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TAXONOMIC STUDIES ON SOME MASIPHYINI (DIPTERA, TACHINIDAE) REARED FROM MANTODEA

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In the present paper we study the taxonomy of some tachinids belonging to the tribe Masiphyini, Townsend. The material was obtained during 20 years of biological observations on the Mantodea done at the Departamento de Zoologia da Secretaria da Agricultura do Estado de São Paulo.

Since practically nothing is known about the hosts of the representatives of this tribe, we thought it useful to publish our observations showing that the Masiphyini-group is a natural one, based on biological as well as morphological criteria as will be seen in a forthcoming paper.

In this first paper we present only the results of taxonomic studies on the Masiphyini. Herewith we describe 2 new genera and 6 new species and redescribe 5 species. The biological observations will appear in a subsequent work.

The types of the new taxa here described are deposited in the collections of Diptera of the Departamento de Zoologia de São Paulo.

SYSTEMATIC POSITION OF THE STUDIED SPECIES

All flies parasitic on Mantodea were shown to belong to the tribe Masiphyini, as defined by Townsend (1936). Such a tribe, according to that author, contains 16 genera, all confined to the New World.

Reinhard (1931) considered the genera *Siphosturmia* Coquillett, *Siphosturmiopsis* Townsend and *Microsillus* Aldrich as different from the other Masiphyini, and erected for them the tribe Siphosturmiini. The latter tribe differs from the former especially in the form of the ovipositor, which is elongated and tubular

Thus, the tribe Masiphyini can be defined by the following important characters: face flat, with elongated epistoma, almost as long as clypeus; genae very narrow; antennae with elongated

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third segment; arista with basal segments very short; "barrette" hairy in most species; females with genitalia usually fitted for piercing the host's integument; male genitalia with only one pair of parameres or gonapophyses (palpi genitalium), and aedeagus without epiphallus; pupa with prominent posterior spiracles which furnish important taxonomic characters.

Certain species of Masiphyini present some characters which are common to the tribe Winthemiini, resulted in specialization of the female genitalia for diverse reproductive habits. These adaptations are evidenced by great structural modifications.

Masiphyoidea chaetosa Thompson has genitalia comparable to that of *Promasiphya confusa* Aldrich. In this species sternite VII shows a piercing piece, forming posteriorly a groove over which is arranged tergite VII, the postgenital plate and the cerci, strongly modified. Anteriorly to the postgenital plate are the so called "lingulae" of Herting (1957).

In *Micromasiphya* Townsend, the genitalia have undergone still greater modifications, in relation to the above mentioned type, as seem by the transformation of the postgenital plate into a piercing piece. Spiracle VI is found in a membranous region, and spiracle VII in tergite VI. This species, most probably, is larviparous and belongs to "group VII" of Pantel (1910).

In *Prophasiopsis* Townsend, we find no modifications of sclerites into piercing pieces. Here sternite VII is fused dorsally with tergite VII, forming an annulate piece within which are found the remaining strongly modified genital pieces.

In *Neomasiphya,* gen. n., the genitalia are simpler and without great structural changes, sternite VII being simple, squarish, which makes us believe that the species which belong to this genus may lay undeveloped macrotype eggs.

In *Mystacomyoidea* Thompson, sternite V presents a rounded projection, apically provided with numerous teeth; sternites VI and VII are formed as piercing pieces, as described by Thompson (1963).

The female genitalia of the Masiphyini, in view of the excellent morphological elements given by Thompson (1963) differ from the Siphosturmiini in not having an elongated tubular ovipositor.

Male: the male genitalia are relatively uniform among the several species of this group in the number of structures. The forcipes posteriores and inferiores offer good criteria for specific definition, as does also the shape of the aedeagus. We have seen in this group a single pair of parameres (palpi genitalium, or gonapophises) the forcipes interiores being absent. The epiphallus, present among the Siphosturmiini, is here absent.

According to the above considerations, should the genus *Mystacomyia* Giglio-Tos, not belong to the Masiphyini, for it has at the base of the basiphallus a well developed epiphallus (spinus titilatorius of Verbeke, 1962). Unfortunately we have no female specimens of this genus to confirm our opinion, and for this reason we consider it, provisionally, as belonging to the Masiphyini.

KEY TO SPECIES OBSERVED AS PARASITES OF MANTODEA

1. Ocellar bristles present 2
— Ocellar bristles absent 4

2. Eyes pilose ..... *Neomasiphya thompsoni*, gen.n., sp.n.
— Eyes bare, or microscopically pubescent 3

3. Abdomen with discals on tergites II and III ..... *Oromasiphya urbanae*, sp.n.
— Abdomen without discals on tergites II and III ..... *Neomasiphya lenkoi*, sp. n.

4. With 4 sternopleurals 5
— With 2 sternopleurals 8

5. Abdomen with a row of marginals on tergite VI 6
— Abdomen without a row of marginals on tergite IV 7

6. Mesonotum with 3 pairs of postsuturals; outer verticals well developed; abdomen with one pair of median marginals on tergite ..... *Masiphyoidea chaetosa* Thompson
— Mesonotum with 4 pairs of postsuturals; outer verticals little differentiated continuous with postocular cilia; abdomen with one pair of median marginals on tergite II ..... *Micromasiphya curta* Townsend

7. Mesonotum with 4 pairs of postsuturals; ocellar bristles absent; outer verticals present ..... *Manteomasiphya brasiliensis*, gen. n., sp. n.
— Mesonotum with 3 pairs of postsuturals; ocellar bristles vestigal; outer verticals absent ..... *Masiphya brasiliana* Brauer & Bergenstamm

8. Eyes bare; mesonotum with 3 pairs of postsuturals 9
— Eyes pilose; mesonotum with 4 pairs of postsutural dorsocentrals 10

9. Outer verticals present ..... *Prophasiopsis lopesi*, sp. n.
— Outer verticals absent ..... *Phasiopsis manteophaga*, sp. n.

10. Abdomen with a row of marginals on tergites III and IV ..... *Mystacomyioidea spinosa*, sp. n.
— Abdomen without a row of marginals on tergites III and IV ..... *Mystacomyia rubriventris* (Wulp)

DESCRIPTIONS OF NEW GENERA AND SPECIES

Neomasiphya, gen. n.

Head higher than wide; frontal profile longer than the facial; antennal axis a little below the middle of the eyes; epistoma nasute, a little prolonged beyond the clypeal plane; vibrissae strongly decussate, placed just above the oral margin; ocellar

bristles present; outer verticals poorly developed; frontals in only one row, with 2 or 3 bristles placed below the level of insertion of antennae; parafrontalia bare, slightly narrowed ventrally with 2 pairs of proclinate frontoorbitals; antennae with elongated 3rd segment, almost twice the length of the 2nd; arista bare with lst and 2nd segments greatly reduced; eyes pilose to microscopically pubescent; palpi narrow and long, slightly clavate at apex.

Mesonotum with the following chaetotaxy: acrostichals — 3:3; dorsocentrals — 3:3; intraalar — 1:3; supraalar — 1:3; humerals — 4; posthumerals — 2; intrapostsutural and intrapostalar present; scutellum with 2 pairs of laterals and 1 pair of decussate apicals; "barrette" hairy; sternopleurals — 3; pteropleurals — 1; propleura and postalar wall bare; prosternum hairy.

Legs black; claws short in the male.

Wings hyaline; 3rd vein dorsally with some bristles beyond half way to small cross-vein; first posterior cell open, ending before the middle of wing.

Abdomen with a pair of median marginals on segments II and III, a complete row of marginals on IV, and an irregular row of marginals and discals on V.

TAXONOMIC DISCUSSION

This genus is closely related to *Promasiphya* Townsend, differing especially in the female genitalia, tergite VII being not transformed into a piercing piece. Type-species: *Neomasiphya thompsoni*, sp. n.

Neomasiphya thompsoni, sp. n.

(Figs. 1-3)

♀ — total length: 9 mm.

