

**A Revision of the Tropical American Species
of the Genus *Lecteria* Osten-Sacken
(Tipulidae, Diptera)**

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(With 15 figures)

Lecteria Osten Sacken

Lecteria Osten Sacken; Berlin. Ent. Ztschr., 31: 206; 1887.

Lecteria: Alexander; Proc. U. S. Natl. Mus. 44: 493-499; 1913.

Osten Sacken founded the genus *Lecteria* on a single species that he erroneously had determined as being *armillaris* (Fabricius). A second species, *Lecteria calopus* (Walker) had long been placed in the synonymy of *armillaris* but now is known to represent a valid species. I am greatly indebted to Dr. S. L. Tuxen and Dr. Leif Lyneborg, of the Universitetets Zoologiske Museum, Copenhagen, Denmark, for re-examining the type material of *armillaris* preserved in the Fabrician Collection and for providing additional notes and excellent figures of the wing and legs of the type that are reproduced in this paper. I likewise wish to express my sincere thanks to Mr. Richard I. Vane-Wright, of the British Museum (Natural History) for providing a detailed re-description and excellent figures of the type of *calopus* that are presented in this report. It is believed that the correct identifies of these two species now are known. A third species, *Lecteria mattogrossae* Alexander, was defined in 1913. A study of the numerous specimens of Neotropical members of the genus in my collection has shown that several further species are involved and certain of these are described as new in this paper.

Lecteria comprises a very distinct group of crane flies, its nearest allies evidently being the Old World *Conosia* van der Wulp and the very close *Clydonodozus* Enderlein. The genus had long been known from the striking species, *armillaris*, well distributed and common in many collections. In 1912 Enderlein (Zool. Jahrb., Syst., 32: 50-51) proposed a new genus *Psaronius*, based on a supposed new species, *lituratus* Enderlein, that now is placed in the synonymy of *obscura* (Fabricius). *Psaronius* is distinguishable from typical *Lecteria* chiefly by the presence of tibial spurs and by a minor feature of wing venation, the elongate vein R_{2-3-4} in the radial field. Other features, including the venation and hypopygial structure, are so similar in the two

groups that it appears advisable to place *Psaronius* as a subgenus of *Lecteria*. A third subgenus, *Neolecteria* Alexander (Philippine Jour. Sci., 53: 288; 1934), was based on a species from Borneo described by Edwards as *Lecteria bipunctata* (Sarawak Mus. Jour., 3: 265-266, pl. 9, fig. 10, wing; 1926). This fly still is known only from the unique male type taken on Mount Dulit, Sarawak, Borneo. This has vein R_{2-3-4} long, as in *Psaronius*, but differs from all possible allies by the loss of vein M_1 of the wings. A puzzling feature in this fly, as described by Edwards, is the apparent reduction in number of segments of the maxillary palpus to a single element and the union of the proximal three segments of the antennal flagellum into a short fusion segment. Both of these characters are different from those found in *Lecteria* and are not significantly different from those found in *Conosia* and *Clydonodozus* and it may be found that *Neolecteria* is closer to these groups than to *Lecteria* where it presently is assigned.

In the present paper eight undescribed species are defined, making a total of eleven presently known from the Neotropical region. All known species are tropical, ranging from Mexico to southern Brasil. The occurrence of rather numerous species of *Lecteria* in tropical Africa is well known and has been discussed in various papers by the writer (Rev. Zool. Africaine, 11: 375-381, 1923; Rev. de Entomologia, 19: 176-179, 1948; and Ruwenzori Expedition, 1934-35 (British Museum Natural History), 1, no. 7, Tipulidae: 307-309, 1956). All of the African species have the spurless tibiae of *Lecteria* but show the elongate vein R_{2-3-4} of *Psaronius*.

In the present paper, in both descriptions and figures of the species, attention is directed to the following points: Maxillary palpi 4-segmented. Antennae 16-segmented, outer flagellar segments more elongate, with long verticils, in some excessively long (Fig. 9). Legs with femora yellowed, patterned with brown; tibiae and tarsi dark brown and white, the setae of the whitened rings paler and more delicate than the long, stout, blackened bristles of the darkened segments.

Key to the Neotropical species of *Lecteria* s. str.

1. Tarsi uniformly darkened or virtually so, without a whitened ring (Fig. 2) 2
- Tarsi with a whitened ring beyond midlength, including especially the second and third segments (Fig. 1) 4

2. Wings with costal cell undarkened except at outer end in stigmal region (Figs. 2-5); tibia white at outer end *calopus* (Walker)
- Costal cell of wing patterned with brown at near midlength; tibia with outer end darkened 3
3. Tarsi dark brown throughout; male hypopygium with aedeagus long and slender (Fig. 12) *fuscitarsis* sp. n.
- Tarsi with basitarsus dark brown, second and third segments more brownish yellow but not whitened; male hypopygium with aedeagus shorter, at apex divided into two arms (Fig. 13) *retrorsa* sp. n.
4. Darkened pattern of wing restricted, including the veins and small areas in cells at and beyond the cord 5
- Darkened wing pattern more extensive, including cells and veins beyond cord and also a broken band at level of origin of *Rs*, including spots at *Rs* and in cell *Cu*, the intervening cell *M* paler... 6
5. Mesonotum reddish brown; pleura somewhat pruinose, with a row of brown spots; abdomen dark ochre-brown with linear brownish black stripes, the incisures whitened; wings slightly yellowed, restrictedly patterned with brown, including small marginal clouds in stigmal and radial areas and less evidently along the outer veins (Fig. 1)....
armillaris (Fabricius)
- Mesonotal praescutum brown with three darker brown stripes, median vitta narrow, laterals broader, pleura grayish yellow with a dark brown longitudinal stripe; abdominal tergites yellow, each segment brown apically, lateral borders broadly darker brown, sternites whitened, with a more yellowed central stripe; wings faintly tinged with yellow, very restrictedly patterned with brown, chiefly in stigmal area and along cord *mattogrossae* Alexander
6. Male hypopygium with central phallosomic structure provided with numerous long pale spines; (aedeagus very long and slender, exceeding the outer dististyle (Fig. 6) *acanthosoma* sp. n.
- Male hypopygium without such armature on the phallosome 7
7. Male hypopygium with outer dististyle terminating in two spinous points (Figs. 7, 14) 8
- Male hypopygium with outer dististyle at apex extended into a single decurved point, the outer apical angle unmodified or with a rounded pale crest (Figs. 6, 8, 10, 12, 13, 15) 9
8. Outer dististyle stout, its outer surface with numerous appressed spinules; phallosome with a central pair of straight slender spikes, on either side subtended by short narrow incurved apophyses (Fig. 7)
acanthostyla sp. n.
- Outer dististyle slender, the surface smooth or virtually so; phallosome with apophyses broad-based, tips narrowly obtuse (Fig. 14)
simplex sp. n.
9. Legs with basitarsi entirely dark; hypopygium with phallosome having the central structure elongate, forked at apex, each arm farther prolonged into a long pale flap to produce a Y-shaped appearance (Fig. 15) *upsilon* sp. n.
- Legs with basitarsi dark, tips whitened; phallosome not modified as above 10
10. Outer dististyle slender, without an outer terminal crest; phallosome including small spikelike points that are subtended by slightly longer and stouter arcuated apophyses (Fig. 8) *bicornuta* sp. n.
- Outer dististyle with a long low crest before apex; phallosome including a broad central plate, its posterior border convexly rounded (Fig. 10) *cetrata* sp. n.

