

Neotropical Mycomyia. I. (Diptera: Mycetophilidae).

By Edward I. Coher.*

(With 15 figures)

This is the first of a series of papers in which the males of some new species of Neotropical flies of the genus *Mycomyia* Rondani, 1856 will be described. In general, the species are divisible into groups which will be treated in what presently appear to be related series of species.

The first two groups consist of small reddish-brown flies (3 mm.) without a midcoxal spur and with hyaline wings, the two groups being differentiated on the basis of the presence or absence of a branch of the subcostal vein, the structure of the male terminalia very closely following this grouping. The males of each group may be separated, on the basis of structures of the terminalia, into series of very closely related species. Each species of these groups is highly variable when characters of color, color pattern and wing venation are taken into consideration. Morphological characters of value for differentiation are found only in the structures of the male terminalia and because of the above reasons, no attempt has been made to select allotypes of the species.

In the group with a branched subcosta, it is a common occurrence for the upper branch to drop out wholly or partially thus making these species indistinguishable (except by means of the male terminalia) from the species of the other group. I have never found a male of the second group with an added branch of the subcostal vein which would make it appear like the species of the first group. The branches of the media and cubitus and the cubitus itself are all setiferous dorsally while the media is usually bare, but, occasionally bears from one to a sparse row of setae. The position of the forks of the branched media and cubitus, the position of the termination of subcosta₂ (when present) in radius₁ and the ratios of the length of the media to media₂ and cubitus₂ are found to be of no value for specific determination in both of these groups. In all species, the anepisternite, katepisternite and pleurotergite are darker than the other pleurites and the scutellum bears four long setae.

*) This work was done in the Department of Parasitology and Rural Hygiene of the Faculdade de Higiene da Universidade de São Paulo, Brasil and as a Pan-American Airway Travel Fellow and with a grant-in-aid from the Federal Security Agency (Office of Education).

It is then to the terminalia of the males of the various species that we must turn for less variable and therefore more valid specific and group characters. For the purpose of this first paper, I am adopting a terminology which is somewhat different from that used by Edwards for *Neoempheria* (Novitates Zoologicae 42 (1) : 19-129, 1940). Group characters are given, preceding descriptions of the terminalia of the various species included in each group. In all cases, the male terminalia should be used as the final criterion in separating species.

All specimens were collected by Dr. John Lane unless otherwise noted in the text. The holotypes and some paratypes are deposited at the Faculdade de Higiene. Other paratypes are in my collection and the rest will be distributed to the U. S. National Museum, British Museum (Natural History), Museum of Comparative Zoology (Harvard University) and other institutions and workers as the size of a series allows.

All terminalia have been mounted in enece. Terminology for the terminalia of the males of Group A and B (see fig. 1):

d — dististyle o — outer sternal process v — ventral sternal lobe
 l — tergal lobe m — middle sternal process a — aedeagus
 t — tergal spurs s — inner sternal process n — anal segment (fig. 4)

Some liberties are taken with the drawings in order to show the most typical shape of certain of the processes; setae will be omitted in some drawings in order to keep certain details of structure from being needlessly obscure. The anal segment, where illustrated, is shown bent cephalad so as not to hide details of the tergal portion of the terminalia.

I am indebted to Dr. John Lane for making most of the nearly five hundred specimens studied in the following works available to me as well as the collecting opportunities he arranged during my stay in São Paulo. I also wish to thank Mr. Edjarmar B. Ferraz for his aid in making the drawings.

Group A

I take great pleasure in dedicating the species of this group to entomologists, generally Dipterologists.

Head: vertex and occiput dark red-brown, setiferous, the longest setae borne anteriorly; frons red-brown, bare; clypeus red-brown, setiferous, the setae about one-fourth the length of the first flagellar segment; antennae flattened, red-brown, with scape, torus and base of first flagellar segment yellowish, the flagellum with light-colored setae; palpi red-brown.