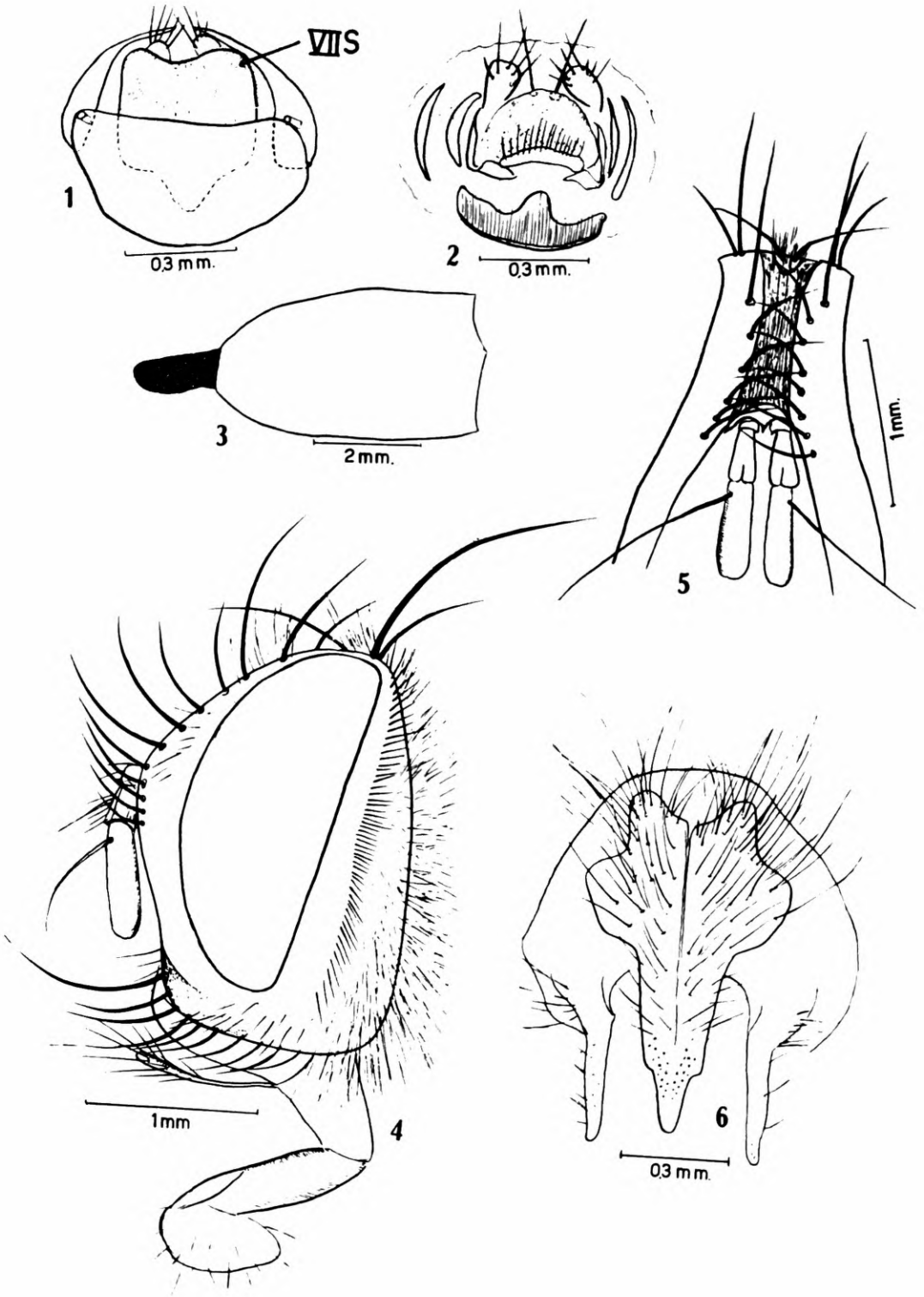
Head silvery-white pollinose, slightly testaceous at vertex; front (before vertex) 0,27 of the head width; frontalia brown; inner verticals parallel; outer verticals short and strongly divergent; frontals in one only row of 5 bristles, 2 being situated below the insertion of antennae; antennae with orange lst and 2nd segments; 3rd segment long, brownish below the insertion of arista; arista long, micropubescent, with lst and 2nd segments very short; parafacialia and genae narrowed; eyes pilose, exceeding the level of insertion of vibrissae; genae clothed with sparse black hairs; palpi short, pale yellow, with long black hairs.

Thorax black, testaceous-yellowish pollinose, with 4 black vittae on mesonotum, interrupted near the suture.

Wings hyaline, with testaceous pubescence; epaulet and subepaulet brown; 3rd vein dorsally with bristles till small cross-vein; barrette hairy.

Legs: femora brown, tibiae darkened, slightly ochraceous, tarsi black.

Abdomen black, yellow laterally; tergites II and III with a weak pair of median marginals and 2 pairs of lateromarginals; genitalia without piercing pieces (fig. 1, 2); sternite VII subqua-



Neomasiphya thompsoni, sp. n.: 1, female genitalia, posterior view; 2, same, after deslocation of sternite VII; 3, puparium, lateral view. *Neomasiphya lenkoi*, sp. n.: 4, head of male, lateral view; 5, same, details of front; 6, forcipes superiores and forcipes inferiores, posterior view.

drangular, above this sclerite tergites VII and VIII and sternite VIII are placed internally and in the shape to chitinous belts; postgenital plate poorly developed.

Puparium elongated, elliptical (fig. 3); stigmatic plate protruding, in lateral view, subquadrangular and not presenting apically the so-called "slits" of Greene (1921).

♂ — unknown

Holotype ♀ n.º 28738 from Pôrto Cabral, Rio Paraná, São Paulo, Brazil, IV.1944 (Travassos Fº).

BIOLOGICAL OBSERVATIONS

Holotype reared from an unidentified female nymph of *Thesprotia* sp. (Oligonicinae), captured on 3.IV.1944, n.º 108.507. The mantid continued to feed, molting for the last time on 21.VI. By 31.VII it had deposited two oothecae. The larva abandoned its host on 19.V, pupating rapidly. The adult emerged on 20.VI.

We have the great pleasure to name this species in honour of Prof. W. R. Thompson, for the most valuable information given to us during the preparation of this work.

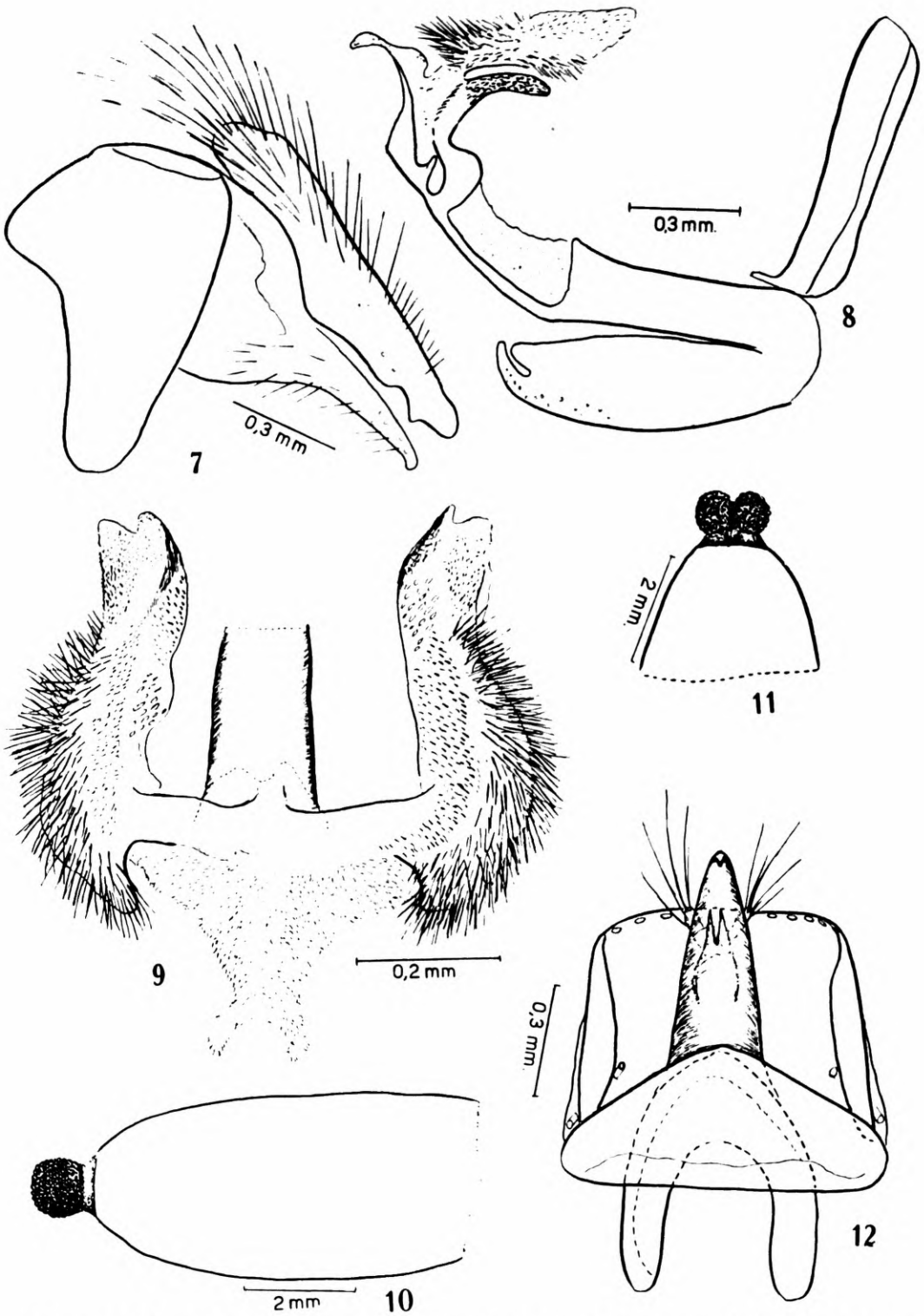
Neomasiphya lenkoi, sp. n.

(Figs. 4-11)

♂ — total length: 11 mm.

Head whitish, with testaceous reflections in the front (fig. 4, 5); frontalia dark-brown; ocellar triangle black, testaceous pollinose, with long sparse hairy; front 0,60 of the head width; frontals in a single row, with 6 or 7 convergent bristles, those of the base of antennae stouter; front with 3 pairs of reclinate frontoorbitals; inner vertical bristles parallel; outer verticals little developed; eyes microscopically pubescent; ocellar bristles robust and strongly divergent; parafrontalia black dorsally, with testaceous-yellow pollen and long sparse black hairs, clear hairs being rare towards the base of antennae; antennae yellow, 3rd segment elongated, orange, darkening gradually from the insertion of arista distally; arista long, 1st and 2nd segments greatly reduced; 1st segment about half the length of the 2nd; 3rd segment long, strongly pubescent, with apical 2/3 narrowed and darkened; facialia orange, with small bristles above the insertion of vibrissae; oral margin with long black bristles; genae clothed with sparse short black hairs, continuous with the postgenal hairs; palpi orange, elongated and slightly clavate.