I. Previously described species

1. *Lacteria (Lacteria) armillaris* (Fabricius)

Tipula armillaris Fabricius; Syst. Antl., p. 26, Tipula 12; 1805.
Limnobia armillaris: Wiedemann; Dipt. exot., 1: 13; 1821.

All other references to *armillaris* by later authors evidently pertain to other species.

The original description by Fabricius is as follows: «*Tipula armillaris*; alis punctatis obscuris ferruginea, femoribus annulis duobus ferrugineis, tibiis tribus albis. Media obscure ferruginea, abdominis segmentis margine flavis. Pedes elongati, femoribus annulis duobus ferrugineis, tibiisque annulis tribus albis. Alae albae, punctis fuscis sparsis». Habitat in America meridionale. Dom Smidt, Mus. Dom Lund.

Wiedemann adds some further notes on the type specimen but does not discuss the distinctive pattern of the tarsus. Fabricius' statement of there being three white rings on the tibia must include the single broad ring on the tarsus, additional to the two on the tibia as correctly indicated by Wiedemann.

The exact locality where the type material was collected remains unknown. Mrs. Ella Zimsen (The type material of I. C. Fabricius, pp. 1-656; Copenhagen, 1964) writes concerning this «In Fabricius' later works the insects from the West Indies are very often mentioned as originating from *Smidt*. On old well-preserved original labels from Sehested and Tonder Lund's collection the name is spelled *Schmidt*. In the 1780's there lived a Custom house officer, Adam Levin Schmidt, and a surgeon, Johan Christian Schmidt, both of them employed on St. Croix. It is not certain who is meant». The above does not seem to apply to the present case since no species of *Lacteria* is known from the West Indian islands, including St. Croix in the former Danish West Indies, now the Virgin Islands of the United States.

Concerning the further data supplied by Dr. Lyneborg, as mentioned earlier, he writes that two specimens are in the series at Copenhagen, both having lost their abdomens and one also the legs. The second specimen was designated as lectotype and is the one figured herewith. The left posterior leg is intact and is shown; the right middle leg has the femur, tibia and metatarsus; other legs lost. From Lyneborg's figures the following points should be emphasized.

Wing (Fig. 1) clear, with small indistinct infuscations chiefly in the outer radial field but also narrowly along the veins. The

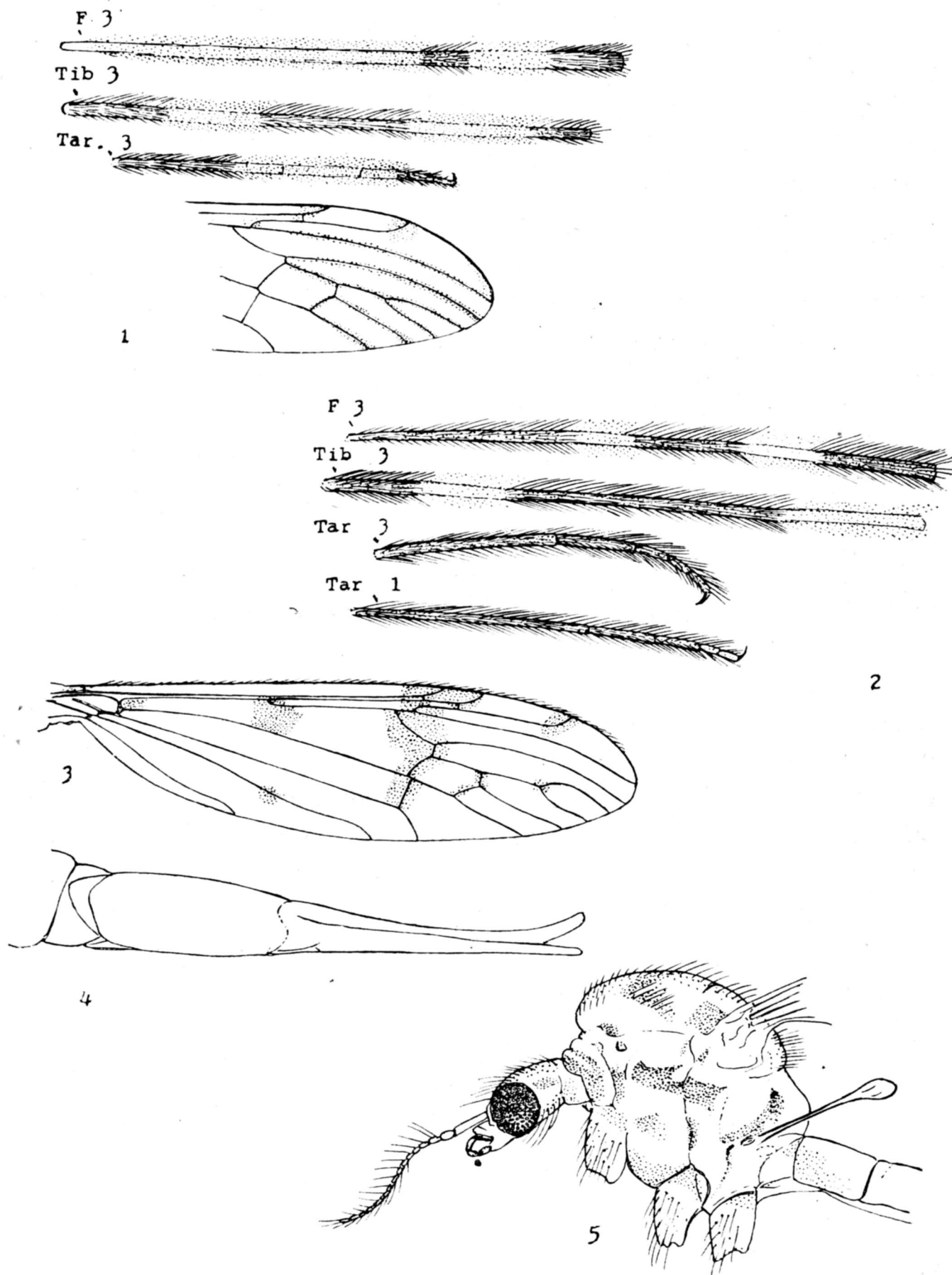


Fig. 1. *Lecteria (Lecteria) armillaris* (Fabricius); hind leg and wing of holotype. —
 Fig. 2. *Lecteria (Lecteria) calopus* (Walker); hind leg and fore tarsus of holotype.
 — Fig. 3. The same; wing of holotype. — Fig. 4. The same; ovipositor of holotype.
 — Fig. 5. The same; lateral view of head and thorax of holotype. — (Symbols:
 Leg, F = femur; Tib = tibia; Tar = tarsus).