Thorax: anterior pronotum yellow with several strong dark curved setae and some fine shorter setae; posterior pronotum and proepimeron yellow-brown, bare; mesonotum sparsely covered with setae, yellow-brown with two median red-brown bands extending from the anterior margin two-thirds of the way to posterior margin (may form a homogenous red-brown roughly triangular area) and with two broader lateral red-brown bands from posterior margin which extend to the humeral angle, humeri yellowish; anepisternite, katepisternite and pleurotergite darker than other pleurites; scutellum light red-brown and bearing four long setae; postnotum light red-brown, bare.

Legs: coxae yellow; fore coxa bearing scattered setae; mid coxa bearing distally scattered setae which thin into an irregular row which does not reach basal fourth of coxa; hind coxa with a lateral row of setae which grow longer and more sparse towards the base; femora yellow; tibiae and tarsi yellow, but, appearing brown due to rows of setulae; tibial spurs 1-2-2, the inner spur of the mid tibia longer than the outer, hind tibial spurs equal (outer spur occasionally barely longer than the inner); fore tibia slightly longer than the fore basitarsus.

Wings: hyaline; subcosta₁ ends in the costa and subcosta₂ ends in radius₁; media bare, with its branches and the cubitus and its branches bearing dorsal setae; haltere with a whitish stem and brownish knob.

Abdomen: red-brown, generally shading to dark red-brown or fuscous on the sixth and seventh tergites; sternites lighter than their tergites; segments one and two usually laterally compressed with the other segments varying greatly in this respect; eighth sternite larger than tergite and shaped like a truncated triangle; eighth tergite narrow and arc-shaped, broader laterally and bearing long apical setae.

Terminalia: easily separated into a tergal and sternal area, the sternal area being more or less rounded basally and bearing several pair of simple processes distally and a lateral ventral setaceous lobe (v); tergal area with a roughly crescent-shaped base (represents at least partially the ninth tergite), distally bearing a lateral articulated portion (dististyle), a lateral dorsal lobe (tergal lobe) and at the base of the lobe a varying number of heavy spur-like processes (tergal spurs). Ventral supernumerary sternal spurs replace a pair of median ventral lobes in two species. The anal segment is fleshy with a main

central portion, two lateral flaps (cerci ?) and a recurved spring which ordinarily supports this structure.

Mycomyia manteri, n. sp. (Fig. 1)

♂. — mesoepimeron, metaepisternum and metaepimeron vary from yellow to yellow-brown to light red-brown, the anepisternite, katepisternite and pleurotergite always darker although the base of the katepisternite may be somewhat lighter than the apical portion; hind coxa often whitish; hind tibial spurs equal in length; media slightly longer or equal to $media_2$ and $cubitus_2$; eighth sternite narrowing apically with sinuous lateral margins (fig. 1c).

Terminalia: (fig. 1a and 1b); dististyle flattened, setiferous along caudal margin and apex, of nearly equal width throughout except for very narrow base, rounded apically; tergal spurs two on each side; tergal lobe prominent, wide at base and narrowing apically, ventrally covered with short, moderately heavy setae and some longer, finer lateral setae; aedeagus broad, slightly enlarged at apex; outer sternal process tapering, cylindrical, long and fine with a long basal ventral seta; middle sternal process cylindrical, tapering to a rounded apex, curved strongly near its base with a subapical to median tuft of setae set in a slight hollow and slightly pilose above this; inner sternal process flattened, curving and narrowing apically into a slightly hooked process; ventral sternal lobe setiferous, lateral; a large, dark ventral supernumerary spur present at the base of the ventral sternal lobe.

Female: Unknown.

Holotype: Brasil, São Paulo, Boracea, XI-47. Paratopotypes: 3 with same data as holotype; 13 collected VIII-47; 11 collected IX-47. Paratypes: 1 collected São Paulo, Campos do Jordão, X-45; 2 collected Campos do Jordão, XII-45; 1 collected Rio de Janeiro, Itatiaia, VIII-46 (M. P. Barretto); 1 collected São Paulo, Serra da Cantareira, X-45 (M. P. Barretto).