Thorax black, testaceous pollinose; mesonotum whitish-pollinose with 4 black vittae interrupted at the suture, being the outer postsutural vittae being longer than the remaining; scutellum also whitish-pollinose.



Neomasiphya lenkoi, sp. n.: 7, forcipes superiores and forcipes inferiores, lateral view; 8, internal pieces of male genitalia, lateral view; 9, distiphallus, dorsal view; 10, puparium, lateral view; 11, same, detail of posterior spiracles; *Oromasiphya urbanae*, sp. n.: 12, female genitalia, posterior view.

Genitalia with forcipes superiores (fig. 6-8) constricted preapically; forcipes inferiores long and narrow, with internal borders almost parallel, exceeding the level of apex of the forcipes superiores; palpi genitalium robust, with bifurcated apex; aedeagus with lyre-shaped distiphallus covered with long spines (fig. 9).

Puparium long, brown, subcylindrical in lateral view (fig. 10, 11); posterior spiracles black, protruding, well separated at base, situated at the same level as the longitudinal axis, with a coarsely granulated surface; internally, the 2 halves are joined by an expansion perpendicular to the longitudinal axis.

♀ — unknown

Holotype ♂, n.º 28740, from Pôrto Cabral, Rio Paraná, São Paulo, Brazil, VIII.1944 (L. Travassos Fº).

BIOLOGICAL OBSERVATIONS

Holotype reared from a male nymph of *Photinella brevis* Rehn (*Photininae*), n.º 108.510, captured on 25.III. It molted on 11.IV and 23.V. The larva abandoned its host on 13.VII, leaving a well evident scar. After the emergence of the larva, the host molted 3 times with the consequent vanishing of the scar, and became adult and subsequently copulated with a female, which produced offspring. The holotype larva pupated a few hours after its emergence from the mantid, the adult emerging on 29.VIII.

DIAGNOSIS

This species differs from the preceding one especially by the patterns of coloration and by having the eyes microscopically pubescent; the parafacialia present testaceous-yellow pollen and not silvery-white as in *P. thompsoni.*

This species is dedicated to our friend Dr. Karol Lenko, who has collected the greater part of the specimens here studied.

Oromasiphya Townsend

Oromasiphya Townsend, 1926:249.

Oromasiphya urbanae, sp. n.

(Figs. 12-16)

♀ — total length: 8,5 mm.

Head silvery-white, front brown, 0,20 of the head width (fig. 13); frontals forming a single row, with 5 convergent bristles, 2 being situated below the insertion of antennae; parafrontalia with 2 pairs of proclinate and 2 pairs of reclinate frontoorbitals; ocellar bristles long and divergent; parafrontalia clothed with long, erect black

hairs; inner verticals stout and parallel; outer verticals a little longer than half the length of the inner ones; postocellars well-developed; antennae orange, 3rd segment elongated, black, orange above the insertion of arista; vibrissae long and strongly decussate; genae with long black hairs; eyes exceeding the level of insertion of antennae; palpi yellow or testaceous with long black hair apically.

Thorax black, testaceous-yellow pollinose; mesonotum with following chaetotaxy: acrostichals: 3:3; dorsocentrals — 3:3; intraalar: 1:3; supraalar — 1:3; humerals: 5; posthumerals: 2; sternopleurals: 3; intrapostalar: 1; propleura bare; scutellum with 2 pairs of marginals, 1 pair of crossed apicals and 1 pair of laterally placed discals.

Wings hyaline, with darkened veins; third vein dorsally, with bristles half-way to small cross-vein; costal spine well developed; squamae white; epaulet, sub epaulet and legs black.

Abdomen black, with apex of tergite V orange; tergites III and IV with basal 2/3 whitish pollinose, remaining pollinosity testaceous; tergites II and III with a pair of median marginals and 1 pair of lateromarginals; tergites III and IV with one pair of discals; IV and V with a row of marginals; V with a complete row of median discals; genitalia *Promasiphya*-like (fig. 12, 14); sternite VII shaped like a piercing piece, with elongated and pointed apex; dorsally, this piece scoopshaped, sides bent dorsally and contains on its dorsal surface the remaining, strongly modified parts of the genitalia, as the postgenital plate, the cerci and lingulae.

Puparium brown, of medium size, elongated and subcylindrical in lateral view (fig. 15, 16); posterior spiracles united mesally for their entire length. Their exterior surface coarsely rugose.

♂ — unknown

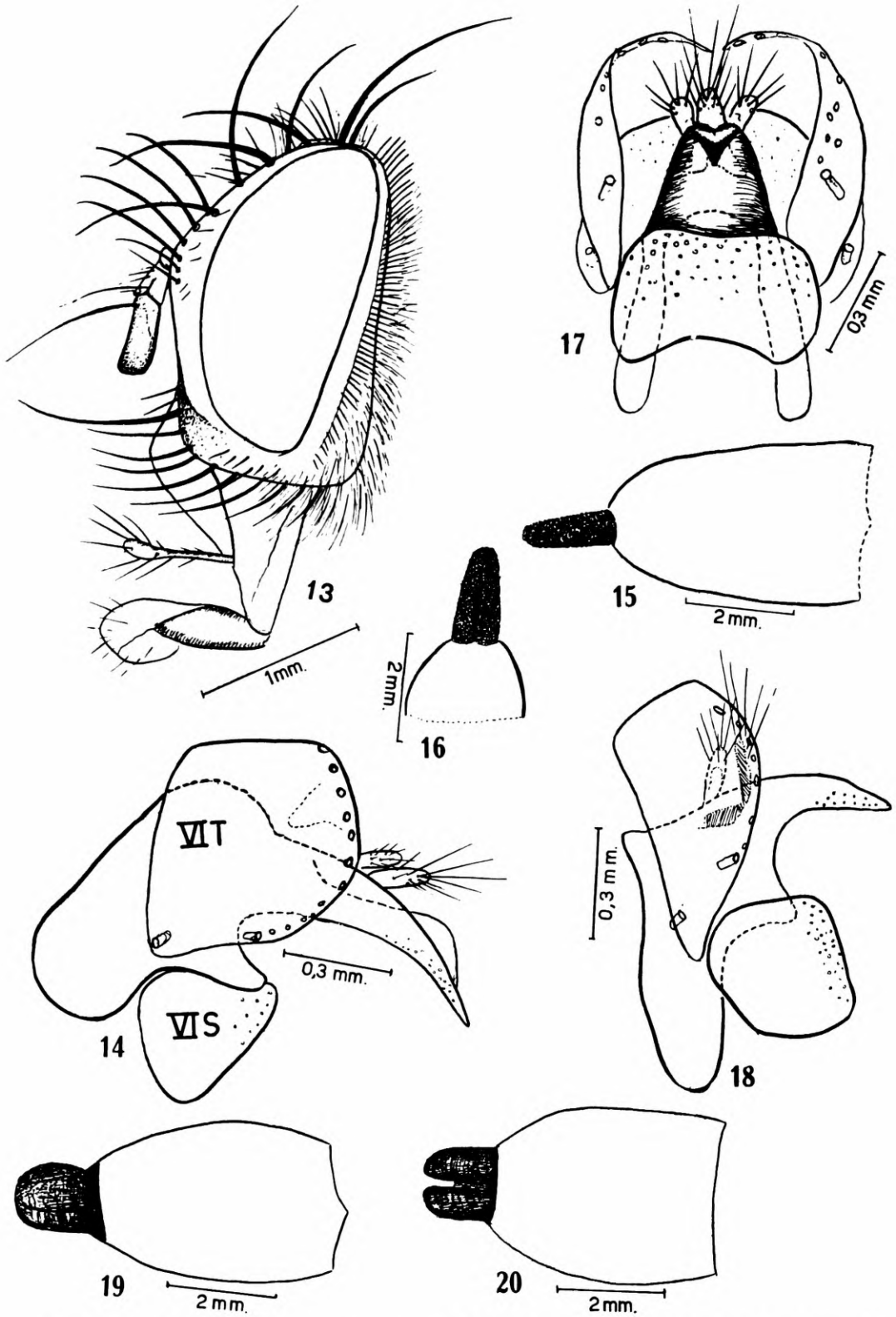
Holotype ♀, n.º 28739, from Cocaia, Santo Amaro, São Paulo, Brazil, IV.1953 (H. Urban).

Biological observations

Holotype reared from a female nymph of *Antimiopteryx* sp. (Miopteriginae), n.º 1938, collected on 12.IV. The tachinid imago emerged on 7.VI. The mantid molted twice, on 13.IV and 7.V and once again on 9.V, after the emergence of the larva.

Diagnosis

This species is related to *Oromasiphya ornata* T.T., of which we have a male paratype, deposited in collections of Dep. Zool. It differs from *ornata* by the general colour pattern; the parafacialia and occiput are golden-yellow pollinose, instead of being white as in *ornata*. The hairs of genae, inferiorly, are totally golden-yellow, and in *ornata* silvery-white, intermingled with rare golden-yellow hairs. The disc of mesonotum presents testaceous pollinosity, while in *ornata* it is whitish.



Oromasyphyia urbanae, sp. n.: 13, head of female, lateral view; 14, female genitalia, lateral view; 15, puparium, lateral view; 16, same, detail of posterior spiracles. *Masiphyiodea chaetosa* Thompson: 17, female genitalia, posterior view; 18, same, lateral view; 19, puparium, lateral view, 20, same, dorsal view.

We dedicate this species to Mrs. Helga Urban, for the parasitized material furnished to us.

Masiphyoidea Thompson

Masiphyoidea Thompson, 1963:1313.