figure shows no dark pattern on wing basad of the cord. The posterior leg is shown (Fig. 1), with the basal two-thirds of the femur undarkened, yellowish, outer third with tip and a narrower subterminal band dark, enclosing a yellow ring that is subequal in extent to the darkened tip; tibia with three darkened rings,

the narrowest at apex, broadest at midlength, the three rings enclosing two whitish annuli, the outer one more extensive, as shown; posterior tarsus with the broad base and narrower tip darkened, the wider central part pale, involving nearly the outer third of basitarsus, all of second segment, and about the proximal three-fourths of the third, the remainder dark. Of particular importance in the above are the sparse darkened pattern of the wings, with no area basad of origin of *Rs*, and the distribution of the dark and light pattern of all three regions of the leg, particularly the darkened apex of the tibia and the broad white ring of the tarsus. A comparison with the corresponding leg of *calopus* emphasizes these differences.

No further specimens that can be assigned to *armillaris* have been seen by me and its exact geographical habitat remains unknown. In the restricted darkened wing pattern it agrees most nearly with *mattogrossae*, differing in slight details of coloration as shown in the later description and in the key.

It should be noted that when defining the genus *Lecteria* (1887: 206) the detailed description provided by Osten-Sacken was believed to pertain to *armillaris* but evidently represents a different species. In this material, from Brasil, Osten Sacken stresses the presence of a supernumerary crossvein in cell *R*₄ of the wings and in some specimens a second such vein in cell *R*₅. Such crossveins are not found in *armillaris* nor in any other member of the genus known to me and presumably represent a further undescribed species.

2. *Lecteria* (*Lecteria*) *calopus* (Walker)

Limnobia calopus Walker; Ins. Saundersiana, 1, Diptera, pt. 5: 439; 1856.
Lecteria calopus Alexander; Proc. U. S. Natl. Mus., 44: 497; 1913; erroneously placed in the synonymy of *armillaris*.

In 1912, Edwards (in Alexander, 1913: 488) stated that there was a type male and a type female then present in the British Museum, both in very good condition, each having lost a single leg. To the specimen Osten Sacken earlier had affixed a note reading 'Comp. this to *Limnobia armillaris* Wd.'. In accordance with the general belief at the time that there was a single variable and widespread species of *Lecteria* in Tropical America, the present fly had been placed in the synonymy of *armillaris*.

I am greatly indebted to Mr. Vane-Wright for providing a very complete and accurate re-description and figures of the

female specimen that was selected as holotype of the species in 1967. It appears that the male mentioned by Edwards in 1912 has been lost or mislaid and if re-discovered might well be placed as the allotype for the species. Vane-Wright's figures illustrate the head and thorax, wing, ovipositor, with details of the leg pattern, fortunately showing the posterior leg and enabling a direct comparison with the comparable structure in *armillaris*. The figures are in pencil and were made by use of camera lucida. I have copied them to the best of my abilities. The further notes by Vane-Wright supplement the brief account by Walker and are provided here.

Head with rostrum short, brownish. Palpi yellowish brown, four segmented. Antennae apparently 16-segmented (unless a minute 17th is present), brownish. Scape subequal in length to distance across the vertex between the eyes, or approximately one-third the maximum width of head; pedicel globular, more yellowed; first four flagellar segments somewhat rounded above, more so beneath, each with one or two long dorsal verticils that are about three-fourths the length of the scape; remaining segments beyond the somewhat transitional fifth narrow, cylindrical, with numbers of long verticils disposed around them, all flagellar segments subequal in length. Vertex grayish, dusted with brown, with many longish hairs that curve forwards; central zone of vertex very slightly more brownish, the postero-lateral zones of head immediately behind eyes similar.

Thorax (Fig. 5) with pleura patterned with brownish marks on a silvery dusted yellowish brown ground, arranged about as shown; dorsum patterned with light and dark brown on silvery dusted ground, as shown. Legs (Fig. 2) with coxae concolorous with pleura, bases more darkened; trochanters yellowish; posterior femur with basal half yellowish, followed by a narrow whitish ring, especially the setae, then by brown, white and brown rings in that order, the proportions about as shown, brown colors quite dark, appearing brownish black to the unaided eye, the withened zones similarly appearing more cream colored; posterior tibia as shown, base dark brown, followed by a white ring, then a long brown zone, the apical ring white; posterior tarsus as shown, entirely dark brown. Fore tarsi (Fig. 2) somewhat longer than those of middle or posterior legs. Wings (Fig. 3) with ground slightly yellowish hyaline, with a pale brown pattern, including the stigma. Halteres with stem yellowish brown, knob slightly darker.

Abdomen with ground color reddish brown, tergites two to five each with a narrow preapical dark band, laterally extended forward to form dark lines, these tergites with an apical whitish yellow band subequal in width to the preapical dark one, the markings most clearly defined on tergites two and three; apex of sixth tergite, with the remaining outer tergites, bright chestnut brown; sternites yellow basally, apices more darkened. Ovipositor (Fig. 4) with cerci gently curved, yellowish brown. Type female. — Length of abdomen to tip of ovipositor 12.5 mm.

Holotype, female, «South America» (British Museum).

3. *Lacteria (Lacteria) mattogrossae* Alexander

Lacteria matto-grossae Alexander; Proc. U. S. Natl. Mus., 44: 496-497, fig. 39 (wing); 1913.

Length of head and thorax 4.8 mm. (abdomen broken); wing 13 mm.

Head with rostrum and palpi dark brown. Antennae brown; scape elongate-cylindrical, pedicel globular-cyathiform; flagellum with proximal segments short-oval, outer ones more slender, cylindrical, provided with long setae. Front and vertex with a grayish yellow bloom, clearer gray on occiput; vertex with numerous conspicuous brown setae, sparse or lacking at midline.