Observations: Close to *M. alexanderi* n. sp., but differentiated on the basis of the larger supernumerary spurs, the moderately strong setae on the tergal lobe and the broader aedeagus. Included in the type series is a specimen with subcosta₁ represented by a spur on one wing; I have seen other specimens like this. Seven specimens studied have a few setae on the media of one or both wings. One specimen has a third tergal spur on one side of the terminalia.

I take great pleasure in naming this first species for Prof. J. A. Manter of the University of Connecticut, my first guide in the field of Entomology.

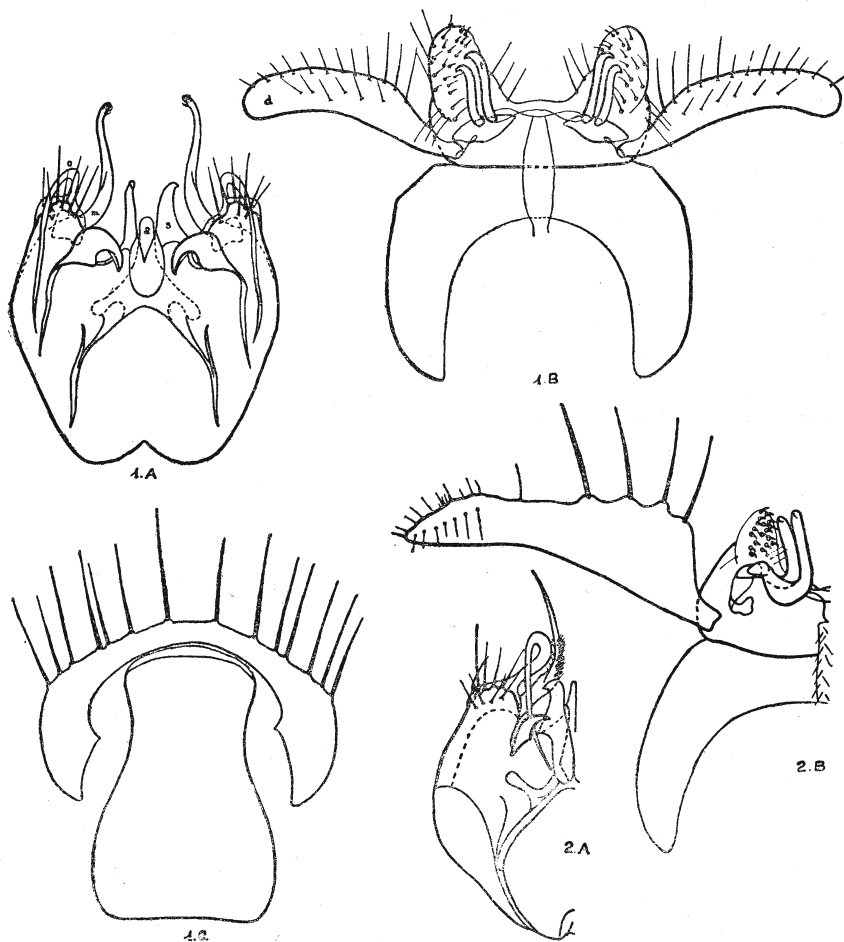


Fig. 1. *Mycomyia manteri* n. sp.; a-b, male terminalia; c, eighth sternite. — Fig. 2. *M. alexanderi* n. sp.; male terminalia.

Mycomyia alexanderi, n. sp. (Fig. 2)

♂. — mesoepimeron, metaepisternum and metaepimeron vary from yellow to yellow-brown to light red-brown, the anepisternite, katepisternite and pleurotergite always darker although the base of the katepisternite may be somewhat lighter than the apical portion; hind coxa often whitish; hind tibial spurs equal in length; media slightly longer or equal to media₂ and cubitus₂; eighth sternite narrowing apically with sinuous lateral margins.

