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REVISION OF THE GENUS *RHYNCHOSCIARA* RÜBSAAMEN (DIPTERA, SCIARIDAE) IN THE NEOTROPICAL REGION

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ABSTRACT

The genus *Rhynchosciara* is divided into 3 groups: a) the *americana* group, in which are included *americana* (Wiedemann), *baschanti* Breuer, *villosa* Rübsaamen, *argentiniensis* Lengersdorf and *guimaraesi*, sp. n.; b) the *milleri* group, containing *milleri* Pavan & Breuer, and *grelleti*, sp. n.; c) the *mathildae* group, with *brevicornis* Rübsaamen, *busaccii*, sp. n., and *mathildae*, sp. n.. Four species of Walker (*cognata*, *praecipua*, *primogenita* and *propinqua*) are considered *species inquirendae*.

INTRODUCTION

The genus *Rhynchosciara* was established by Rübsaamen in 1894 for two species — *villosa* and *brevicornis*. Edwards in 1919, included in the genus the following species of *Sciara*: *americana* Wiedemann, *atra* Macquart, *praecipua* Walker, *cognata* Walker, *propinqua* Walker, and *primogenita* Walker. His opinion was followed by Frey (1942).

Bellardi (1859) had considered *praecipua* and *cognata* as synonyms of *atra*; Schiner (1868) synonymized the three above species with *americana* Wiedemann; Edwards (1919), who had possibly seen Walker's types in the British Museum, considered *cognata*, *propinqua*, and *primogenita* as synonyms of *atra*, but left *praecipua* as a valid species; Osten Sacken (1886) identified some Central-American specimens as *americana*, but these were named as *villosa* by Edwards.

Lengersdorf (1930) created a variety of *villosa*, naming it *argentiniensis*.

The situation remained thus until 1951, when Nonato & Pavan described a new species, *angelae*, based upon adults reared from larvae, in the laboratory. Adults were maintained in the laboratory, and studies of mating were done, as well as morphological and chromosome analyses. The discovery of new and interesting data on cytogenetics and nuclear physiology in the genus have led to the description of two species more — *milleri* Pavan & Breuer (1955) and *baschanti* Breuer (1967).

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The numerous problems studied with respect to the polytene chromosomes, and the relative facility of rearing those flies in laboratory have brought new data on the cytogenetics as well as on the systematics of the group.

One of the problems with systematics is the deficient description of the adults by the older authors. *Angelae*, *milleri*, and *baschanti* were described only by comparison with Rübsaamen's old descriptions of *villosa* and *brevicornis*, and with Lengersdorf's description of *argenti-niensis*. No attention was given by the former authors to the aspects of the male and female genitalia; the first to draw attention to this was Rübsaamen, especially with regard to the male terminalia. Characters used before, as external characters of the body, wing venation, colour of humerus, and pilosity, are not reliable and not at all sufficient for the distinction of species.

Another problem is the correct assignment of male and female to the same species — thus, the male of *villosa* was described from Oaxaca (Mexico), while the females were from Caracas (Venezuela), Bogotá (Colombia), and from the Cordilleras of Colombia. One cannot be sure whether both sexes actually belong to the same species. Without having specimens "in copula", or reared in laboratory, from groups of larvae, trying to obtain pairing, it is difficult to classify them.

As a good knowledge of the group was extremely necessary for the biological works undertaken in our laboratory, and as the old descriptions are very insufficient, I have decided to revise the genus, based on characters of the male and female genitalia, among others. I have found that the female hypogynium is the best character to separate species, while in the male several other have to be employed, as the form of the tegmen, etc.

For this revision, I have had access to most of the existing types, due to the cooperation of several people and institutions. Only the types of *praecipua*, *cognata*, *propinqua*, and *primogenita* were not seen, for those are unicates. These species must remain as "*species inquirendae*". Several other collections were studied (see below), as well as specimens reared in our laboratory.

MATERIAL AND METHODS

I give below the list of abbreviations of Institutions, used in this paper, whence I have studied the collections. To the curators of those collections, here indicated, I am most gratefully acknowledged.

- BMNH British Museum (Natural History); through Dr. P. Freeman I have received several specimens for identification, the specimens studied by Osten Sacken in the "Biologia Centrali-Americana" and one specimen studied by Bellardi.
- BZM Berliner Zoologisches Museum; through Dr. H. Schumann I have received the types of Rübsaamen (*R. villosa* and *brevicornis*), and several other specimens for identification.