Masiphyoidea chaetosa Thompson

(Figs. 17-20)

Masiphyoidea chaetosa Thompson, 1963:1313.

♀ — total length: 6 mm.

Head whitish; frontalia yellowish; postvertical and postocellar bristles well developed; facialia black with inner borders continuous with vibrissae; frontals in a single row, with about 6 convergent bristles, 2 of those below the insertion of antennae; parafacialia with 2 pairs of proclinate and 3 pairs of reclinate frontoorbitals; inner verticals long and parallel; outer verticals short, about half the length of the inner verticals; ocellar bristles absent; antennae black, with elongated 3rd segment; vibrissae long and robust; eyes thinly pilose, exceding the level of insertion of the vibrissae; genae short, with sparse black hairs; palpi slightly testaceous, a little clavate at apex.

Thorax brown; mesonotum with following chaetotaxy: acrostichals — 3:3; dorsocentrals — 3:3; intraalars: 1:3; supraalar: 1:3; humerals — 4, 3 being in a straight line; posthumerals: 2; intrapostalar: 1; sternopleurals: 3; propleura bare; sternopleura pilose; scutellum orange, with 3 pairs of laterals and 1 pair of decussate apicals; wings hyaline; epaulet and subepaulet black; third vein, superiorly, with bristles, about half way to small cross-vein; squamae white; legs clear-brown; tarsi black.

Abdomen clear-brown; tergite II with 1 pair of median marginals, and 1 pair of lateromarginals; tergites III and IV with a complete row of marginals; tergite V with a row of median discals and an irregular row of preapicals; genitalia *Promasiphya*-like (fig. 17, 18), with sternite VII shaped like a piercing piece, with pointed and elongate apex; dorsally grooved above which are the postgenital plate, the cerci and lingulae, the latter more elongated but less developed than in *N. thompsoni.*

Puparium, brown, small (fig. 19, 20); posterior spiracles placed on same level as longitudinal axis and subquadrangular in lateral view; external surface of spiracles slightly rugose, showing longitudinal sulci beginning at base and with subparallel ramifications; anal opening at the center of each half, but removed from the internal face; the two halves of the posterior spiracles are united by a basal projection, parellel to the longitudinal plane.

Material examined: 1 ♀, n.º 28741, from Barueri, State of São Paulo, Brazil, IV.1961 (K. Lenko).

BIOLOGICAL OBSERVATIONS

Reared from a nymph of *Acontiothespis concinna* (Perty) (n.º 1088) collected on I.IV.1961. The larva emerged on 15.IV, killing the host. The adult's eclosion occurred on 15.V.

This species must evidently be the same described by Thompson (1963:1313) from Trinidad, since the descriptions and figures of female genitalia agree perfectly with ours. The male is not yet known.

Micromasiphya Townsend

Micromasiphya Townsend, 1934:399

Micromasiphya curta Townsend

(Figs. 21-24)

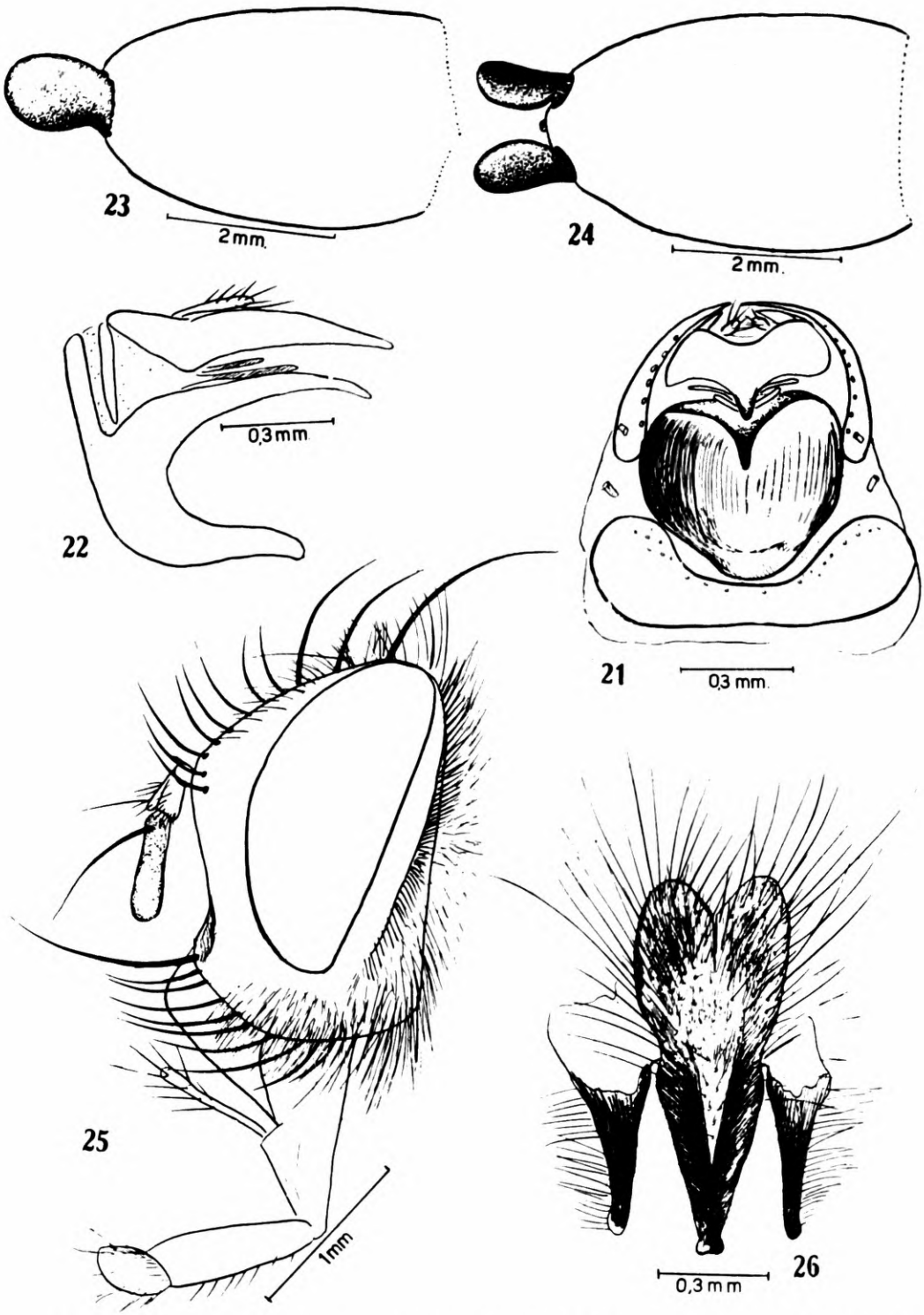
Micromasiphya curta Townsend, 1934:399; 1936:217; 1941:165

♀ — total length: 6 mm.

Head yellowish, silvery-white pollinose; front 0.17 of the head width; parafrontalia brown, golden-yellow pollinose; frontal bristles in a single row, not exceeding the base of antennae, the upper bristles reclinate and parallel; parafrontalia and genae with fine clear hairs; inner verticals long, parallel and reclinate; outer verticals reduced, continuous with postocullar cilia; antennae orange, with 3rd segment darkened on apical 2/3, and about twice the length of the second; arista dark, micropubescent with basal segments reduced; 3rd segment elongated, with narrow apical 2/3; parafacialia narrowed; epistoma nasute in lateral view; gena 0,60 heigth of the eye; bristles of oral margin continuing with those of facialia; vibrisae robust, strongly desussate.

Thorax brown; scutellum, humeral callus and postalar callus orange; mesonotum golden-yellow pollinose, with the following chaetotaxy: acrostichals 3:3; dorsocentrals: 3:4; intraalar: 1:3; posthumerals: 2; humerals: 4, 3 being in a straight line; intrapostalar and intrapostsutural bristles present; scutellum with 3 pairs of laterals and one pair of decussate apicals; wings hyaline, veins orange at base; epaulet and sub epaulet brown; 3rd vein with some bristles at base; squamae opaque-white; propleura pilose; sternopleura with 3 bristles forming a triangle; legs dark; coxae orange.

Abdomen oval, reddish, with an orange dorsal spot; tergites II, III, IV with a row of median marginals; 6th spiracle located on tergite VI; 7th spiracle in a membranous region; tergite VII fused with its sternite, showing apically a strong curved "sting" or "spur" used for oviposition (larviposition?) within the host (Fig. 21, 22); postgenital plate also modified into a piercing piece; tergite VIII a narrow chitinous piece, contacting sternite VIII perpendicular to dorsal margin of latter.



Micromasiphya curta Townsend: 21, female genitalia, posterior view; 22, same, lateral view; 23, puparium, lateral view; 24, same, dorsal view. *Masiphya brasiliana* Brauer & Bergenstamm: 25, head of male; 26, forcipes superiores and forcipes inferiores.

Puparium brown, small (fig. 23,24); posterior spiracle on same level than the longitudinal axis, with distinctly rugose surface; each spiracle has the shape of a coffee grain, well separated at the base; anal opening situated on the internal face each half, approximately at a height corresponding to the basal 3/4.

MATERIAL EXAMINED

1 ♀, n.º 28742, from Cocaia, Santo Amaro, São Paulo, Brazil, V.1954 (H. Urban).

BIOLOGICAL OBSERVATIONS

Reared from a nymph of *Liturgousa* sp. (Liturgousinae) (n.º 1831) collected on 25.IV.1954, dying on 27.IV, one day after the emergence of larva III; the imago of the fly emerged on 2. VI.