Terminalia: (fig. 2a and 2b); dististyle flattened, setiferous, a regular row of large setae on the caudal margin which are reduced distally, the basal portion very narrow, but, widening

broadly and narrowing again at the rounded apex, pilose apically; tergal spurs two on each side; tergal lobe prominent, wide at base, narrowing apically, ventrally covered with short, heavy setae and some longer, finer lateral setae; aedeagus narrow, slightly enlarged just before apex with apex slightly concave; outer sternal process tapering, cylindrical, long and fine with a long, fine basal ventral seta; middle sternal process cylindrical, tapering to a point, curved strongly near its base with a tuft of setae set in a slight hollow above the curve and with extensive pilosity just above the curve; inner sternal process flat and curving, narrowing apically into a hooked process; ventral sternal lobe setiferous; a pair of ventral supernumerary spurs present at the base of the sternal lobe.

Female: Unknown.

Holotype: Brasil, São Paulo, Boracéa, IX-47.

Paratopotypes: 16 with same data as holotype; 16 collected VIII-47; 4 collected XI-47. Paratypes: 2 collected São Paulo, Campos do Jordão, XII-45; 2 collected Campos do Jordão, VIII-49.

Observations: One specimen has the subcosta₁ absent on one wing. In my personal collection, I have a specimen of this species (not included in the type series) in which there is a rounded cell on one wing, formed by the reunion of the branches of the media and, because of this, I believe that new generic characters must be found for *Synapha* Meigen, 1818 and *Palaeosynapha* Meunier, 1900 or that synonymy is involved between these and other genera.

This species is very close to *M. manteri* n. sp., but, may be distinguished from it by the size of the supernumerary spurs, the heavier setae on the tergal lobe, the pilosity at the base of the middle sternal process and the narrower aedeagus.

I take great pleasure in naming this species for Dr. C. P. Alexander of the University of Massachusetts, a great teacher and Dipterologist.

Mycomyia hansonii, n. sp. (Fig. 3)

♂. — mesoepimeron, metaepisternum and metaepimeron vary from yellow to yellow-brown to light red-brown, the anepisternite, katepisternite and pleurotergite always darker although the base of the katepisternite may be somewhat lighter than the apical portion; hind coxa often whitish; outer hind tibial spur barely longer than the inner spur; media slightly longer or equal to media₂ and cubitus₂; eighth sternite rounded apically and narrowing, the most sinuous margin basal and lateral.

Terminalia: (fig. 3a and 3b); dististyle cylindrical, the apex rounded and slightly more setiferous than basal portion, setae lateral, slightly pilose; tergal spurs three on each side, the outer