- DZSP Departamento de Zoologia, Secretaria da Agricultura do Estado de São Paulo; through Mr. N. Papavero I have received several unidentified specimens, and the types of *R. milleri*.
- IMZ Istituto e Museo di Zoologia, Università di Torino; Dr. U. Parenti has sent the specimens studied by Bellardi.
- MHNP Muséum d'Histoire Naturelle de Paris; through Dr. L. Matile I was able to examine the genitalia of the type of "*Sciara atra*" Macquart.
- NMW Naturhistorisches Museum zu Wien, through Dr. A. Kaltenbach; types of "*Sciara americana*" Wiedemann, and the specimens of "*americana*" studied by Schiner.
- SMNS Staatliches Museum für Naturkunde in Stuttgart-Zweigstelle-Ludwigsburg; Prof. Dr. E. Lindner has sent the type of *R. argentinensis* Lengensdorf.
- ZMA Zoologisch Museum, Amsterdam; Dr. W. N. Ellis has sent the specimens studied by van der Wulp.

Types of the new species here described were deposited in the above mentioned Museums.

The morphological studies of the chitinous parts have been made with material treated with warm KOH solution at 10%, and posteriorly washed in water followed by alcohol, phenol and creosote. The pieces were mounted in Canada balsam. The drawings were made by the author with the help of a camera lucida.

The following abbreviations are used herein in the illustrations:

IA	1st anal vein	ej.va ap	ejaculatory valve apodeme
2A	2nd anal vein	el	elbow
ant.f	antennal foramen	ep	epandrium
ap	apodeme	epr	epiproct
a.pf	anterior postfront	g	gena
a.prf	anterior prefront	h	humeral cross vein
a.SII	anterior portion of sternite II	hg	hypogynium
a.t	anterior arm of tentorium	hg.va	hypogynal valve
b	bridge	hpr.va	hypoproctal valve
bst	basistylus	hy	hypandrium
bst.b	basistylus' bridge	M ₁	media 1
C	costa	M ₂	media 2
ce	compound eye	pa.ap	parameral apodeme
cer	cercus	pc	pedicel
cl	clypeus	pf	posfront
cs	cardo-stipes	pm	prementum
Cu _{1a}	cubitus 1a	pm.ap	premental apodeme
Cu _{1b}	cubitus 1b	p.pf	posterior postfront
Cu ₂	cubitus 2	p.prf	posterior prefront
d.ap	dorsal apodeme	prf	prefront
dst	dististylus	p.SII	posterior portion of sternite II
d.t	dorsal arm of tentorium	p.t	posterior arm of tentorium
e.b	eyes' bridge	R	radius
ej.va	ejaculatory valve		

R ₁	radial 1	v. sa	ventral salience of
R ₅	radial 5		basistylus
R _s	radial sector	w	section between the ends
s	sensorium		of R ₅ and M ₁
SVIII	sternite VIII	wi	wing-like lateral expan-
Sc	subcosta		sions of prementum
sp	scape	x	section x
st-Cu	stem of cubitus	y	section y
st-M	stem of media	z	line drawn from the end
tg	tegmen		of R ₁ in C to the end
v.vg.scl	ventral vaginal sclerite		of Cu _{1b}

Rhynchosciara Rübsaamen

Rhynchosciara Rübsaamen, 1849: 29. Type-species, *villosa* Rübsaamen (Coquillet, 1910: 601).

The most important characters of the genus were thus summarized by Frey (1942: 31): "Körperform plump, an die Bibionidengattung *Plecia*, erinnernd. Flügel nackt, die Hinteradern nackt, r₁₊₂ und m₁ sehr dick, mit kurzen, teilweise in mehreren Reihen stehenden Makrotrichien besetzt, auch y beborstet, c endet etwa in der Mitte von w. sc kurz. m-Gabel lang und schmal, cu-Stiel recht lang, jedoch kürzer als x. Augen feinhaarig, Brücke vorhanden. Untergesicht schnauzenartig verlängert. Mundteile normal. Palpen lang, 3-gliedrig. Antennen kurz und dünn, nicht länger als der Thorax. Thoraxrücken nur behaart, ohne Borsten. Beine recht kurz, Sporne normal, kurz. Anallamellen beim ♀ sehr kurz".

What Frey calls r₁₊₂ and m₁, I call here R₁ and R₅. Section x may show or not bristles, and st-Cu can be equal to the length of x; the number of palpal segments is taken without considering the first segment (called the "palpifer", Frey 1942: 7).