The type of this species was described from Urucurituba, Rio Tapajós, Brazil. Townsend's original description agrees perfectly with the specimen here studies. Nevertheless, we still have doubts as to its specific identitity, which will be cleared after a future examination of the type, in Washington.

Masiphya Brauer & Bergenstamm

Masiphya Brauer & Bergenstamm, 1891:9.

Masiphya brasiliana Brauer & Bergenstamm

(Figs. 25-31)

Masiphya brasiliana Brauer & Bergenstamm, 1891; Aldrich 1925:107; Townsend, 1931:174, 1936:218; 1941:164.

♂ — total length: 11 mm.

Head orange (fig. 25); front 0,25 of the head width; parafrontalia with a single row of frontal bristles, 2 of those below the level of insertion of the antennae; 2 pairs of proclinate frontoorbitals; outer verticals absent; inner verticals long and parallel; frontalia black, narrowing towards the ocellar triangle; ocellar bristles vestigial, little differentiated from the remaining hairs of the ocellar triangle; eyes bare; antennae orange; 3rd segment black, with base and posterior internal surface reddish, about twice the length of the 2nd; arista microscopically pubescent, with reduced basal segments 3rd segment long, widened at basal 1/3; occiput with long orange hairs, becoming white towards the internal borders of the eyes; genae parafacialia and clypeus, silvery-white; palpi yellow, slender, with rare apical hairs; genae about 1/4 of the eyes length.

Thorax black, orange pollinose; mesonotum with 2 pairs of longitudinal vittae, 1 pair being located between the acrostichals and dorsocentrals, and the other between dorsocentrals and

intraalar; mesonotum with the following chaetotaxy: acrostichals: 3:3; dorsocentrals — 3:3; intraalar: 1:3; supraalar: 1:3; humerals: 5; posthumerals: 2; intrapostalar and intrapostsutural present; scutellum with 2 pairs of laterals and 1 pair of decussate apicals; propleura and postalar wall bare; notopleurals: 2; sternopleurals: 3; wings hyaline; lst posterior cell open, ending before the apex of wing; 3rd vein with some bristles at base.

Abdomen suboval, elongated, red, darkened above on the midline; tergites II and III with one pair of median marginals ventrally; on tergite III another row of marginals beginning laterally and oriented towards the posterior margin of the respective sternite; tergite V with a row of marginals and an irregular row of discals; ventrally long genital hairs; forcipes superiores fused on the midline, sub triangular, (fig. 26, 27); palpi genitalium elongated and curved, with bifurcated apex. (fig. 28); aedeagus with distiphallus (fig. 29) presenting a complex structure in form of two elongated and curved processes adorned with tiny teeth.

Puparium brown, elongated (fig. 31, 31); posterior spiracles situated on the same level as the longitudinal axis, well separated at base; seen in lateral view, the spiracles are subcircular, and have an outer surface finely rugose; this puparium is similar to that of *Neomasiphyia lenkoi,* sp. n., but differs in presenting the internal surface of each spiracle parallel and in having the external surface more finely rugose; the internal faces of each half area united mesially by an expansion parallel to the longitudinal axis.

Material examined

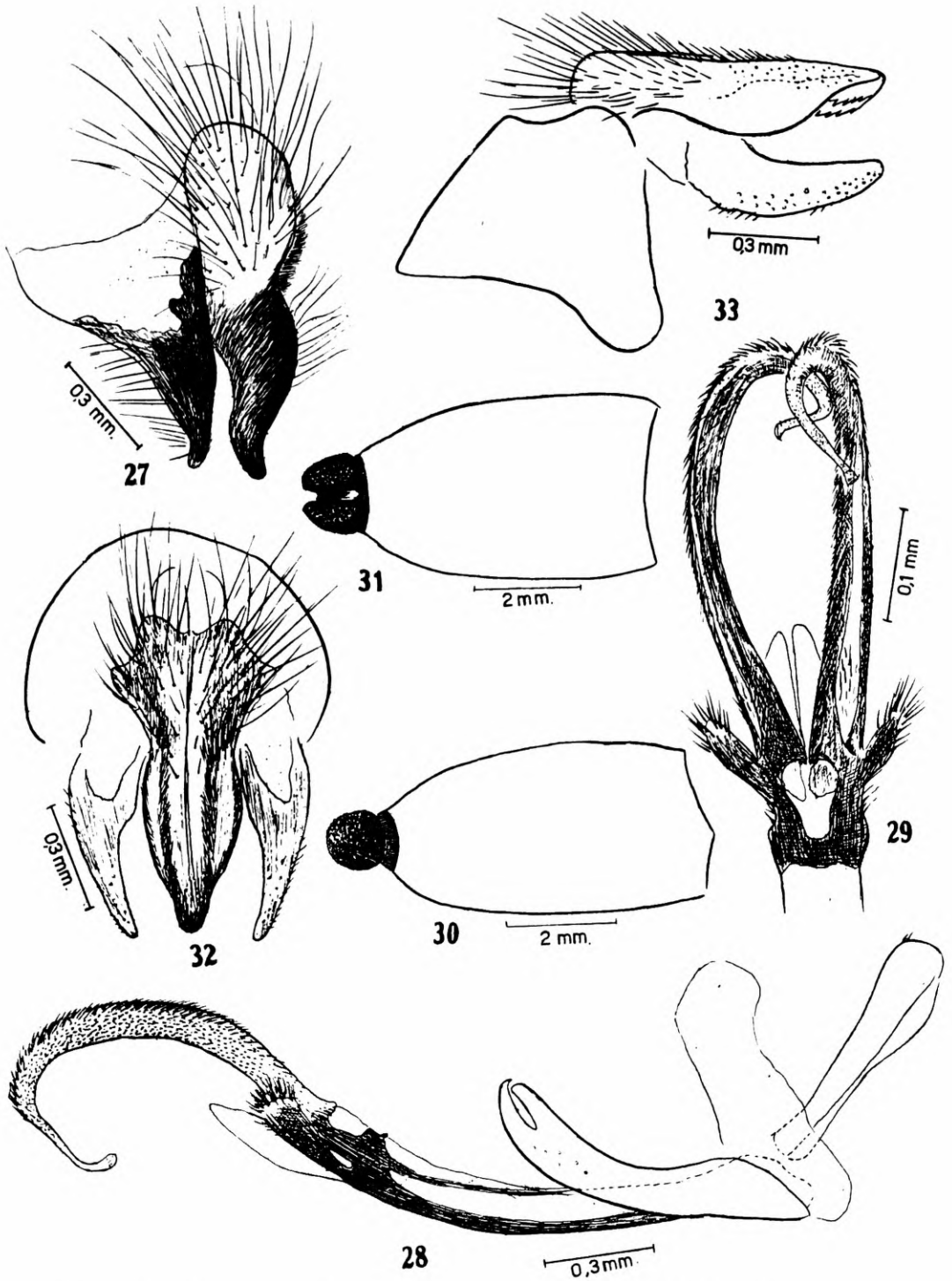
1 ♂, n.º 28743, from Fazenda Nova Orlândia, Jataí, Goiás, Brazil, 1964 (Martins, Morgante & Silva).

Biological observations

Reared from nymphs of *Acontiothespis bimaculata* (Saussure) (n.º 1194). Originally we had a lot of 5 mantids and presented each, one to 3 larvae. In those cases where the host was parasitized by more than one larva, apparently only a single one survived to adulthood.

Diagnosis: The type specimen is a female collected by Natterer at Ypanema (presently Varnhagen), about 600 km of the locality in which we have collected our specimens. We have identified the species on basis of redescriptions of the type, given by Aldrich (1925) and Townsend (1931).

Thompson (1963) has described a new species, *Phasiopsis triangularis,* based on one female, whose external characters are very much like those of *Masiphya brasiliana* but differs from the latter by presenting the genitalia of a different type from that described by Aldrich (1.c.) as "a blunt black rather prominent egg laying organ". Since the external morphological differences between these two species are not sufficient to characterize them, we think that the specimen which we now study is the male of *M. brasiliana* or *P. triangularis.*



Masiphya brasiliana Brauer & Bergenstamm: 27, forcipes superiores and forcipes inferiores, lateral view; 28, internal pieces of male genitalia, lateral view; 29, distiphallus, dorsal view; 30, puparium, lateral view; 31, same, dorsal view. *Manteomasiphyia brasiliensis,* gen. n., sp. n.: 32, forcipes superiores and forcipes inferiores, posterior view; 33, same, lateral view.

Townsend (1941:165) gives a short redescription of the genitalia of *M. brasiliana.* This author refers to paraphallus as "prongs produced in a long apical pair of curved ventral elbowed widely spread processes". This description fits perfectly our specimen.

Recently, thanks to the kindness of Dr. C. R. Gonçalves, we were able to examine a male specimen identified by Townsend as *Masiphya brasiliana* B. & B. (deposited at the Barbiellini Collection, Universidade Rural, Rio de Janeiro). Dissection of the genitalia showed that it was identical to our specimen.

From the above evidence, we belive that our specimen is really M. *brasiliana,* but we do not exclude the possibility that it may be the male of *P. triangularis.*

Manteomasiphya, gen. n.