Thorax with pronotum pale whitish yellow, anterior border of scutum somewhat more infuscated. Praescutum in front brown, behind and in humeral region grayish yellow, extreme cephalic border gray; median stripe narrowly dark brown, lateral pair broader, anteriorly lying close to the median line, behind the pseudosutural fovea diverging to the lateral margin, the fovea reduced to a narrow impressed line shaped somewhat like a question mark; scutum light grayish brown, lateral margin dark chestnut brown, being a posterior extension of the lateral praescutal stripe; scutellum and postnotum dull yellow with a narrow indistinct brown median line. Pleura yellowish, with a gray pruinosity; a dark brown stripe extends from behind the head to the wing base, involving the base of the fore coxa. Halteres short, stem yellowed, knob slightly darkened. Legs with coxae pale whitish yellow, trochanters yellow; remainder of legs broken. Wings subhyaline, faintly tinged with yellowed; a restricted brown pattern that includes small spots at origin of R_s , Sc_2 , bases of veins R_{2-3} and R_5 , and at end of vein R_3 ; also more narrowly along cord and outer end of cell *1st M*₂. Venation: Sc long,

approximating vein R_{1-2} at margin, as in genus; R_{1-2} about one-half R_{2-3} ; R_s long, strongly arcuated at origin, thence extended virtually parallel to vein R_1 , in direct longitudinal alignment with R_{2-3-4} and R_4 ; R_3 curved strongly cephalad at tip, R_4 similarly curved caudad so cell R_3 at margin is very extensive; basal section of vein R_5 very long; M in direct alignment with M_{3-4} ; $m-cu$ shortly before fork of M .

Basal segments of abdomen with tergites dull yellow, apex of each segment light brown, lateral margins broadly dark brown. Sternites pale whitish with a narrow median more yellowed stripe, before apex of each segment widened to include the whole segment. Terminal segments of abdomen broken.

Holotype, Sex? — Corumbá, Mato Grosso, Brasil, April (H. H. Smith); American Museum of Natural History, New York.

The species still is known only from the unique type, as described. In the marked reduction of dark color in the wing pattern it is most as in *armillaris*, as indicated in the key. The comparison with *armillaris* at the time the species was described was based on the mis-interpretation of the latter species, as discussed elsewhere in this paper.

II. Undescribed species

4. *Lecteria (Lecteria) acanthosoma* sp. n.

General characters as in *armillaris* and allies; hypopygium distinctive, especially the phallosome where each half of the fused apophyses bears about 20 long slender spines.

Male. — Length, about 13 mm.; wing, about 9 mm.

Female. — Length, about 14 mm.; wing, about 10 mm.

Described from type material mounted on slides. Rostrum and palpi dark brown. Antennae with scape and pedicel dark brown, flagellum paler. Head dark brown.

Thorax dark brown, vaguely variegated by paler areas. Halteres with stem whitened, knob weakly darkened. Legs with coxae and trochanters pale; femora yellow, tip and a ring beyond midlength weakly darkened and with conspicuous black setae; tibiae brownish black, with two white rings, one subbasal, the other shortly before the darkened tip, vestiture of the whitened rings pale and weak, of the darkened parts coarse, black, conspicuous; basitarsus black, apex and all of segments two to four, white, terminal segment brownish black. Wings whitish subhyaline, patterned with brown, including a complete band at cord;

a more or less broken similar area extending from origin of *Rs* to the Anal field; wing tip and an isolated spot at end of vein *R*₃ brown; veins brown. Venation: *m-cu* at or shortly beyond the fork of *M*.

Abdominal tergites light brown, the incisures darker, especially at bases of segments; in male seventh segment darker to produce a weak ring; sternites more uniformly yellowed. Male hypopygium (Fig. 6) with the outer dististyle, slender, apex shallowly and unequally bilobed, the lower point long, outer lobe obtuse; surface of outer part of style vaguely roughened but not spinose. Phallosome, *p*, distinctive, the fused apophyses each with a longitudinal row of long slender spines that are directed outward, the more basal ones smaller, the number of spines on each side about 20. Aedeagus unusually long and slender, about one-half longer than the outer dististyle.

Habitat: Panama.

Holotype, ♂, on microscope slide, Water Cay, Bocas del Toro, August 27, 1917 (Axel Olsson). Allotopotype, ♀, on slide, taken *in copula* with the type.

The spinous phallosome of the male hypopygium serves to separate this fly from all others presently known.

5. *Lacteria (Lacteria) acanthostyla* sp. n.

Antennal flagellum black, base of first segment yellowed; mesonotal praescutum with anterior half light cinnamon brown, gray posteriorly, conspicuously patterned with brownish black; leg pattern generally as in the subgenus, whitened band on tarsi including outer end of basitarsus; darkened wing pattern restricted, band at origin of *Rs* appearing as spots at origin of *Rs* and in Anal field, cell *M* undarkened; male hypopygium with outer dististyle bearing abundant small spinules; phallosome with apophyses short, inner pair spikelike, aedeagus short, about two-thirds the outer dististyle.

Male. — Length, about 15 mm.; wing, 10 mm. Rostrum and head gray, palpi darker brown. Antennae with scape heavily gray pruinose, pedicel brownish black, flagellum black, base of first segment narrowly yellowed.

Pronotum and pretergites grayish white. Mesonotal praescutum with anterior half light cinnamon brown, humeral region yellowed, posterior parts light gray; a conspicuous brownish black ground pattern, including a narrow central vitta from anterior border almost to the suture, together with two short broader

