# New or Little-Known Tipulidae from Tropical America (Diptera).

#### Part I.

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The Tipulidae considered in the present report under the above title were all taken by Mr. Fritz Plaumann, at and near the Colonia Nova Teutonia, Correio Itá, Rio Grande do Sul, Brazil. I am indebted to Mr. Plaumann for general information concerning this interesting station. It lies in the middle of the primaeval forest, not far from the Uruguay River, 52° 23' W. Long., and 27° 11' S. Lat., at an average altitude of between 500 and 700 meters. The country is hilly, traversed by numerous small mountain streams, and with numerous boggy areas. The temperature rises to 41° Celsius in summer and ordinarily not below 0° in winter, on rare occasions as low as —3° Celsius. The annual precipitation totals approximately 2 meters. The types of the novelties described herewith are preserved in my extensive collection of these flies. I wish to express my deep gratitude to Mr. Plaumann for his interest in collecting these often neglected insects.

#### Tipula letalis, sp. n.

Allied to amoenicornis; general coloration light reddish brown, without clearly defined praescutal stripes; antennae (male) elongate, beyond the fourth or fifth segments uniformly blackened; wings tinged with brown, the costal broder darker; male hypopygium with the median lobe on ventral aspect of caudal border of ninth tergite entire; inner dististyle bearing a slender erext spine on face before beak.

Male. — Length about 12 mm; wing, 13 mm; antenna, 6 mm.

Frontal prolongation of head moderately long, orange-yellow; nasus long and distinct, tufted with black setae; palpi obscure

yellow, the tip of last segment a little darkened. Antennae (male) long, approximately one-half the length of body; basal three segments yellow, the succeeding two or three segments weakly bicolorous, black at base, the outer end pale; remaining segments uniformly blackened; verticils conspicuous but shorter than the segments; flagellar segments elongate, gently incised; terminal segment thimble-shaped. Head reddish brown, with indications of a darker median vitta on anterior vertex.

Mesonotum chiefly light reddish brown, with scarcely defined praescutal stripes, the humeral portions of praescutum a trifle more grayish; scutellum a little darkened. Pleura yellow. Halteres dusky. Legs with the coxae and trochanters light yellow; remainder of legs long and slender, obscure yellow; tips of tibiae narrowly darkened; outer tarsal segments infuscated; tibial spur formula 1-1-2; claws toothed. Wings tinged with brown; cells C and Sc, with the prearcular region and stigma, darker brown, this color including the extreme cephalic portion of cell R; outer radial field a little darkened; cell  $1st\ M_2$  and a streak in cell  $R_5$  pale; veins dark, m and m-cu very insensibly and narrowly seamed with darker. Squama naked; outer radial veins and  $M_1$  with numerous macrotrichia. Venation: Rs short, strongly arcuated, a little exceeding m-cu;  $R_2$  relatively long;  $R_{1+2}$  entire; m-cu at fork of  $M_{3+4}$  the latter subequal to m; cell  $2nd\ A$  relatively wide.

Abdomen with basal two tergites obscure yellow medially, blackened laterally; succeeding segments brownish black, still darker laterally; hypopygium fulvous; sternites yellow, the seventh and base of eighth darkened. Male hypopygium moderately large; tergite separated from sternite by a suture. Ninth tergite extensive, subquadrate, the caudal margin with a very broad, transverse U-shaped notch, the extreme lateral lobes thus formed small and inconspicuous, obtuse; viewed from beneath, a median lobule directed ventrad, not apparent from above; nearer base on ventral face with a large, conspicuous saddle-shaped structure. Outer dististyle very tiny, at base of the complex inner style; the latter appears as a compressed blade that bears a slender erect spine on face just before the compressed bilobed beak. Eighth sternite broad, sheathing, without lobes or specially modified setae.

Holotype, 3, Nova Teutonia, Brazil, October 2, 1935 (Plaumann).

The nearest ally is *Tipula amôenicornis* Alexander (Argentina, Paraguay) which differs especially in the coloration of the body, wings and antennae, the venation, and the very distinct structure of the male antennae and hypopygium.

## Tipula ferocia, sp. n.

General coloration reddish brown, the praescutum with four scarcely darker stripes; antennae (male) elongate, exceeding one-half the length of body; wings with a strong, almost uniform brown tinge, the costal border a little darker; male hypopygium with a long quadrate pale lobe on posterior border of eighth sternite.