Head twice as high as long; antennal axis a little above the middle of the eyes; epistoma nasute, protruding a little beyond the clypeus; parafrontalia naked. narrowing towards the vibrissae; eyes bare; genae much narrowed; ocellar bristles absent; one row of frontal bristles, 3 of which are below the level of insertion of the antennae; male with 2 pairs of reclinate frontoorbitals; outer verticals poorly developed; palpi slender, weakly clavate; thorax larger than the head; acrostichals: 3:3; dorsocentrals — 3:4; intraalar — 1:3; supraalar — 1:3; humerals: 5; posthumerals — 2; intrapostalar and intrapostsutural bristles present; scutellum with two pairs of well differentiated laterals and 1 pair of decussate apicals; sternopleurals: 3; pteropleurals: 1 or 2; propleura and postalar wall naked; barrette and sternopleura hairy; wings hyaline; abdomen dorsocentrally compressed; tergites III and IV without bristles; tergite V with an irregular row of apicals on distal third, presenting, inferiorly, dense genital hairs.

Taxonomic discussion

This genus is near *Mystacomyia* Wulp on external appearance but differs in presenting bare eyes and 3 sternopleurals. The male genitalia are typical of the Masiphyines, where we do not observe the presence of on epiphallus at the base of aedeagus.

Type-species: *Manteomasiphya brasiliensis,* gen. n., sp. n.

Manteomasiphya brasiliensis, sp. n.

(Figs. 32-37)

♂ — total length: 9 mm.

Head yellowish, golden pollinose; frontalia black; front 0,26 of the head width; parafrontalia clothed with, dense black hairs, with a row of 10 convergent frontal bristles, 3 of those below the level of insertion of antennae; inner verticals reclinate and parallel; outer verticals divergent; inner verticals stouter than outer; ocellar bristles absent; postocellar and postvertical bristles

weakly proclinate; genae with dense sparse dark hairs, about 9/10 as long as height of eye; facialia with strong and dense hairs; antennae reddish, with 3rd segment opaque-black orange at base, about 2,5 times longer than the second; arista brown, with 3rd segment very narrow at the apical 2/3; proboscis short; palpi yellow, slightly clavate; epistoma slightly protruding, as seen in lateral view.

Thorax as large as the head, testaceous pollinose with 3 pairs of laterals, the middle pair being poorly developed; 1 pair of decussate apicals and 1 pair of discals situated laterally; propleura bare; prosternum pilose; legs brown; wings hyaline, with testaceous veins, darker at the base; 3rd vein with a row of bristles, about 2/3 of the way to small cross vein; epaulet black, subepaulet brown; squamae whitish with slightly testaceous reflections.

Abdomen oval-shaped, reddish, with a triangular dark spot on tergites III and IV; genitalia with forcipes superiores (fig. 32, 34) enlarged at the middle and apex, as seen laterally with 2 pairs of toothed blades; forcipes inferiores curved, reaching the level of the forcipes superiores; palpi genitalium stout, fused at apex; aedeagus with elongated basiphallus; the distiphallus was lost during dissection.

Puparium: like *Masiphyoidea chaetosa* but differs by being stouter and presenting arborescent *sulci* beginning at the base and branching divergently (fig. 35, 36).

♀ — unknown

Holotype ♂, n.º 28.744, from Barueri, São Paulo, Brazil, IV.1961 (K. Lenko).

BIOLOGICAL OBSERVATIONS

Holotype reared from a nymph of *Acontiothespis concinna* (Perty), (n.º 1162); the larva emerged from the host on 22.V and the imago emerged on 29.VI.

Prophasiopsis Townsend

Prophasiopsis Townsend, 1917:232.

Prophasiopsis lopesi, sp. n.

(Fig. 37)

♀ — total length: 8 mm.

Head silvery-white; front 1/4 of the head width; parafrontalia white-yellow, with 2 pairs of reclinate and 2 pairs of proclinate frontoorbitals; ocellar bristles absent; inner verticals parallel; outer verticals poorly developed, about 1/3 the inner verticals length; frontalia brown; postocellar and postvertical bristles long and slender; parafrontalia with sparse black hairs; antennae with long.

subcylindrical 3rd segment, about twice the length of the second; epistoma little protruded; genae 0,07 heigth of eye, clothed with fine yellowish hairs; palpi slender, testaceous-yellow, slightly clavate.

Thorax black, testaceous-yellow pollinose, with following chaetotaxy: acrostichals — 3:3; dorsocentrals — 3:3; intraalar — 1:3; supraalar — 1:3; humerals — 5; posthumerals — 2; intrapostalar and intrapostvertical bristles present; sternopleurals — 2; sternopleura pilose; wings hyaline, epaulet and subepaulet darkbrown; 3rd vein with a row of bristles beyond half way to small cross-vein; squamae white; scutellum orange with 3 pairs of laterals 1 pair of crossed apicals, 1 pair of discals situated laterally, and 1 small pair of erect preapicals; legs brown.

Abdomen black, whitish pollinose; tergites II and III with median marginal bristles; tergites IV and V with a row of marginals; tergite V with a row of discals; genitalia (fig. 37) with tergite VI curved and elongated, spindle-shaped; sternite VI separated from tergite IV by a membranous region, in which are located the 5th and 6th abdominal spiracles; sternite VII fused dorsally with tergite VII forming an annular piece; in the interior of this piece we find tergite and sternite VIII, the cerci and the postgenital plate, the latter quadrangular shaped.

Pupa closely ressembling that of *Oromasiphya urbanae,* sp. n., but differing for being slightly shorter and more robust; posterior spiracles of pupa distinctly fused mesally for the basal 2/3 of their length their external surface more granular than that of the above cited species.

♂ — unknown.

Holotype ♀, n.º 28745, from Pôrto Cabral, Rio Paraná, São Paulo, Brazil, VI.1944 (Travassos Fº).

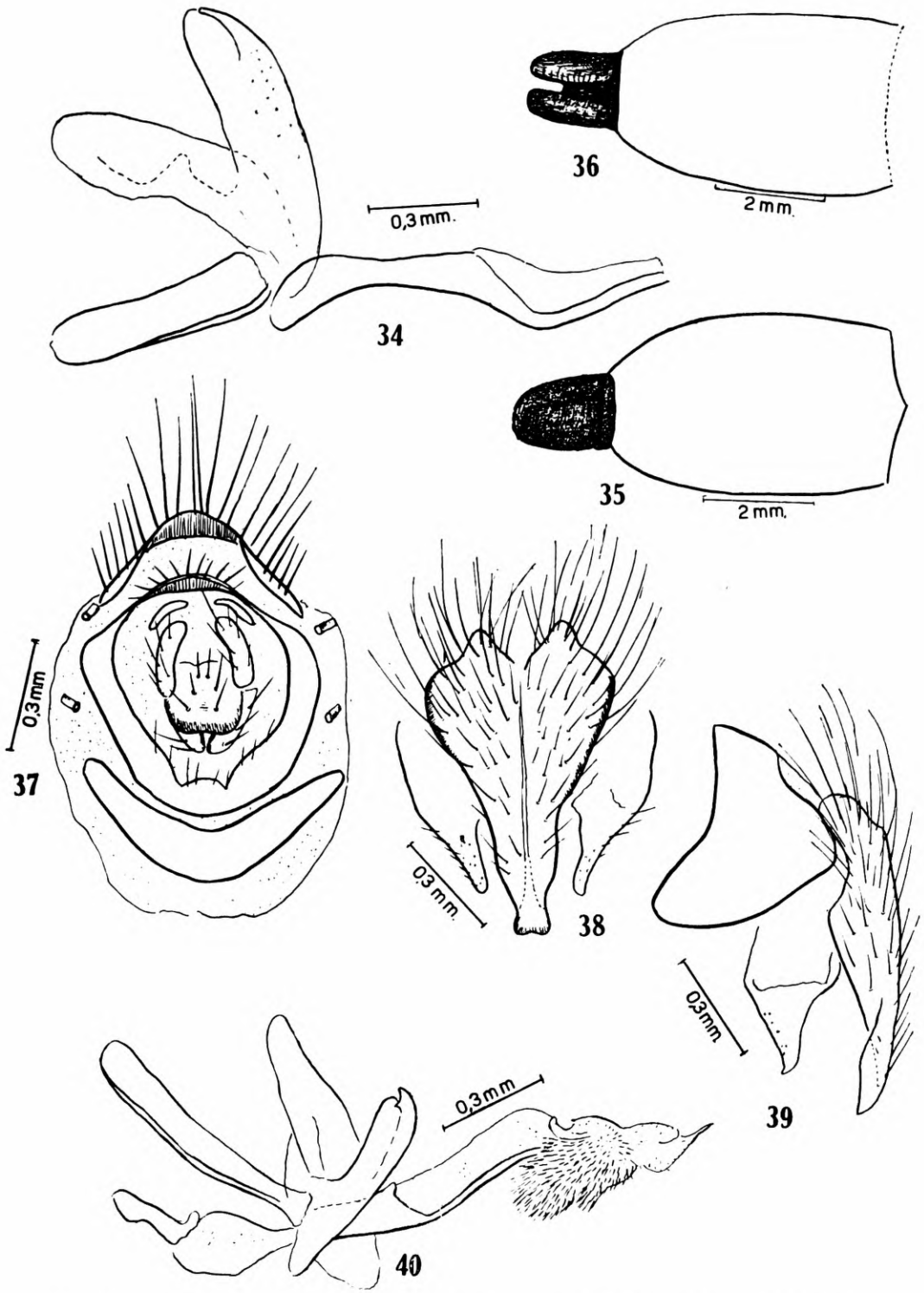
Biological observations

Holotype reared from a female nymph of *Photinella brevis* (Rehn) (Photininae), n.º 108.506. The mantid was collected on 26.III.1944, and did not molt before dying on 1.VI. The emergence of the larva occurred on 20.V, the imago emerging on 20.VI.