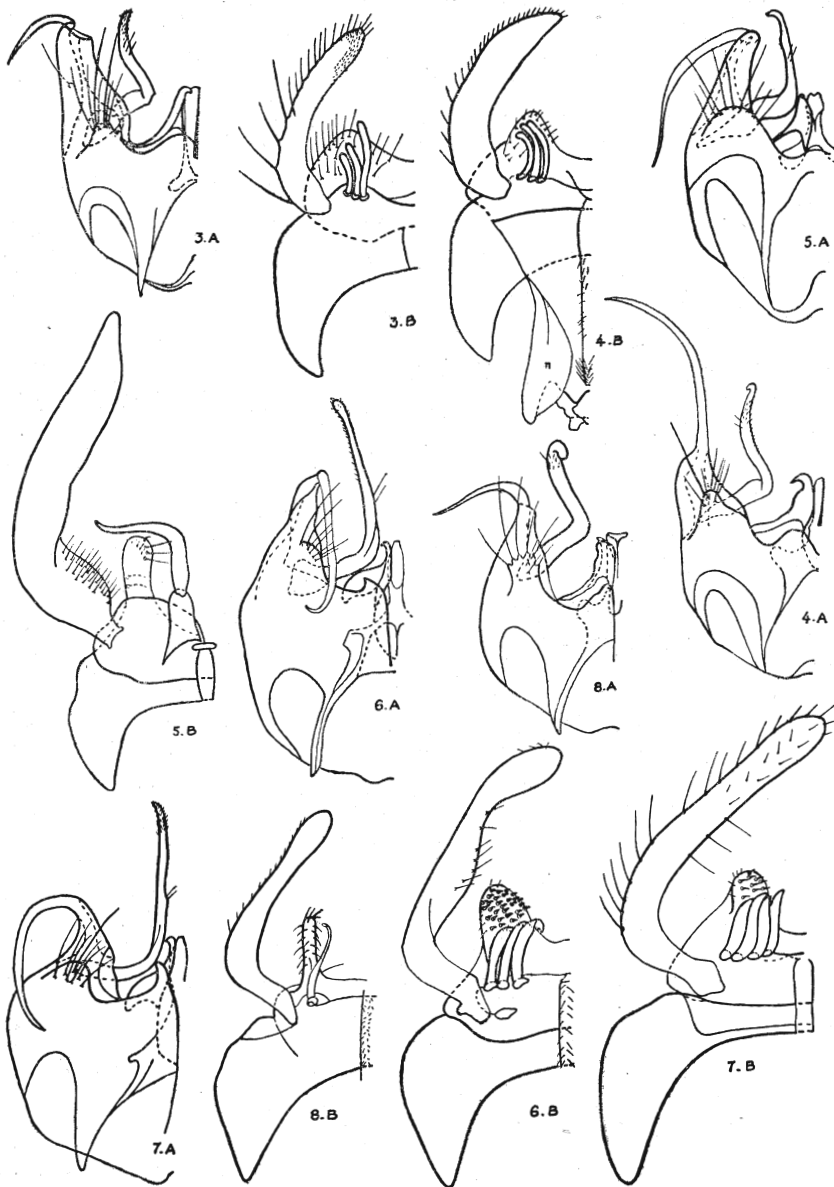


Fig. 3. *Mycomyia hansonii* n. sp., male terminalia. — Fig. 4. *M. shawi* n. sp., male terminalia. — Fig. 5. *M. cramptoni* n. sp., male terminalia. — Fig. 6. *M. freemani* n. sp., male terminalia. — Fig. 7. *M. traverti* n. sp., male terminalia. — Fig. 8. *M. carrerai* n. sp., male terminalia.

smallest, the inner largest; tergal lobe large, but, not prominent, covered ventrally and laterally with moderately long and fine setae and also some longer and finer setae; aedeagus with a broad rounded apex, narrowing basally; outer sternal process with a broad basal portion, the edges of which are infolded, narrowing abruptly into a rounded distal filament shorter than the basal portion with a long, fine basal ventral seta; middle sternal process cylindrical, tapering to a rounded point, curved strongly near the base with a tuft of setae set in a slight hollow from one-third to one-half of way distad of bend and pilose beyond the hollow to apex; inner sternal process flattened, curving and narrowing apically into a slightly hooked process; ventral sternal lobe setiferous; a pair of median ventral lobes present.

Female. Unknown.

Holotype: Brasil, São Paulo, Boracéia, VIII-47. Paratopotypes: 8 with same data as holotype; 10 collected VIII-47; 3 collected XI-47; 8 collected VII-49 (Lane & Coher). Paratypes: 2 collected São Paulo, Campos do Jordão, VIII-49.

Observations: This is by far the most variable species studied, the general coloration and mesonotal pattern varying greatly, the media bearing one to a sparse row of setae on one or both wings, while subcosta₁ may be absent on one or both wings. It is easily separated from *M. manteri* and *alexanderi* n. spp. by its rounded dististyle, enlarged outer sternal process and the absence of supernumerary spurs at the base of the ventral sternal lobe.