Male. — Length about 14—15 mm.; wing, 13—14 mm.; antenna, 7.8—8 mm.

Frontal prolongation of head relatively short, brown; nasus short; palpi obscure brownish yellow. Antennae elongate, exceeding one-half the length of body; scape and pedicel obscure yellow; first flagellar segment brown, the remaining segments black, elongate, feebly incised; verticils much shorter than the segments. Head light brown.

Pronotum dark brown. Mesonotal praescutum reddish brown, the praescutum with four scarcely darker stripes that are almost undifferentiated from the ground; mediotergite obscure yellow. Pleura obscure yellow. Halteres dusky, the base of stem narrowly yellow, the knobs dark brown. Legs with the coxae and trochanters obscure yellow; femora yellowish brown; tibiae a little darker; tarsi dark brown; legs relatively long and slender; claws (male) with a subbasal tooth. Wings with a strong and almost uniform brown tinge; prearcular region, cells C and Sc, and the stigma darker brown; obliterative areas almost lacking, occurring as small spots before stigma and crossing cell 1st  $M_2$ ; veins dark brown. Squama naked; outer radial and medial veins with abundant trichia;  $R_{1+2}$  glabrous, except at base. Venation:  $R_3$  arcuated, about one-half longer than m-cu; petiole of cell  $M_1$  subequal to m; m-cu a short distance beyond the origin of  $M_4$ .

Abdomen relatively long; tergites chiefly brownish black, the basal segments obscure yellow sublaterally; seventh and eighth segments more intensely blackened; basal sternites yellow; hypopygium fulvous. Male hypopygium relatively large and conspicuous; tergite fused basally with sternite; basistyle not

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differentiated. Ninth tergite with a U-shaped median notch, at its base with a further small linear incision; lobes formed acute, the margins with coarse black setae. Eighth sternite large, its posterior end produced caudad into a conspicuous quadrate lobe, the caudal margin subtruncate to very feebly concave.

Holotype, J, Nova Teutonia, Brazil, October 2, 1935 (Plaumann). Paratopotypes, 2 JJ.

Tipula ferocia bears some resemblance to T. letalis, sp. n. and allied forms but is well-distinguished by the length and structure of the male antennae, and especially by the details of structure of the hypopygium, notably of the eighth sternite.

#### Limonia (Peripheroptera) fumibasalis, sp. n.

General coloration of mesonotum brownish black, the posterior sclerites paler; knobs of halteres polished black; femora yellow, the tips rather narrowly blackened; wings brownish yellow, the basal portion of costa, prearcular field, and proximal end of cell R dark brown; wing-tip infumed; restricted dark seams on anterior cord;  $R_2$  and free tip of  $Sc_2$  in approximate transverse alignment; cell 1st  $M_2$  much shorter than cell 2nd  $M_2$ ; m-cu at fork of M; Anal veins parallel or feebly divergent; cell 2nd A very narrow.

Female. — Length about 7 mm.; wing, 8 mm.

Rostrum brownish black, narrowed outwardly; palpi black. Antennae black throughout; flagellar segments oval; terminal segment a little longer than the penultimate; verticils short. Head black: anterior vertex broad.

Pronotum black above, paler on sides. Mesonotal praescutum brownish black, subnitidous, paling to yellow on the sides behind the humeri; scutum darkened; scutellum and mediotergite obscure yellowish brown. Pleura infuscated dorsally and posteriorly, the sternopleurite more yellowish. Halteres infuscated, the knobs polished black. Legs with the coxae and trochanters brownish yellow; femora yellow, the tips rather narrowly blackened, the amount subequal on all legs; tibiae and tarsi black. Wings with a brownish yellow tinge, more saturated in the costal portion; wing-base, including prearcular area, most of cell C, and bases of cells Sc and R dark brown, only the center of the main prearcular cell brightened; wing-tip strongly darkened; stigma brown, feebly differentiated from the ground, interrupted by a narrow,

darker brown seam at outer end of vein R; narrow dark brown seams to veins Sc<sub>2</sub> and anterior cord; veins dark brown. Venation: Prearcular field moderately large; Sc1 ending opposite origin of Rs,  $Sc_2$  at near two-thirds the length of vein R;  $R_2$  and free tip of  $Sc_2$  about in transverse alignment; proximal end of cell  $R_3$  a trifle basad of that of cell  $R_5$ ; cell 1st  $M_2$  much shorter than cell 2nd  $M_2$ ; m-cu at fork of M; Anal veins parallel or feebly divergent; cell 2nd A very narrow.