Taxonomic discussion

This species is related to *P. polita* Townsend, of which we have examined a male paratype deposited in the collection of the Departamento de Zoologia. It differs from *polita* especially in the pieces of the genitalia. Externally, *P. lopesi,* sp. n. presents elongated palpi, slightly clavate, while in *P. polita* the palpi are short and truncate at apex.

This species is named in honour to our great friend, Dr. Hugo de Souza Lopes, from the Instituto Oswaldo Cruz, Rio de Janeiro.



Manteomasiphya brasiliensis, gen. n., sp. n.: 34, internal pieces of male genitalia; 35, puparium, lateral view; 36, same, dorsal view. *Prophasiopsis lopesi*, sp. n.: 37, female genitalia, posterior view. *Phasiopsis manteophaga*, sp. n.: 38, forcipes superiores and forcipes inferiores, posterior view; 39, same, dorsal view; 40, internal pieces of male genitalia.

Phasiopsis Townsend

Phasiopsis Townsend, 1912:108, 1916:58.

Phasiopsis manteophaga, sp. n.

(Figs. 38-40)

♂ — total length: 9 mm.

Head whitish; front 0,26 of the head width; frontal bristles weak, forming a single row with about 11 convergent bristles, 4 of which below the level of insertion of the antennae; parafrontalia testaceous pollinose, with 2 pairs of reclinate frontoorbitals; inner verticals parallel; outer verticals rudimentary; ocellar bristles absent; ocellar triangle and parafrontalia with sparse black hairs; postocellar and posvertical bristles long slender; antennae elongated, yellow-coloured; 3rd segment black, orange at base; arista with reduced lst segment, about half as long as second; 3rd segment long, with apical 2/3 narrow and dark; genae clothed with short hairs in an area limited above by the facial groove; vibrissae long with a row of small bristles situated above their insertion; oral margin bristles regularly stout; eyes reaching the base of vibrissae; palpi clear-yellow, little developed.

Thorax black, testaceous pollinose, with 5 black longitudinal vittae, interrupted at suture; mesonotum with following chaetotaxy: acrostichals — 3:3; dorsocentrals — 3:3; intraalar — 1:3; supraalar — 1:3; humerals: 5; posthumerals: 2; intrapostalar and intrapostsutural bristles present; sternopleurals — 2; scutellum orange on disc, with 2 pairs of marginals and 1 pair of apicals; disc with long white hairs; wings hyaline, slightly testaceous; 3rd vein, dorsally, with bristles beyond half way to small cross-vein; squamae white; propleura bare, prosternum pilose; legs brown.

Abdomen yellow, darkened apically, whitish pollinose; tergites IV and V with a row of marginals; tergite V with a row of discals; forcipes superiores cleaved at middle line, subtriangular, with an apical expansion, and well chitinized forcipes inferiores triangular, elongated at base, narrow at apical and (fig. 38, 39) palpi genitalium cleaved at apex; aedeagus with short epiphallus (fig. 40); distiphallus of complex structure, in form of 2 pairs of membranes, clothed with long pile (fig. 41); apically end a pair of narrow, curved appendages.

Larve: buccopharyngeal armature of stage II about 0,62 mm. this piece is quite difficult to interpret morphologically without having transverse sections showing its diverse aspects; the labial region (or anterior region) is elongated strongly chitinized and apically curved and pointed; posterior region normal, with dorsal wing more robust than ventral (fig. 42); this piece was found upon dissection of host, and it is the only case in which we were able to find it.

Puparium (fig. 43, 44) very similar to that of *Prophasiopsis lopesi*, sp. n., differing in having the granulations of the outer surface of stigmatic plates more prominent; in lateral view those plates are more elongate than in *lopesi*.

♀, unknown

Holotype ♂, n.º 28746, from Pôrto Cabral, Rio Paraná, São Paulo, Brazil, VI.1944 (L. Travassos Fº).

BIOLOGICAL OBSERVATIONS

Holotype reared from a female nymph of *Photinella brevis* (Rehn) (n.º 108.502). The mantid was collected on 8.VI.1944, and did not molt before dying, on 20.IV, when the larva emerged.

TAXONOMIC DISCUSSION

This species is closely related to *Phasiopsis trinitatis* Thompson, but differs in presenting the distiphallus with an apical curved process (fig. 41). The apex of the forcipes superiores, in lateral view, are similar to that of *Paraphasiopsis trinitatis* Thompson.

Mystacomyoidea Thompson

Mystacomyoidea Thompson, 1963:1318.

Mystacomyoidea spinosa, sp. n.

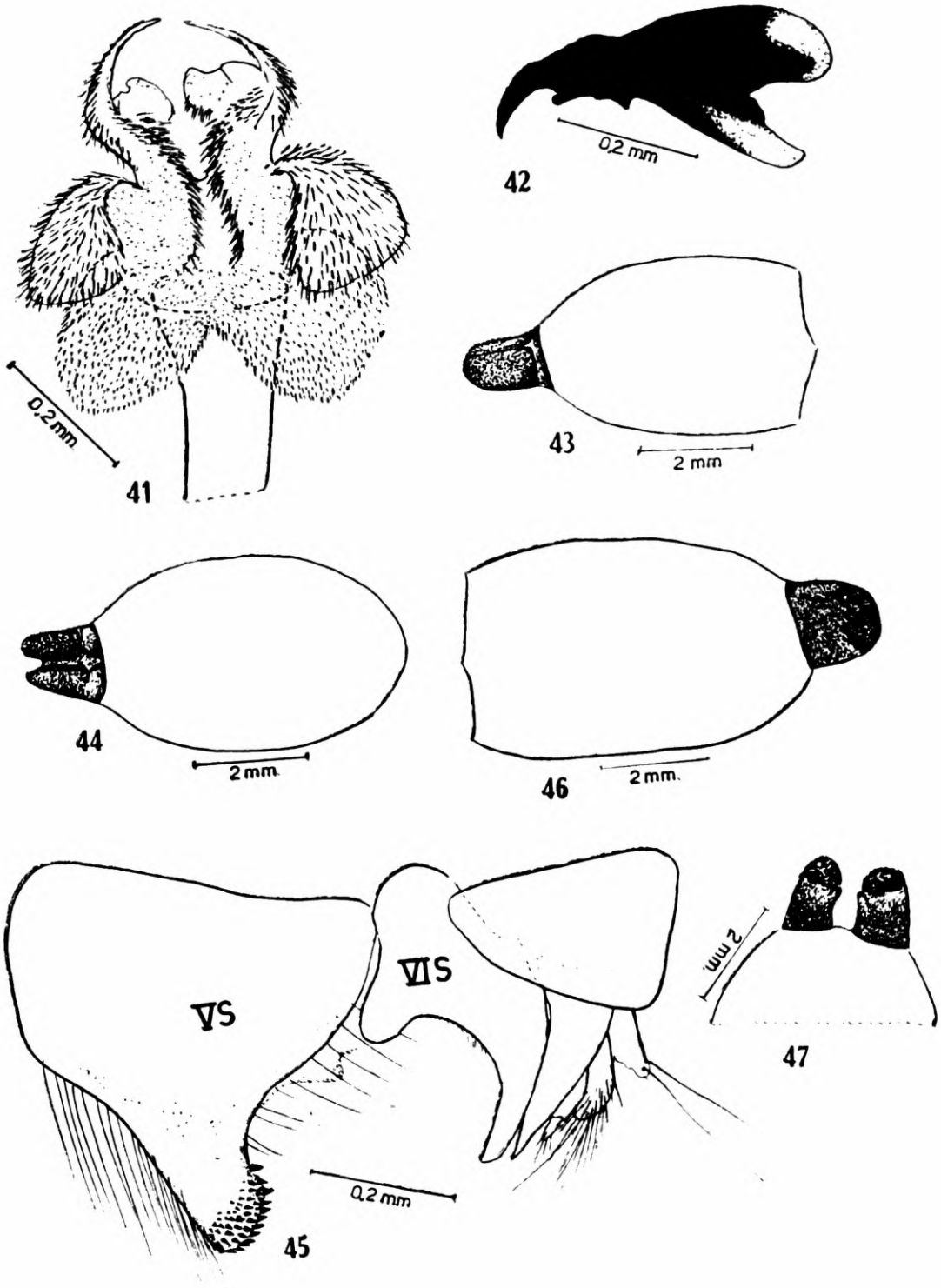
(Figs. 45-47)

♀ — total length: 9 mm.

Head yellow, silvery-white pollinose; vertex and ocellar triangle slightly testaceous pollinose; parafrontalia with about 7 convergent frontal bristles, 2 of these being below the insertion of the antennae; 3 pairs of proclinate and 2 pairs of reclinate frontoorbitals; ocellar bristles absent; inner verticals well developed; eyes densely pilose; occipital hairs white; antennae yellowish, with external face of 3rd segment brown; palpi yellow, labellae reddish.

Thorax grayish-white, with a testaceous pollinose longitudinal vitta, between acrostichals and intraalar; mesonotum brown; with following chaetotaxy: acrostichals — 3:3; dorsocentrals — 3:4; intraalar — 1:3; supraalar — 1:3; humerals — 4, 3 being on a straight line; posthumerals — 2; notopleurals — 2; barrette and propleura bare; menosotum clothed with clear hairs; scutellum reddish, with 3 or 4 pair of laterals, 2 pairs of discals and 1 pair of strongly decussate apicals.