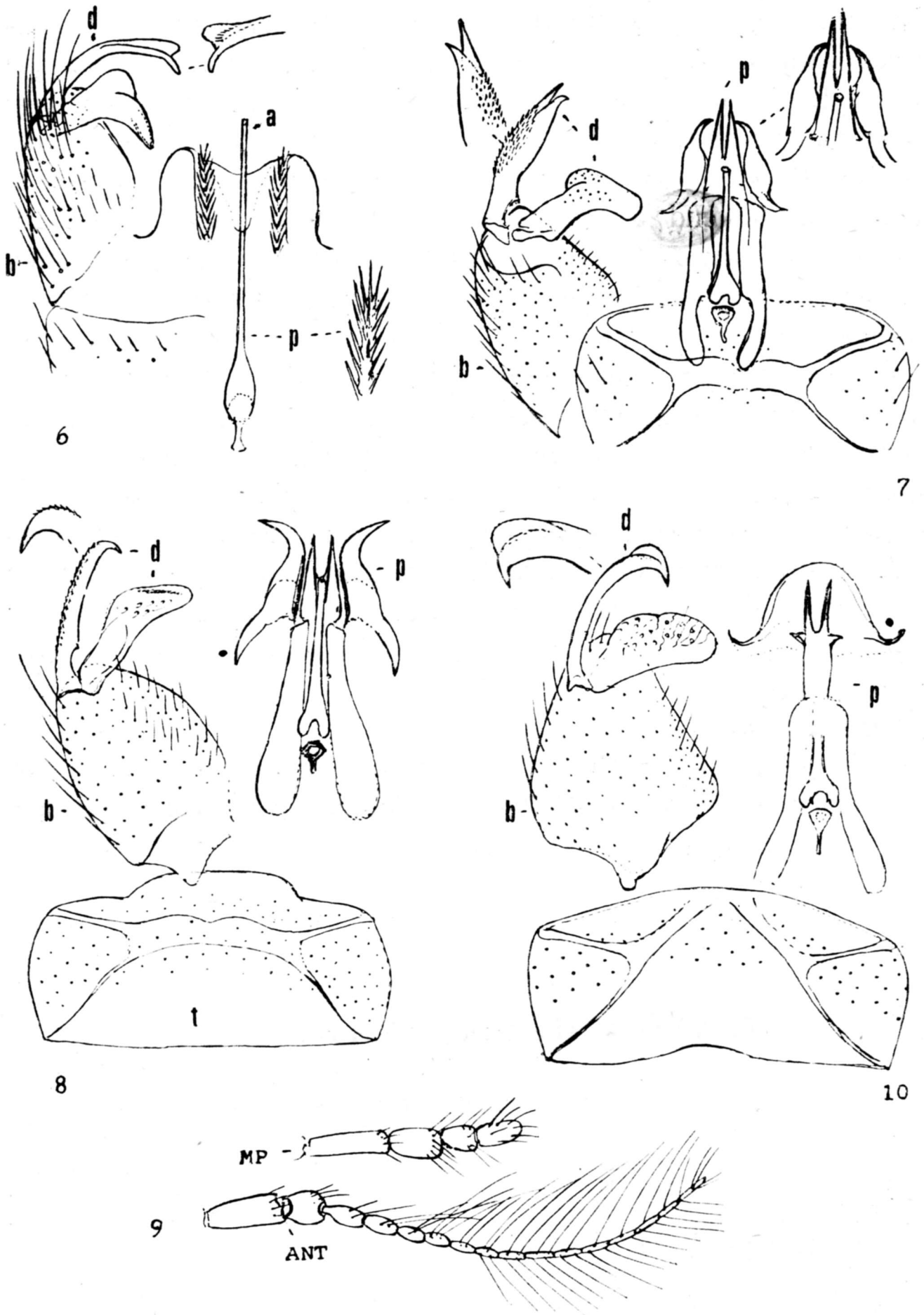


Fig. 6. *Lecteria (Lecteria) acanthosoma* sp. n.; male hypopygium. — Fig. 7. *Lecteria (Lecteria) acanthostyla* sp. n.; male hypopygium. — Fig. 8. *Lecteria (Lecteria) bicornuta* sp. n.; male hypopygium. — Fig. 9. The same; maxillary palpus and antenna of male. — Fig. 10. *Lecteria (Lecteria) cetrata* sp. n.; male hypopygium. — (Symbols: a, aedeagus; ant, antenna; b, basistyle; d, dististyles; mp, maxillary palpus; p, phallosome; t, ninth tergite).

stripes on posterior half, these continued caudad over the suture as polished black areas; posterior sclerites of notum light gray, vestiture long and pale. Pleura light gray, with a narrow brown dorsal stripe that ends at the pteropleurite and a similar area

on ventral sternopleurite; dorsopleural membrane yellowed. Halteres with stem brown, extreme base yellowed, knob brownish black. Legs with coxae yellowed, trochanters slightly darker; legs with pattern and vestiture generally as in other members of the subgenus; whitened band on tarsus including segments two to four and the end of basitarsus. Wings with darkened pattern relatively restricted, the usual band at origin of *Rs* interrupted by the clear cell *M*; band at cord relatively narrow but virtually complete.

Abdominal tergites obscure yellow, patterned laterally with dark brown, subterminal segments slightly darkened, sternites yellowed. Male hypopygium (Fig. 7) with outer dististyle, *d*, relatively stout, at apex divided into two acute subequal points, surface of style with abundant small spinules; inner style with apical part relatively long, tip obtuse, basal lobe of outer margin low. Phallosome, *p*, with paired straight spikelike inner apophyses and shorter incurved lateral points that do not attain the tips of the inner pair; aedeagus unusually short, about two-thirds the outer dististyle.

Holotype, ♂, Iquitos, Loreto, Peru, March-April 1931 (R. C. Shannon). Paratypes, 2 ♂♂, Manaus, Amazonas, Brasil, October 31, 1919 (H. S. Parish).

The hypopygial structure, especially the outer dististyle and phallosome, is distinctive. The relationship is shown by the key.

6. *Lacteria (Lacteria) bicornuta* sp. n.

Allied to *acanthostyla*; mesonotal praescutum medium brown, the stripes paler brownish yellow; white ring on tarsus extensive, involving segments two and three and outer third of basitarsus; male hypopygium with outer dististyle unusually slender throughout, narrowed very gradually to the decurved tip, outer surface with short pale spinoid setae; aedeagus shorter than the outer dististyle.

Male. — Length, about 17 mm.; wing, 11 mm.; antenna, about 2.2 mm. Antennae and maxillary palpi (Fig. 9). Proximal flagellar segments yellowed, the remainder brown.

Pronotum buffy, sparsely pruinose. Mesonotal praescutum with the ground medium brown, more extensive laterally and at ends of suture, the central interspace becoming obsolete at near midlength of the sclerite, stripes brownish yellow, vaguely more pruinose behind; scutum brownish gray, each lobe with a central oval pale brown area; scutellum brownish yellow; mediotergite

brownish gray with a vague capillary darker central line. Pleura chiefly grayish white with a brown dorsal stripe that extends from cervical region to the pteropleurite; ventral sternopleurite pale brown; dorsopleural membrane yellow. Halteres with stem yellow, knob brown. Legs generally as in *armillaris*, the white tarsal ring extensive, including the outer third of basitarsus and all of segments two and three excepting narrow pale brown tips. Wings with the darkened pattern pale brown, restricted, not involving cells *C* or *M*. Venation: R_{2-3-4} relatively long, exceeding R_2 .

Abdomen pale brown, posterior borders of both tergites and sternites slightly paler. Male hypopygium (Fig. 8) most similar to that of *acanthostyla*, differing in the outer dististyle, *d*, which is unusually slender throughout, narrowed very gradually to the decurved tip, with no indication of dilation or forking; outer surface with abundant short pale spinoid setae, not conspicuous as in *acanthostyla*; apex of inner style obtusely rounded. Phallosome, *p*, unusually simple, including short straight spikes on the plate, the apophyses longer and stouter, appearing as outcurved horns. Aedeagus short and straight, shorter than the outer dististyle.