Basal abdominal tergites obscure brownish yellow, the outer segments black, the pregenital segment again paling to brown; bases of ovipositor blackened; cerci small, slender, their bases blackened.

Holotype, S, Nova Teutonia, Brazil, August 30, 1935 (Plaumann).

By my latest key to the species of Peripheroptera (Ent. News, 24: 409; 1913), the present fly runs to Limonia (Peripheroptera) nitens (Schiner), a very distinct species. I cannot indicate any very close relative of the insect described.

### Limonia (Geranomyia) infamosa, sp. n.

General coloration of body brownish black, including the rostrum, antennae and legs; ventral thoracic pleura paling to obscure yellow; wings with a strong dusky tinge, cell Sc infumed on basal portion; stigma oval, darker brown; Sc1 ending nearly opposite one-third the length of Rs; abdominal tergites and hypopygium brownish black, the basal sternites yellow; male hypopygium with a single rostral spine arising from an enlarged basal tubercle.

Male. — Length (excluding rostrum) 6.5—7 mm.; wing, 7.5-8.5 mm.; rostrum alone, 3.7-4 mm.

Rostrum exceeding one-half the length of remainder of body, black, the tips of paraglossae paler; palpi black. Antennae black throughout; flagellar segments short-cylindrical; verticils shorter than the segments; terminal segment nearly twice the penultimate, its outer end pointed. Head dark brown, the anterior vertex narrow.

Pronotum brownish black. Mesonotum brownish black, the humeral region of the praescutum obscure yellow. Pleura brown on dorsal portion, the ventral sclerites paling to obscure yellow. Halteres infuscated, the base of stem narrowly yellow. Legs with

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the fore coxae infuscated, the remaining coxae and all trochanters obscure yellow; remainder of legs black. Wings with a strong dusky tinge, cell Sc infumed except on outer third; stigma oval, darker brown than the ground; cord and outer end of cell 1st  $M_2$  very narrowly and insensibly darkened; veins brown. Venation: Sc relatively long,  $Sc_1$  opposite one-third to two-fifths the length of Rs,  $Sc_2$  at its tip; a supernumerary crossvein in cell Sc at near midlength; free tip of  $Sc_2$  and  $R_2$  in approximate transverse alignment; m-cu at fork of M; Anal veins beyond origin slightly convergent.

Abdominal tergites brownish black; basal sternites yellow, the outer segments more obscure; hypopygium darkened. Male hypopygium with the caudal border of tergite deeply notched. Ventral dististyle much larger than the basistyle; rostral prolongation very slender, with a single spine at its base, this arising from a conspicuous tubercle that is nearly one-third the length of the remainder of spine. Gonapophyses with the mesal-apical lobes appearing as slender, gently curved, blackened spines.

Holotype, 3, Nova Teutonia, Brazil, August 30, 1935 (Plaumann).

Paratopotype, 3, October 2, 1935.

Limonia (Geranomyia) infamosa is very different from all other generally similar species so far described in the possession of a single rostral spine on the male hypopygium. The only other Neotropical species having this character is the otherwise entirely different L. (G.) walkeri Alexander.

#### Austrolimnophila pacifera, sp. n.

General coloration of mesonotal praescutum brownish gray, the scutellum and mediotergite obscure yellow; head orange, the center of the posterior vertex darkened; halteres elongate; legs yellowish brown; wings almost uniformly tinged with yellowish brown; cell  $M_1$  sessile; m-cu nearly its own length beyond the fork of M; abdomen brownish black, the hypopygium castaneous.

Male. — Length about 13 mm.; wing, 12.5 mm.

Rostrum brown; palpi brownish black. Antennae short; scape and pedicel yellow; first flagellar segment brownish yellow, the remaining segments brownish black; antennae 15-segmented, there apparently being two segments fused in the first flagellar, with indications of an incomplete suture; succeeding segments

cylindrical, besoming more elongate outwardly; longest verticils very conspicuous, at midlength of organ exceeding twice the length of the segments themselves. Head deep orange, the central portion of posterior vertex restrictedly infuscated.