The following characters may also be added: anterior and posterior postfront naked (the postfront, here intended as the postantennal region of the front; its posterior limit is demarked by the median ocellus. The eyes' bridge separate an anterior from a posterior postfront); clypeus with irregularly distributed setae; first freely-articulated segment of maxillary palpus presenting a sensorial cavity or sensorium; mesonotum with two rows of setae on the disc of the scutum, beginning in the prescutum, at the side of the prescutellar sutures, and ending behind the postalar calli; lateral borders of the scutum and on the scutellum with setae; in the wing, R₁ is generally shorter than R, but can be equal to or slightly larger.

The general coloration of the genus is black; ancient authors have used as characters the colour of the humeri, but I think that this may be a case of loss of colour, since in all fresh specimens examined the humerus was black, and the ancient authors have seen preserved specimens. Also with reference to colour, Wiedemann (1821), in his description of *americana*, states that in his specimens, "der erste Hinter-

leibsabschnitt mit einer erhöhten licht rötlichen Binde, welche einem männlichen Exemplare des Berliner Museums fehlt". I have examined Wiedemann's type-specimens, and wasn't able to find that reddish stripe. Wiedemann may have mistaken that stripe for the intersegmentary membrane between the metanotum and the first tergite of the abdomen.

Keys to the genera of Sciaridae, including *Rhynchosciara*, were presented by Frey (1942: 20) and Shaw (1952: 28-30).

Notes on the biology of the genus can be found in the paper of Dreyfus, Nonato, Breuer & Pavan (1951: 440-443). Rearing methods for some species were published by Lara, Tamaki & Pavan (1965).

The species of *Rhynchosciara* can be separated into three different groups, characterized especially by the form of the hypogynal valve of the females, and other characters, as can be seen in the following key:

1. Hypogynal valve laterally expanded, forming ovoid lobes densely covered with setae (figs. 36-39); dorsal pair of tentorium present (fig. 2); prementum with wing-like expansions almost as large as the length of the apodeme of the prementum (figs. 28-30); section x (in the wing) with or without setae; setiform sense organs in the median anterior part of the 2nd sternite's posterior portion in small numbers (generally two) (fig. 34) Group I (*americana*-like)
With other combination of characters 2
2. Hypogynal valve not pronouncedly expanded laterally (figs. 40, 41); dorsal pair of tentorium absent (fig. 17); wing-like expansion of prementum very short if compared with the length of the prementum apodeme (figs. 19, 31, 32); section x without setae; setiform sense organs in great number (14-24) (fig. 35) Group II (*milleri*-like)
Hypogynal valve laterally expanded, but not forming ovoid lobes, less densely covered with setae (figs. 42-44); dorsal pair of tentorium present, entire or atrophied (fig. 8); wing-like expansion of prementum intermediary between the *americana* and *milleri* groups (fig. 33); section x without setae; setiform sense organs in great number (15 in one case)
..... Group III (*mathildae*-like)

The arrangement here proposed is still tentative; more study will be required until all species can be placed in one of these groups. *Milleri* differs from "*angelae*" (*americana* Wiedemann), *Rhynchosciara* sp. and *baschanti*, by the fact that larvae do not spin a cocoon. Other species are not known in their immature stages; the spinning or not of cocoons can be an interesting character for the separation of groups, when the biology of other species will be studied.

GROUP I

(americana-like)

Key to species (based only on females)

1. Posterior border of hypogynium more or less straight
 *americana* (Wiedemann)
 Posterior border of hypogynium with a more or less accentuated
 concavity 2
2. Hypogynium smaller in its anterior than in its posterior border,
 its postero-lateral corners well-developed with projections;
 median concavity in the posterior border very much accentua-
 ted *baschanti* Breuer
 Hypogynium almost as large in the base and in the posterior bor-
 der; postero-lateral corners without projections; median con-
 cavity in the posterior border shallow and small
 *villosa* Rübsaamen

In this key *argentiniensis* Leng. and *guimaraesi*, sp. n., are not included because only males are known. They almost certainly belong to group I as they have setae on section x of the wing and *guimaraesi* is very similar to *baschanti* Breuer.

Rhynchosciara americana (Wiedemann)

(Figs. 1-3, 12, 20, 28, 34, 36, 45, 54, 62, 70)

Sciara americana Wiedemann, 1821: 33 (♀; type-locality: "Brasilien");
 1828: 68 (♀; Brazil); Schiner, 1868: 11 (♀, ♂; Brazil, Rio de
 Janeiro); ? Roeder, 1886: 257 (Bogotá, "nach Popayen").

Sciara atra Macquart, 1838: 78 (♀; type-locality: Brazil, Rio de Janeiro,
 Serra da Estrêla) (Castelnau coll.); 1848: 7; Schiner, 1868: 11.