Habitat: Brasil.

Holotype, ♂, Manaus, Amazonas, November 4, 1919 (H. S. Parish).

Although obviously allied to *Lecteria* (*Lecteria*) *acanthostyla*, the present fly is distinct in hypopygial characters, most evidently the outer dististyle.

7. *Lecteria* (*Lecteria*) *cetrata* sp. n.

Thoracic dorsum almost uniformly light cinnamon brown, each lateral end of suture with a major black area; wings with darkened pattern restrictedly light brown; male hypopygium with outer dististyle terminating in a single spine; phallosome with paired slender spines, near base of each with a strong projection; central plate broader than long, its posterior border convexly rounded.

Male. — Length, about 16-17 mm.; wing, 12.5-13.5 mm.

Female. — Length, about 17-18 mm.; wing, 13-14 mm.

Rostrum brown, palpi darker. Antennae with scape and pedicel light brown, flagellum dark brown, base of first segment yellowed. Head above dark brownish gray, front, orbits and sides of vertex clearer gray.

Pronotum light brownish gray, anterior part of scutum brighter. Mesonotal praescutum and scutum almost uniformly light cinnamon brown, representing the usual stripes, lateral end of suture with a conspicuous black area, with a small darkened spot lying more mesad at suture; posterior sclerites of notum slightly more pruinose. Pleura grayish, with a dark brown dorsal stripe, broadest anteriorly, narrowed and more or less interrupted behind, ventral sternopleurite paler brown; dorsopleural membrane yellow. Halteres with stem brownish yellow, clearer basally, knob brown. Legs with coxae light yellow, bases restrictedly infuscated; trochanters yellow; femora and tibiae patterned generally as in *armillaris*, tarsi medium brown, the whitened band very broad, including segments two and three and end of basitarsus. Wings yellowed, with a relatively restricted light brown pattern, the area at origin of *Rs* interrupted in cell *M*; seams at cord and over outer end of cell 1st *M*₂ relatively narrow; no darkening in costal cell; veins brown, slightly darker in the patterned areas. Venation: *R*₂₋₃₋₄ subequal to *r-m*; *m-cu* close to fork of *M*.

Abdominal tergites light brown, posterior borders broadly yellowed, lateral borders conspicuously blackened; sternites more uniformly yellowed, with a vague darkened central stripe that is interrupted at posterior ends of the segments; hypopygium brownish yellow. Male hypopygium (Fig. 10) with outer dististyle, *d*, simple, apex terminating in a single spine, outer crest relatively short; inner style obtuse at apex, base not retrorsely produced. Phallosome, *p*, including paired slender spines that lie generally parallel to one another, near base of each with a strong projection; central plate broader than long, the posterior border convexly rounded.

Habitat: Ecuador.

Holotype, ♂, Zumbi, Rio Zamora, altitude 700 meters, November 7, 1941 (David Laddey). Allotopotype, ♀, November 4, 1941. Paratopotype, ♂, October 31, 1941. Paratypes, ♂, Huagra-yacu, Napo-Pastaza, altitude 900 meters, April 5, 1941 (W. C. Macintyre); ♂, Rio Nanganitza, Mayaico, altitude 1000 meters, November 14, 1941 (David Laddey); ♀, Rio Shicaiyacu, altitude 900 meters, June 1941 (Macintyre).

The most similar species is *Lecteria (Lecteria) bicornuta* sp. n., which likewise has the outer dististyle of the hypopygium terminating in a single spine, differing evidently in other details of the hypopygium, including the dististyles and phallosome. The virtually unpatterned mesonotal praescutum and scutum provides a strong colorational character.