Pronotum and propleura uniformly light yellow. Mesonotal praescutum brownish gray, with three scarcely evident, darker brown stripes; scutum similarly darkened; scutellum and mediotergite obscure yellow. Mesopleura weakly infuscated, the dorsopleural region clearer yellow. Halteres very long and slender, infuscated, the base of stem narrowly yellow. Legs with the coxae and trochanters testaceous-yellow; remainder of legs yellowish brown, the tarsi not darkened. Wings almost uniformly tinged with yellowish brown; stigma oval, slightly darker than the ground-color; veins dark brown. Venation:  $R_{1+2}$  about one-half longer than  $R_2$ ;  $Sc_1$  ending just before the fork of  $R_{2+3+4}$ ,  $Sc_2$  at its tip; Rs long, angulated at origin; cell  $M_1$  sessile to very short-petiolate; m-cu nearly its own length beyond fork of M; sclerotized folds behind Anal veins very distinct, especially 2nd A.

Abdomen brownish black, sparsely pruinose; hypopygium castaneous.

Holotype, 3, Nova Teutonia, Brazil, October 2, 1935 (Plaumann).

Austrolimnophila pacifera is very different from the now numerous species of the genus known from South America. In its general appearance, it resembles A. patagonica (Alexander) but is quite distinct in coloration and venation from this species and all others hitherto made known.

#### Hexatoma (Eriocera) plaumanni, sp. n.

Mesonotum velvety-black, with three more grayish stripes on praescutum, the median one divided on anterior two-thirds by a black vitta; antennal flagellum black; head orange; femora black, the bases broadly yellow, all but the fore legs with a conspicuous subterminal yellow ring; tibiae and tarsi black; wings dark brown, variegated by broad yellow bands in the prearcular field and at or near the cord, these two areas interconnected by entire longitudinal yellow streaks in cells C, R and M; outer veins glabrous or virtually so; abdomen black, segments two to four, and the hypopygium, chiefly yellow.

Male. - Length about 17 mm.; wing, 15.5 mm.

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Rostrum and palpi black. Antennae 7-segmented; scape orange; pedicel dark brown; first flagellar segment obscure yellow on basal two-thirds, the tip and remainder of organ black. Head orange; vertical tubercle large, with a V-shaped median notch.

Pronotum black. Mesonotal praescutum with the ground-color velvety-black, with three more grayish stripes, the median one divided by a black line that extends to about two-thirds the length of the stripe; scutal lobes concolorous with the praescutal stripes; posterior sclerites of mesonotum black. Pleura black, the dorsal anepisternum more reddish brown. Halteres with stem light brown, the knob black. Legs with the coxae black; trochanters black, more reddish on ventral surface; femora black, the bases narrowly yellow, including about the proximal fourth; fore legs without evident pale ring on femora, middle and hind femora each with a conspicuous yellow ring some distance before tip, wider and more conspicuous on the hind legs, where it totals more than one-half the length of the blackened apex beyond it; all tibiae and tarsi black. Wings with the ground-color dark brown, conspicuously variegated by yellow, this latter color distributed as follows: Prearcular field and as a broad complete crossband chiefly before the cord, these two major areas inter-connected by the vellow cell Sc and by longitudinal vellow streaks in cells R and M; cell 1st A yellow, except the outer end and a seam adjoining vein 2nd A; cell C dark brown on intermediate portion; veins dark brown, yellow in the flavous areas. Outer radial and medial veins without trichia, except for a very restricted series on distal section of vein  $R_5$ . Venation:  $Sc_1$  bent suddenly into C;  $R_2$  close to fork of  $R_{3+1}$ ; m-cu at fork of M, longer than the distal section of  $Cu_1$ .

Abdomen with segments one and five to seven, inclusive, black; two to four yellow, with broad velvety-black rings on posterior border; terminal segments, including hypopygium, orange.

Holotype, o, Nova Teutonia, Brazil, October 2, 1935 (Plaumann).

I take great pleasure in naming this strikingly beautiful cranefly in honor of the collector of this series of specimens, Mr. Fritz Plaumann. The fly, while allied to Hexatoma (Eriocera) fasciata (Guérin) and H. (E.) perrara Alexander, is amply distinct from both in the coloration of the body, legs and wings.