Rhynchosciara brevicornis Rübsaamen, 1894: 30 (*in part*: specimen
 from coll. Loew).

Rhynchosciara americana; Edwards, 1919: 143.

Rhynchosciara atra; Edwards, 1919: 143.

Rhynchosciara angelae Nonato & Pavan, 1951: 435 (♀, ♂; type-locality:
 Brazil, São Paulo, Praia Grande, Vila Atlântica). *Syn. N.*

Head (fig. 1): prefront (fig. 20) (here intended as the preantennal region of the front) divided by the divergent arms of an inverted Y-shaped sulcus (shown by an arrow) into an anterior and a posterior prefront; anterior prefront covered by irregularly distributed setae, with a tendency to leave the median portion naked; posterior prefront subdivided, in its turn, by the stem of the inverted Y-shaped sulcus into two lateral regions, each one presenting small setae arranged into a group (of 29 and 31 in the lectotype), medially localized, not reaching the

borders of these lateral superior regions; prementum (fig. 28) with its lateral wing-like expansions well-developed as large as the length of the apodeme of prementum; the three pairs of tentorial arms of the head's endoskeleton are present (fig. 2); last antennal segment larger than the penultimate (fig. 3).

Wing (fig. 12) with setae on C, R, R₁, R₅, section y; section x with or without setae (0-7, lectotype with 3 setae); c=around 1/2 of w (c = end of C in w; w = section between the ends of R₅ and M₁); st-Cu shorter than section x (in the lectotype); z (a line drawn from the end of R₁ in C to the end of Cu_{1b} on the wing margin) passing distally to the fork of M; fork of M (length of the arms of the fork of M) /st-M = 1,29 (in the lectotype).

Pre-abdomen: small number (generally two) of very small setiform sense organs (indicated by arrow) present in the median anterior part of the second sternite's posterior portion, surrounded by a relatively large halo (fig. 34).

Female genitalia: hypogynium (fig. 36) (anterior part of the transformed sternite VIII) — posterior border straight or slightly concave, postero-lateral corners covered by setae which arrive to the posterior border; hypogynium more or less rectangular, the lectotype with a maximum length of: 0.45 mm, the length in the middle of the sclerite: 0.37 mm and a maximum width: 0.82 mm, (in 15 specimens measured, the maximum length: \bar{x} = 0.42 mm, amplitude: 0.37 mm — 0.45 mm; the length in the middle of sclerite: \bar{x} = 0.35 mm, amplitude: 0.30 — 0.37 mm; the maximum width: \bar{x} = 0.80 mm, amplitude: 0.75 — 0.87 mm); hypogynal valve (fig. 36) (posterior part of the transformed sternite VIII) laterally expanded into ovoid lobes, anterior internal portion of hypogynal valve with setae; arms of the vaginal furca (sclerite localized dorsally in relation to the vagina) (Steffan, 1966: 75, fig. 14) [(named "genital fork" in my paper on *R. baschanti* (1966: 261, 262)], with a typical median thickening (fig. 45).

Male — the male was described as "*angelae*" by Nonato & Pavan (1951: 435), and therefore only details are here furnished: basal inner portion of basistyli not united; dististyli (fig. 54) with 4-6 spines; the proportion between the length of dististylus and basistylus are different between *americana* and another species, here called "sp."; *a* is the length of dististylus, and *b* the length of basistylus, as in fig. 14; (*b* is drawn from the salience of the dorsal border of the cavity of articulation of the dististylus to the hypandrium); the relation *a/b* is of about 0.40 in *R. sp.* and 0.50 in *americana*; posterior border of tegmen (fig. 62) slightly convex, tegmen (Steffan, 1966: 75, fig. 11) (called "aedeagus" in my paper on *baschanti* (1966: 262, 263), ending at either side into a laterally pointed beak; sometimes, these beaks are somewhat pointed to the anterior part of the body; without an elbow between the basistylus bridges (expansion in inner posterior portion of the basistylus) and the dorsal apodemes (fig. 62); ejaculatory valve apodeme as in fig. 70.

TYPE DESIGNATIONS

A female specimen from the typical series studied by Wiedemann, from "Brasilien" marked by me with number "I", in the NMW, was made the lectotype of this species; one other female specimen, marked "II" was elected paralectotype.

A female specimen from MHNP, from "Brazil, [Rio de Janeiro], Serra da Estrêla, Castelnau coll." was made lectotype of *atra* Macquart, and the synonymy with *americana* (Wiedemann), already done by Schiner, is here confirmed.