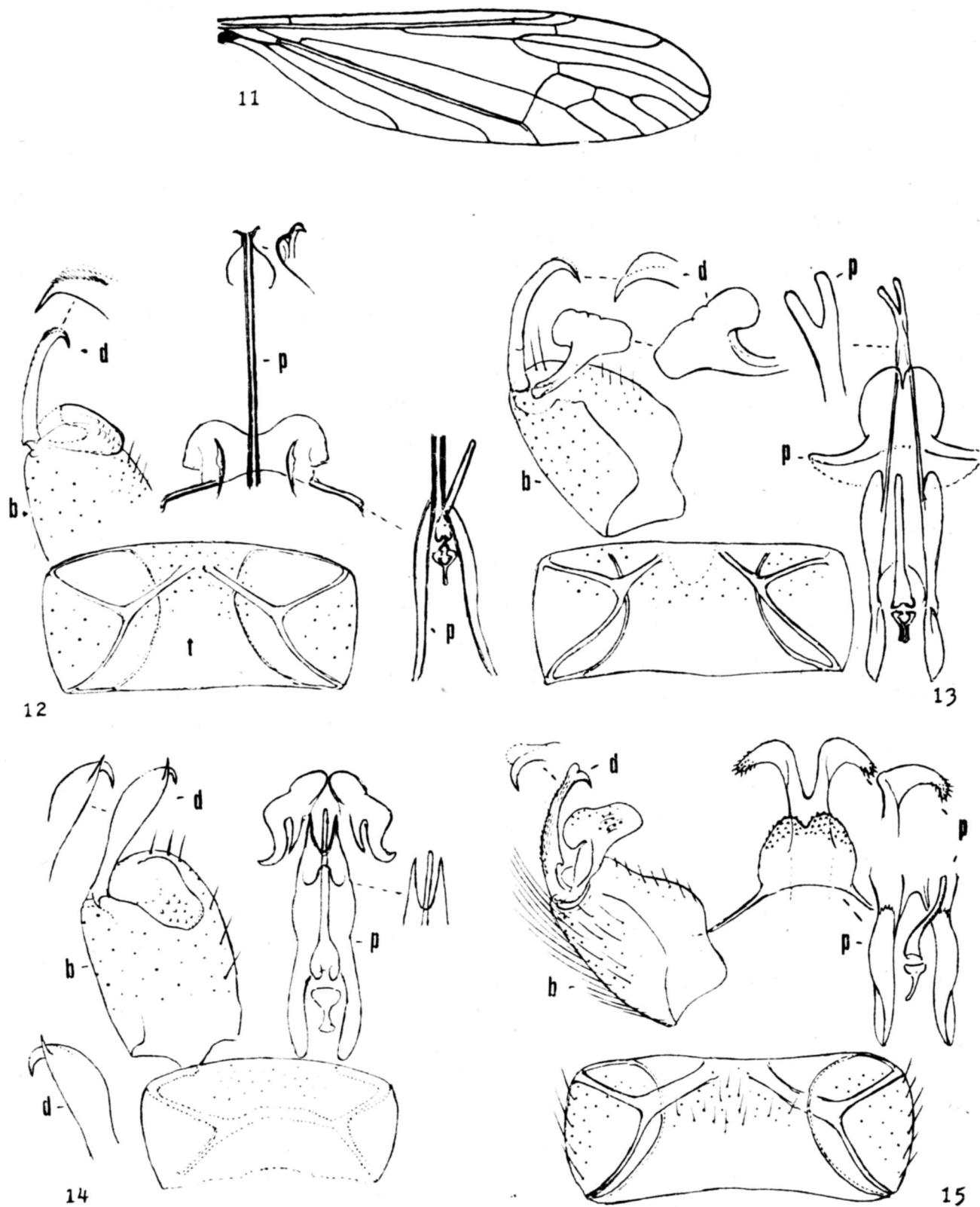


Fig. 11. *Lacteria (Lacteria) simplex* sp. n.; venation. — Fig. 12. *Lacteria (Lacteria) fuscitarsis* sp. n.; male hypopygium. — Fig. 13. *Lacteria (Lacteria) retrorsa* sp. n.; male hypopygium. — Fig. 14. *Lacteria (Lacteria) simplex* sp. n.; male hypopygium. — Fig. 15. *Lacteria (Lacteria) epsilon* sp. n.; male hypopygium. — (Symbols: *b*, basistyle; *d*, dististyles; *p*, phallosome; *t*, ninth tergite).

8. *Lacteria (Lacteria) fuscitarsis* sp. n.

Mesonotal praescutum conspicuously patterned with brownish gray and black; legs with tips of tibiae narrowly dark brown, tarsi uniformly darkened; wings obscure yellow with a heavy brown pattern, in the male involving cell C; abdominal tergites tricolored, yellowish brown, variegated with black, the posterior borders pale; male hypopygium with outer dististyle terminating in a single spine; phallosome with the long slender central rod exceeding the outer dististyle in length, apex more or less bifid.

Male. — Length, about 14-14.5 mm.; wing, 12-12.5 mm.; antenna, about 2 mm.

Female. — Length, about 15 mm.; wing, 12.5 mm.

Rostrum brownish gray, palpi dark brown. Antennae brown, scape pruinose, pedicel and first flagellar segment more yellowed; flagellar segments elongate, terminal segment about one-half longer than the penultimate, dilated outwardly. Head dark gray, anterior vertex vaguely patterned with brown.

Pronotum obscure yellow. Mesonotal praescutum almost covered by brownish gray stripes, humeral region slightly more reddened, the restricted ground color blackened, most evident as a major area surrounding the lateral stripe, including also the lateral end of suture; median ground stripe capillary, narrowed behind, not reaching the suture; posterior sclerites of notum pale brown, sides of mediotergite vaguely patterned with darker. Pleura gray with a narrow dorsal brownish black stripe that ends at the pleurotergite, ventral sternopleurite paler brown. Halteres dark brown, base of stem narrowly yellowed. Legs with coxae obscure yellow, vaguely darker basally; trochanters yellow; femora yellowed, the broad apex and a subequal band beyond midlength dark brown; tibia dark brown, with subbasal and subapical white rings, the actual tip dark brown; tarsi dark brown without whitened areas. Wings with the ground obscure yellow, the brown pattern extensive, including a band at origin of R_s , the cord and confluent stigmal area, and major darkenings in the outer radial field; outer end of costal cell in type infuscated, more extensively so in paratype, not indicated in the allotype. Venation: R_s in direct longitudinal alignment with vein R_4 , cell R_3 short-petiolate, entirely sessile in the holotype; $m-cu$ at fork of M .

Abdominal tergites tricolored, the disk yellowish brown, posterior borders broadly whitish gray, lateral and subapical areas heavily blackened; sternites more yellowed, with a vague narrow pale brown central line, posterior borders narrowly and inconspicuously pale; hypopygium reddish brown. Male hypopygium (Fig. 12) with the outer dististyle, d , terminating in a single slender spine, the outer angle with a rounded crest provided with numerous delicate setae; inner style without a well-developed basal lobe, apex truncate. Phallosome, p , distinctive, the central structure a small sclerotized plate, its posterior margin shallowly emarginate, the long slender central rod more or less bifid throughout its length, longer than either the aedeagus or outer dististyle.

Habitat: Brasil.

Holotype, ♂, Serra da Cantareira, São Paulo, altitude about 900 meters, October 1949 (O. Forattini). Allotype, ♀, Campos de Jordão, São Paulo, December 1947 (Frederico Lane). Paratype, ♂, Pouso Alegre, Minas Gerais, January 9, 1946 (Pereira).

The most similar species is *Lecteria (Lecteria) calopus* (Walker) which likewise has the tarsi uniformly darkened or virtually so, differing evidently in the broad white tips of the tibiae. The male sex of *calopus* remains undescribed.

9. *Lecteria (Lecteria) retrorsa* sp. n.

Mesonotum pale brownish gray, praescutum with an arc-shaped darker area, darkened pleural stripe conspicuous; legs with tip of tibia black, tarsi light brown, without a distinct whitened ring; wings with darkened pattern extensive, the basal band including cells C and Sc; male hypopygium with outer end of outer dististyle a long low crest, base of inner style produced basad into a broad lobe; posterior border of phallosomic plate with a linear notch, central phallosomic structure long and slender, the outer third divided into two narrow arms.

Male. — Length, about 15 mm.; wing, 13 mm.; antenna, about 2.4 mm. Antennae brown, lower faces of proximal two flagellar segments paler; terminal segment about one-half longer than the penultimate.

Pronotal scutum very pale yellow, scutellum more whitened. Mesonotum with an arc-shaped cinnamon brown area extending from the sides of the scutum anteriorly over the praescutum, the narrow interspaces extending beyond the general area, humeral region, posterior third of praescutum and remainder of notum very pale brownish gray. Pleura pale gray, with a conspicuous longitudinal brown stripe extending from the propleura caudad across the ventral anepisternum onto the pteropleurite. Halteres with stem yellow, knob infuscated. Legs with coxae and trochanters yellowed, sparsely pruinose; femora and tibiae generally as in *armillaris*, tip of tibia blackened, tarsi light brown, segments two and three a trifle paler than the basitarsi but not forming a ring. Wings with the darkened pattern unusually extensive, the area at origin of Rs including cells C and Sc, widest in the former, remainder of area pale and irregular; darkened band at cord broad and complete, beyond the cord the veins with very pale brown clouds; veins pale brown.

Abdominal tergites very pale brown, posterior borders broadly pale, lateral margins brownish black, sternites and hypopygium yellowed. Male hypopygium (Fig. 13) with the outer dististyle, *d*, terminating in a slender slightly decurved point, the outer end with a long low crest; inner style with basal angle produced basad into a broad lobe that is larger than the free apex. Phallosome, *p*, with the apophyses united into an almost entire plate, its posterior border with a linear notch to form broad low lobes; central structure long and slender, pale, the outer third divided into two narrow arms; aedeagus relatively short.