#### Gonomyia (Lipophleps) basispinosa, sp. n.

Belongs to the manca group; antennae with scape black beneath; pedicel yellow; scutellum obscure yellow, weakly darkened on central portion; pleura longitudinally striped with dark brown and yellow;  $Sc_1$  ending opposite origin of Rs; male hypopygium with the dististyle entirely blackened, terminating in several small spines and bearing a powerful isolated spine on face near basal third; phallosome consisting of two paired sets of apophyses, their tips blackened.

Male. — Length about 2.8—3 mm.; wing, 3.5—3.7 mm. Rostrum and palpi black. Antennae with scape black beneath, paler on upper surface; pedicel yellow; flagellum black. Head orange; central portion of posterior vertex extensively infuscated.

Pronotum and anterior lateral pretergites light yellow. Mesonotal praescutum and scutum dark brown, the former very narrowly margined laterally with yellow; central portion of scutum yellow; scutellum obscure yellow, weakly darkened on central portion; mediotergite dark brown, with a V-shaped vellow marking at near midlength, this latter being a posterior extension of the continuous dorsal pleural stripe. Pleura dark brown, striped with yellow, including the dorsal area above described, extending across the dorsopleural region and beneath the wing-root; a ventral yellow stripe begins on the fore coxae, extending to beneath the halteres, narrowly bordered both dorsally and ventrally by dark brown; ventral sternites yellowish brown. Halteres short, dusky. Legs with the coxae obscure yellow, the fore coxae darker on cephalic face: trochanters brownish vellow: remainder of legs black. Wings strongly tinged with grayish brown, cells C and Sc clearer yellow; stigmal area oval, a little darker brown than the ground-color; veins pale brown, somewhat brighter in the costal portion. Venation:  $Sc_1$  ending opposite origin of Rs,  $Sc_2$  a short distance from tip; cell 1st  $M_2$  closed; m-cu at or just before fork of M.

Abdominal tergites pale, the caudal margin of the individual segments, together with a continuous median line, dark brown; hypopygium pale. Male hypopygium with the outer lobe of basistyle relatively short and stout, about two-thirds the length of the dististyle. Dististyle entirely blackened, appearing as a powerfully constructed arcuated mass bearing a powerful spine on face at near one-third the length, with a smaller spine on face beyond two-thirds the

length, the apex with three or four smaller denticles. Phallosome with two sets of paired blackened apophyses, the outermost small, terminating in gently decurved beaks, the larger and more basal pair bispinous at apex.

Holotype, 3, Nova Teutonia, Brazil, September 21, 1935 (Plaumann).

Paratopotype, 3, September 22, 1935.

The nearest allies of the present fly are Gonomyia (Lipophleps) bruchi Alexander, G. (L.) pilosispina, sp. n., and G. (L.) secespita, sp. n., differing in the size, coloration, and, especially, the structure of the male hypopygium.

#### Gonomyia (Lipophleps) secespita, sp. n.

Belongs to the manca group; size large (wing, male, 5 mm.); antennae black throughout, relatively elongate, the flagellar segments with a long dense pubescence; head blue-gray, with a yellow occipital area; pleura dark, with a broad white longitudinal stripe; legs black; wings strongly tinged with brown, the stigma scarcely darkened;  $Sc_1$  ending opposite origin of Rs; male hypopygium with a single dististyle that is much shorter than the long outer lobe of basistyle; phallosome terminating in six free points, two of which are blackened.

Male. — Length about 4.5 mm.; wing, 5 mm.

Rostrum orange; palpi black. Antennae black throughout, relatively elongate; flagellar segments long-cylindrical, with a dense erect pubescence; elongate, unilaterally distributed verticils very delicate and poorly differentiated from the pubescence. Head blue-gray, with a yellow median area on occipital portion.