Abdomen short and wide, with black excavation at tergite II; a median dorsal black vitta beginning at tergite II and ending at tergite IV; tergite V reddish; 1 pair of median marginals at tergite II; tergite III and IV with a complete row of marginals; genitalia (fig. 45) with sternite V forming an unpaired cylindrical projection directed backwards, presenting apically numerous well separated teeth; sternite VI subtriangular, with a piercing apical end directed downwards; and with a dorsal furrow in which are



Phasiopsis manteophaga, sp. n.: 41, distiphallus, dorsal view; 42, buccopharyngeal armature, stage II; 43, puparium, lateral view; 44, same, details of posterior spiracles. *Mystacomyoidea spinosa*, sp. n.: 45, female genitalia, lateral view; 46, puparium, lateral view; 47, same, details of posterior spiracles.

found the remaining, strongly modified pieces of the genitalia sternite VII also adapted for piercing; at the base of cerci is found a single piece which probably represents tergite VIII; tergite VI, well developed dorsally.

Puparium (fig. 46, 47) dark-brown, medium-sized; posterior spiracles situated at same level as the longitudinal axis, protruding, each half being entirely separated at base; at the internal face of each spiracle there is a strongly concave region; externally, the basal portion presents fine granulations, and the apical portion shows sinuous furrows.

♂ — unknown.

Hotolype ♀, n.º 28747, from Barueri, São Paulo, Brazil, VIII.1961 (K. Lenko).

BIOLOGICAL OBSERVATIONS

Reared from *Zoolea* sp. (Vatinae) (n.º 251), collected on I.IV.1961. The host molted twice on 22.IV and 7.VIII.

TAXONOMIC DISCUSSION

This new species is related to *M. mirabilis* Thompson but differs in the female genitalia. In *mirabilis* the angle formed by the digitiform process of tergite V with the remaining parts of that piece is more acute than that observed in *spinosa,* n. sp. Sternite VI in *mirabilis* is very acute at apex, in lateral view, and not so in our new species (fig. 45).

Mystacomyia Giglio-Tos

Mystacomya Giglio-Tos, 1893:4.

Mystacomyia rubriventris (Wulp)

(Figs. 48-53)

Mystacella rubriventris Wulp, 1890:52; Townsend, 1936:217; 1941:167.

♂ — total length: 10 mm.

Head whitish, with cinereous reflections (fig. 48); front 0,18 of the head width, with long and fine brown hairs; frontalia black, very narrow; parafrontalia dark brown; frontal bristles short and weak, forming a single row, the 2 upper bristles reclinate; eyes densely pilose, exceeding the level of insertion of the vibrissae; facialia with short sparse bristles, which reach along the facial groove the upper 1/3 of the facialia. Antennae orange, 3rd segment black, about twice the length of the 2nd; arista with basal segments very short, 3rd segment elongated, basal 2/3 slightly enlarged; genae about 0,06 height of eye; palpi testaceous yellow, filiform.

Thorax brown, cinereous pollinose, with 5 black longitudinal vittae, the outer ones more robust than the remaining; mesonotum with following chaetotaxy: acrostichals — 3:3; dorsocentrals — 3:4; intraalar — 1:3; supraalar — 1:3; humerals: 4; posthumerals — 2; intrapostalar and intrapostsutural present; scutellum reddish, with 4 pairs of laterals, 2 pairs of discals and 1 pair of decussate apicals, and a weak pair of preapicals; barrette with yellow pilosity; propleura bare; sternopleurals: 2; wings hyaline, with a basal yellow-testaceous spot at the level of costa; 3rd vein with some bristles at base; squamae white; epaulet black.

Abdomen testaceous-red, with a dorsal black spot at middle line; tergite V with some bristles laterally, and ventrally with long sparse hairs; forcipes superiores curved in lateral view, with apical end strongly chitinized and with a completely split along the midline; forcipes inferiores cylindrical, enlarged at base. (fig. 49, 50); aedeagus with short basiphallus, distiphallus bell-shaped (fig. 51); at the base of the epiphallus can be seen the spinus titilatorius, well-developed; only one pair of parameres, probably the palpi genitalium.

Puparium (fig. 52, 53) with stigmatic plates situated apically, forming an obtuse angle with the longitudinal axis, and presenting apically several sinuous furrows.

Material examined: 2 ♂, ns. 28748-28749, from Cocaia, Santo Amaro, State of São Paulo, Brazil, VIII.1953, VI.1958 (H. Urban).

Biological observations

The male flies were reared from nymphs of *Zoolea* sp. (Vatinae) (ns. 28 and n.º 237). One host was collected on 11.VI.1958, molted on 12.VI and died on 24.VI, after the emergence of the larva. The larva pupated immediatly, the adult emerging on 22.VIII. The second host was collected on 5.IV.1953. The larva abandoned its host on 18.VIII.1953, the imago emerging on 26.VIII.

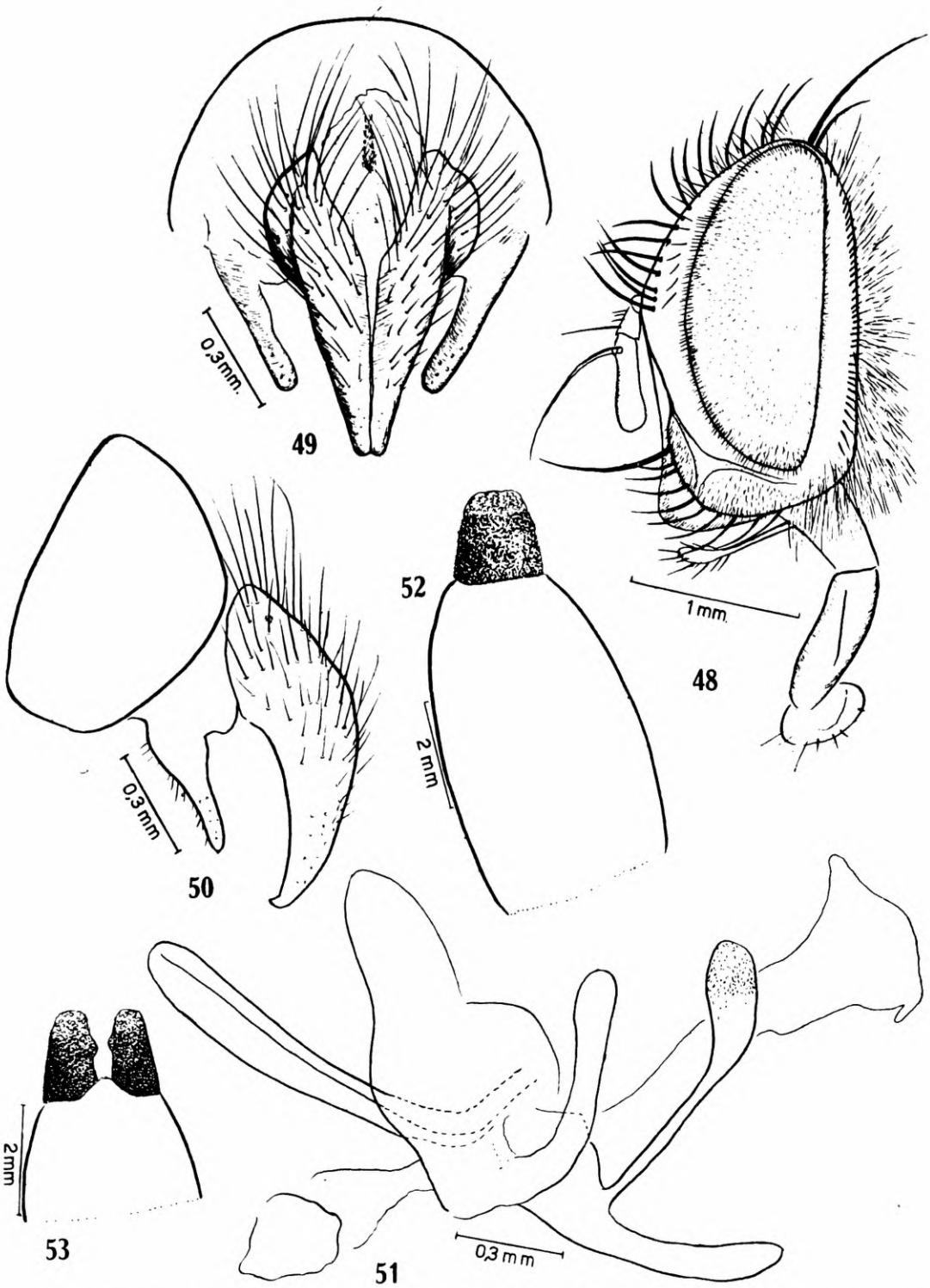
Taxonomic discussion

Dr. W. R. Thompson was kind enough to compare a drawing of the genitalia of our specimen with the type, deposited in the British Museum (Natural History) and found good agreement.

This species has a long epiphallus, which separates it from the remaining species of Masiphyini, which lack this piece. We do not know at present the females of this genus, and for this reason we consider it, provisionally, as a Masiphyini until it becomes possible to clarify the situation.

Acknowledgements

We are greatly indebted to Prof. Dr. W. R. Thompson, of the Entomology Research Institute, Canada Department of Agriculture, Ottawa, Canada, for much valuable help during the



Mystacomyia rubriventris (Wulp): 48, head of male, lateral view; 49, forcipes superiores and forcipes inferiores, posterior view; 50, same lateral view; 51, internal pieces of male genitalia; 52, puparium, lateral view; 53, same, details of posterior spiracles.

preparation of this work, to Drs. P. E. Vanzolini and L. R. Guimarães, of the Departamento de Zoologia for helpful suggestions and criticism, and finally to Mr. W.D. Edmonds and Nelson Papavero, for their help during the preparation of the manuscript.

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