Habitat: Colombia.

Holotype, ♂, Sierra San Lorenzo (Ujhelyi).

The species is distinct from other species in the wing and leg pattern and in the male hypopygium. The virtually darkened tarsi and the extensive wing pattern that involves cell *C* is suggestive of *Lecteria* (*Lecteria*) *fuscitarsis* sp. n., but the hypopygial structure, especially the styli and phallosome, is distinctive.

10. *Lecteria* (*Lecteria*) *simplex* sp. n.

Tarsi extensively whitened, including outer fifth of basitarsi; male hypopygium with apex of outer dististyle bispinous, surface vaguely roughened; phallosome unusually simple, aedeagus short, apophyses small, subequal in length to the spines of the phallosomic plate.

Male. — Length, about 14.5-15 mm.; wing, 11.5-12 mm.; antenna, about 2-2.2 mm. Rostrum and palpi dark brown. Antennae relatively short, brown, first flagellar segment paler on basal half. Head dark brown.

Pronotum light brown or salmon colored. Mesonotal praescutum with stripes cinnamon, dusted with gray, central ground interspaces obsolete behind, lateral darkenings very extensive; posterior sclerites of notum light brown, sides of mediotergite darkened. Pleura pale grayish white, striped longitudinally with brown, the narrow dorsal stripe darker, ending at the pteropleurite, the lower darkening paler, restricted to the ventral sternopleurite and a spot above the mid-coxa. Halteres with stem pale brown, knob dark brown. Legs with coxae whitened, trochanters obscure yellow; pattern of remainder of legs generally as in *armillaris*; whitened area on tarsus extensive, including outer fifth of basitarsus. Wings (Fig. 11) with the brown pattern pale, narrow and relatively inconspicuous; band at level of origin of *Rs* broken in cell *M* to leave small spots at origin of *Rs* and at

near midlength of vein *1st A*; darkened seams at cord and outer end of cell *1st M₂* narrow.

Abdominal tergites light brown, with faintly indicated darker stripes, the lateral pair darker; posterior borders of the more proximal segments conspicuously whitened, sternites more yellowed. Male hypopygium (Fig. 14) with outer dististyle, *d*, relatively stout, especially on the vaguely roughened outer half, apex bispinous; inner style relatively small, outer margin near base or 'heel' portion only slightly produced, face of style with microscopic tubercles. Phallosome, *p*, unusually small and simple, including two spines on the phallosomic plate and two small more obtuse apophyses; aedeagus small and slender, shorter than the outer dististyle.

Habitat: Ecuador, Peru.

Holotype, ♂, Quincemil, Cuzco, Peru, November 10, 1962 (L. E. Pena). Allotype, ♀, Yurimaguas, Loreto, Peru, April 22, 1920 (H. S. Parish). Paratypes, ♂♂, Iquitos, Loreto, Peru, May 21, 1920 (H. S. Parish); ♂, with the allotype, April 22, 1920; ♂, Huagra Yacu, Napo-Pastaza, Ecuador, 900 meters, March 14, 1941 (W. C. Macintyre); ♂, Jatun Yacu, Napo-Pastaza, Ecuador, 700 meters, March 16, 1937 (W. C. Macintyre); ♂♀, Zumbi, Rio Zamora, Santiago-Zamora, Ecuador, 700 meters, November 1-2, 1941 (David Laddey).

The most similar species is *Lecteria (Lecteria) acanthostyla* sp. n., which while having the hypopygial structure generally the same differs evidently in the dististyles and in details of the phallosome.

11. *Lecteria (Lecteria) upsilon* sp. n.

Characters generally as in *armillaris*; antennae uniformly darkened; mesonotal praescutum black, striped with buffy yellow, the ground color most conspicuous on sides and at the suture, posterior sclerites pale brown; legs with the usual pattern, with the intermediate tarsal segments whitened; wings with the darkened bands conspicuous; male hypopygium terminating in a strong spine, the outer lobe rounded; phallosome at apex divided into two arms that terminate in subtriangular flaps, the two together presenting a Y-shaped appearance.

Male. — Length, about 15-16 mm.; wing, 11-12.5 mm.; antenna, about 2.2-2.3 mm.

Female. — Length, about 17-18 mm.; antenna, about 11.5-12.5 mm.

Antennae uniformly darkened. Mesonotal praescutum black, with conspicuous buffy yellow stripes, the black pattern including

a narrow entire central vitta and complex lateral areas appearing as broad lateral borders and sublateral stripes, anteriorly connected to appear bifid or trifid, behind virtually connected with a conspicuous black spot at lateral end of suture; posterior sclerites of notum almost uniformly pale brown. Pleura light gray, vaguely patterned with pale brown, dorsopleural region pale. Legs with the usual contrasting pattern of the subgenus; tarsi with basitarsus and segments four and five entirely brownish black, segments two and three whitened with narrowly darkened tips, in cases, the extreme apex of basitarsus whitened. Wings with dark pattern medium brown, broad, forming virtually continuous bands at cord and at level of origin of *Rs*, and as conspicuous seams to the veins beyond cord.

Abdominal tergites light brown, posterior borders conspicuously pale, on second tergite narrowly more darkened immediately before the pale margin; sternites brownish yellow, in the allotype with a vague to scarcely indicated pale brown central stripe. Male hypopygium (Fig. 15) with basistyle, *b*, provided with very long dark colored setae. Outer dististyle, *d*, relatively slender, apex unequally bilobed, outer lobe rounded, its margin with microscopic spicules, lower lobe a powerful spine; inner style darkened, very short and stout, apex broadly truncate. Phallosome, *p*, elongate, the long central structure divided at outer end, forming divergent long-triangular flaps; apophyses forming a small plate, the outer end shallowly emarginate to form two rounded lobes that are provided with microscopic spicules.

Habitat: Ecuador, Peru.

Holotype, ♂, Fundo Sinchono, Cordillera Azul, Huanuco, Peru, 1500 meters, August 14, 1947 (J. M. Schunke). Allotype, ♀, Chanchamayo, 1100 meters, February 12, 1949 (J. M. Schunke). Paratopotype, ♂, with type, 1500-1600 meters, August 17, 1947, 1 ♀, two broken specimens, on a single pin, August 23-25, 1947 (Schunke). Paratypes, 1 ♂, 1 ♀, Rio Nanganitza, Mayicu, Ecuador, 1000 meters, November 14, 1941 (David Laddey).

Lacteria (Lacteria) upsilon is readily told from all other species by the hypopygial structure, especially the Y-shaped phallosome.