I take great pleasure in naming this species for my good friend and teacher Dr. John F. Hanson of the University of Massachusetts.

Mycomyia shawi, n. sp. (Fig. 4)

♂. — mesoepimeron, metaepisternum and metaepimeron vary from yellow to yellow-brown to light red-brown, the anepisternite, katepisternite and pleurotergite always darker although the base of the katepisternite may be somewhat lighter than the apical portion; outer hind tibial spur barely longer than the inner spur; media longer or equal to media₂ and cubitus₂; eighth sternite rounded apically and narrowing, the most sinuous margin basal and lateral.

Terminalia: (fig. 4a and 4b); dististyle flattened and somewhat broadened at base, apex angularly truncate, laterally setiferous; tergal spurs three on each side, the outer smallest, but, not very much reduced; tergal lobe large, prominent, ventrally covered with some short fine setae, some longer, finer setae lateral; aedeagus apically narrow, widening slightly about

half way towards base; outer sternal process with a broad basal portion, the edges of which are infolded, narrowing into a rounded distal filament longer than the basal portion and with a basal ventral seta; middle sternal process flattened, tapering to a rounded point, curving strongly near the base with several small setae two-thirds to three-fourths of the way distad of bend and pilose beyond them; inner sternal process flattened, curved and narrowing apically into a blade-like hooked process; ventral sternal lobe setiferous; a pair of median ventral lobes present.

Female. Unknown.

Holotype: Brasil, São Paulo, Boracéia, IX-47. Paratopotypes: 1 with the same data as the holotype; 1 collected VIII-47.

Observations: By characters of the terminalia, this species is nearly allied to *M. hansonii* n. sp., however, all three specimens of this species have the subcosta₁ absent. It may be distinguished from *hansonii* by the tergal spurs which are not as unequal in size as those of *hansonii* (there is an extra spur present on one side of the holotype), the long filament of the outer sternal process and by the longer hook on the inner sternal process.

I take pleasure in dedicating this species to Dr. Frank R. Shaw of the University of Massachusetts who was of great aid to me in starting the study of Mycetophilidae.

Mycomyia cramptoni, n. sp. (Fig. 5)

♂. — mesoepimeron, metaepisternum and metaepimeron vary from yellow to yellow-brown to light red-brown, the anepisternite, katepisternite and pleurotergite always darker although the base of the katepisternite may be somewhat lighter than the apical portion; hind coxa often whitish; hind tibial spurs equal in length; media slightly longer or equal to media₂ and cubitus₂; eighth sternite narrowing apically, the sides almost straight, the apical margin slightly excavated.

Terminalia (fig. 5a and 5b); dististyle broad, flattened, setiferous with a regularly placed group of fine, long setae at the caudal margin of the base, the basal portion narrow, the apex rounded; tergal spur one on each side, long, fine and bent at right angle near middle; tergal lobe narrow, prominent, the outer margin straight, the inner margin slightly dilated apically and ventrally bearing fine setae shorter than those at the base of the dististyle; aedeagus narrow, slightly enlarged on apical third with apex concave; outer sternal process with a broad basal portion, the edges of which are infolded, narrowing into a flattened distal filament which is longer than the basal portion; middle

sternal process somewhat reduced apically and slightly flattened, strongly angulate near base, slightly curved above angle with two minute apical claws, the inner surface of the curved portion above the median setae set in a hollow, pilose; inner sternal process somewhat flattened, narrowing and curving into a small hooked process at apex; ventral sternal lobe setiferous, broad; median ventral lobes present.

Female. Unknown.

Holotype: Brasil, São Paulo, Boracéia, VII-49 (Lane & Coher). Paratopotypes: 1 collected XI-47; 3 collected IX-47; 4 collected VIII-47. Paratypes: 1 collected São Paulo, Cantareira, X-3-45 (M. P. Barretto); 3 collected São Paulo, Campos do Jordão, XII-45; 3 collected Campos do Jordão, VIII-49.

