyia paulista*, sp. n.; male hipopygium.

(Explanation of symbols: *a*, aedeagus; *b*, basistyle; *d*, dististyle; *id*, inner dististyle; *od*, outer dististyle; *p*, phallosome; *t*, tergite).