Pronotum and anterior lateral pretergites pale yellow, the lateral portions of the former darkened. Mesonotal praescutum and scutal lobes uniformly dark brown, the median area of scutum brown; scutellum testaceous brown, the base darker; mediotergite obscure yellow on cephalic-lateral portions, the apical and medial areas dark. Pleura darkened, with a broad white longitudinal stripe extending from behind the fore coxae to beneath the halteres; dorso-pleural region darkened; ventral sclerites pale yellowish brown; dorsal portions of pteropleurite and pleurotergite obscure yellow. Halteres brown, the knobs a little brightened. Legs with the coxae testaceous-brown; trochanters obscure yellow; remainder

of legs black. Wings with a strong brownish tinge, cells C and Sc, together with the prearcular region, a little brighter; stigmal region scarcely darkened; veins brown, paler in the prearcular field. Venation:  $Sc_1$  ending opposite origin of Rs; m-cu at fork of M; inner end of cell 1st  $M_2$  strongly narrowed.

Abdominal tergites dark brown, the sternites and hypopygium more yellowish. Male hypopygium with the apical lobe of basistyle longer than the style itself, with long conspicuous setae. A single dististyle, subterminal in position, about two-thirds the length of the lobe of basistyle, appearing as an elongate structure, very gently widened outwardly, the surface with more than a dozen strong setae, the apex of style extended into a more blackened blade, its tip acute; on opposite face at apex the style is produced into a more obtusely pointed blade and a rounded blackened knob. Phallosome asymmetrical, composed of two shorter pale blades; two other blackened spinous points of about equal length but of slightly different conformation; and two elongate slender structures, both unblackened, one terminating in an acute spine, the other a little expanded at apex and obtusely rounded.

Holotype, 3, Nova Teutonia, Brazil, September 13, 1935 (Plaumann).

The present fly finds its closest ally in Gonomyia (Lipophleps) pilosispina, sp. n., differing especially in the structure of the male hypopygium.

#### Gonomyia (Lipophleps) pilosispina, sp. n.

Male. — Length about 4.2 mm.; wing, 4.6 mm.

Very closely related to Gonomyia (Lipophleps) secespita, sp. n., differing especially in the details of structure of the male hypopygium.

Dististyle of rather similar conformation but the details very distinct; two conspicuous erect black spines, the more basal one placed at near one-third the length of style, its base with dense erect setae; second spine more curved, its base likewise set with conspicuous setae, the edge of style between the two spines with smaller, somewhat less conspicuous setulae; the major pale bristles of secespita likewise occur in the present species but are more scattered. Phallosome generally as in secespita but with the larger of the two blackened spines much wider and more flattened.

Holotype, 3, Nova Teutonia, Brazil, August 29, 1935 (Plaumann).

#### Molophilus caenosus, sp. n.

Belongs to the plagiatus group; general coloration black; antennae (male) relatively elongate, exceeding one-half the length of body; legs and halteres black; wings with a strong blackish tinge; male hypopygium with both arms of the outer dististyle short and obtusely rounded at tips; basal dististyle a fleshy subcylindrical lobe, its outer surface with abundant microscopic setulae: phallosomic structure glabrous.

Male. — Length about 3.5 mm.; wing, 4 mm.

Rostrum and palpi black. Antennae black throughout, relatively long, if bent backward extending to some distance beyond the base of abdomen; flagellar segments long-oval to fusiform, with long outspreading setae and longer, unilaterally arranged verticils. Head black.

Pronotum black, the scutellum and anterior lateral pretergites obscure yellow. Mesonotum and pleura black. Halteres black, the base of stem narrowly pale. Legs with the coxae brownish black; trochanters obscure yellow; remainder of legs black. Wings with a strong blackish tinge, the veins and macrotrichia darker. Venation: R<sub>2</sub> lying shortly before level of r-m; m-cu just beyond fork of M, about two-thirds the length of petiole of cell  $M_3$ ; vein 2nd A relatively long, ending shortly before fork of  $M_{3+4}$ .

Abdomen, including hypopygium, black. Male hypopygium with apical beak of basistyle slender, straight, blackened. Outer dististyle shallowly bifid at distal end, each arm obtusely rounded. one lobe a little broader and more obtuse than the other. Basal dististyle a fleshy, subcylindrical or fusiform lobe, subequally narrowed at both ends, the outer face with abundant microscopic setae and setulae, the inner face glabrous. Phallosomic structure broadly oval, the apex truncated, the surface glabrous.

Holotype, &, Nova Teutonia, Brazil, August 30, 1935 (Plaumann).

Molophilus caenosus is quite distinct from all other members of the group in the Neotropical fauna. It more resembles certain Australian forms, such as M. parvistylus Alexander, but is welldistinguished from all species so far described by the structure of the male hypopygium.

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