Observations: In all specimens, the subcosta is branched on both wings. This species is separable from all other species by the form of the dististyle, the single angulated tergal spur on each side and the narrow, prominent tergal lobe.

This species is named in honor of Dr. Guy C. Crampton of the University of Massachusetts for his valuable contributions to the field of Dipterous morphology.

Mycomyia freemani, n. sp. (Fig. 6)

♂. — mesoepimeron, metaepisternum and metaepimeron vary from yellow to yellow-brown to light red-brown, the anepisternite, katepisternite and pleurotergite always darker although the base of the katepisternite may be somewhat lighter than the apical portion; outer hind tibial spur barely longer than the inner spur; media longer or equal to $media_2$ and $cubitus_2$; eighth sternite narrowing apically, the sides almost straight.

Terminalia: (fig. 6a and 6b); dististyle flattened, broadest in the middle, the apex somewhat clubbed, setiferous and pilose, sparse, long setae borne along the inner margin below the clubbed apex; tergal spurs three on each side; tergal lobe prominent, widest at base, ventrally covered with short, heavy setae, a few finer ones also present; aedeagus narrow, the apex narrowing from convex sides; outer sternal process with a broad basal portion, the edges of which are infolded, narrowing distally into an almost rounded filament longer than the basal portion; middle sternal process flattened, the apex clubbed, curved strongly near base with several small setae in a hollow about half way to apex, pilose on margin and on apical clubbed portion; inner sternal process flattened, curved and narrowing apically into a

slightly hooked process; ventral sternal lobe setiferous; a pair of median ventral lobes present.

Female. Unknown.

Holotype: Brasil, São Paulo, Boracéia, VII-49 (Lane & Coher). Paratopotypes: 1 with same data as holotype; 3 collected VIII-47; 1 collected IX-47; 1 collected XI-47.

Observations: One specimen has subcosta₁ of one wing incomplete, but, longer than a spur. This species is allied to *M. cramptoni* n. sp., but, may be distinguished from it and all other species by the shape of the dististyle, by the setae on the tergal lobe, the three tergal spurs and the shape of the middle sternal process.

I take great pleasure in naming this species for Dr. Paul Freeman of the British Museum (Natural History).

Mycomyia traveri, n. sp. (Fig. 7)

♂. — pleurae dark in appearance; mesoepimeron, metaepisternum and metaepimeron brownish; anepisternite, katepisternite and pleurotergite almost fuscous; media longer than or equal to cubitus₂ which is equal to media₂; hind tibial spurs equal in length; eighth sternite with nearly straight lateral margins.

Terminalia: (fig. 7a and 7b); dististyle long, subcylindrical, setiferous laterally, the apex rounded, setiferous, flattened and widened, pilose; tergal spurs four on each side; tergal lobe large, prominent with some heavy setae ventrally and finer lateral and dorsal setae; aedeagus narrow, the apex narrowing from convex sides; outer sternal process with a broad basal portion, the edges of which are infolded, narrowing distally into a rounded filament longer than the basal portion; middle sternal process slightly flattened, curved strongly near base with several small setae set in a hollow half way to apex, pilose above curve to hollow and on apical portion; inner sternal process flattened, curved and narrowing apically into a slightly hooked process; ventral sternal lobe setiferous; a pair of median ventral lobes present.

Female. Unknown.

Holotype: Brasil, São Paulo, Campos do Jordão, VIII-49. Paratype: São Paulo, Morumbi, XI-1-49 (I. Ortiz). Other record: São Paulo, Boracéia, VIII-47.

Observations: The base of media₁ is missing on the wings of the holotype. This species may be distinguished from all others in this group by the shape of the dististyle and the presence of four tergal spurs.

It gives me great pleasure to name this species after my friend and teacher Dr. Jay Traver of the University of Massachusetts.