As in our laboratory several studies are being done on the cytogenetics and chromosome physiology of this species, known as "*angelae* Nonato & Pavan", and as other closely related species are known, and will soon be described, it is necessary, in the interest of the stability of nomenclature, that a neotype of "*angelae*" be designated.

All conditions agree with the requisites of Article 75 of the International Code of Zoological Nomenclature (1964). I therefore elect as the neotype of the species "*angelae*" a female specimen from Brazil, State of São Paulo, Praia Grande, Vila Atlântica, Fazenda Santa Cruz, November 1967 (C. Pavan), which is exactly the same locality whence the original typical series came. The neotype is deposited in the DZSP. The synonymy of *angelae* and *atra* with *americana* is proposed, based on the comparison of the neotype of the first with the lectotypes of the two other species.

ADDITIONAL STUDIED MATERIAL

I have examined the following specimens: 1 ♀, 1 ♂, from Brazil, Guanabara, Rio de Janeiro, August 1857 (Novara Reise), marked with numbers IV and VI (NMW); 1 ♀, from "Brasilien, Westermann", ex coll. Loew (this specimen was considered as *brevicornis* by Rübbsaamen (*l.c.*), who says: "ausserdem besitzt das Museum ein Exemplar aus der H. L. Loew'schen Sammlung" (BZM, n.º II); 4 ♀ from "Paraguay, Fiebrig", (n.º 1, 3, 4, 6), 1 ♀ from "Paraguay, San Bernardino" (Fiebrig) (n.º 2), and 1 ♀ from Argentina, Tucumán, 1100 m, I.1906 (J. Steinbach) (n.º 5) (BZM); 10 specimens, 5 ♀ and 5 ♂, from Brazil, São Paulo, Praia Grande, Vila Atlântica, in the DZSP.

Rhynchosciara sp.

(Figs. 14, 21, 29, 37, 46, 55, 63, 71)

In our laboratory a colony of *Rhynchosciara* from Cidade da Criança, Mongaguá, São Paulo, Brazil, is being reared; the flies present some differences from *americana* (Wied.), as can be seen below. As the studies on this sample are still being undertaken, and I do not have yet evidences whether it is a good species, I give a preliminary description without naming the species.

Body and wings entirely velvety black. ♀ — body length: 6-7 mm; wing length: 7-8 mm. ♂ — body length: 5-6 mm; wing length: 6.5-7 mm.

Head: prefront (fig. 21): anterior prefront covered by irregularly distributed setae, but the central portion of it is naked; each side of the posterior prefront presenting small setae arranged into a group of 7-19 (in 21 flies), and localized in the center in each side, not reaching the borders; genae narrow; prementum (fig. 29) with well-developed wing-like lateral expansions as large, as the length of the apodeme; the three pairs of tentorial arms are present. Last antennal segment longer than the penultimate.

Wing: section x without or with setae (0-4 in 34 wings); c=less than 1/2 of w; st-Cu shorter than section x; z passes distally to the bifurcation of M, very close to it, and occasionally scarcely basally to the bifurcation; fork of M/st-M = \bar{x} 1.46 (in 26 wings).

Pre-abdomen: two very small setiform sense organs present in the second sternite.

Female genitalia: hypogynium (fig. 37) of rectangular outline, very similar to *americana*, but smaller (in 6 specimens the maximum length: \bar{x} = 0.35 mm, amplitude: 0.32-0.37 mm; the length in the middle of sclerite: \bar{x} = 0.30 mm, amplitude: 0.30-0.32 mm; the maximum width: \bar{x} = 0.63 mm, amplitude: 0.55-0.67 mm); postero-lateral corners covered by setae which arrive to the posterior border; hypogynal valve laterally expanded into ovoid lobes, anterior internal portion of hypogynal valve with setae; vaginal furca (fig. 46) similar to that of *americana*, especially the very thick median portion of the arms.

Male genitalia (fig. 14): basal inner portion of basistyli united through a certain extension; dististylus more or less ovoid, with 4-5 spines (fig. 55); length of dististylus (line a) 2/5 of the length of the basistylus (line b = as measured from the salience of the dorsal border of the cavity of articulation of the dististylus to the hypandrium); in its general form, the male genitalia is much more conical than in *americana*; posterior border of the tegmen (fig. 63) convex, ending at either side into a beak pointed to the anterior part of the body; these beaks, according to the position in which they are examined, can also be seen as pointing laterally, as occurs in *americana*; without an elbow between the basistylus' bridges and the dorsal apodemes; ejaculatory valve apodeme (fig. 71) similar to *americana*.

Rhynchosciara sp., is very closely related to *americana* but differs in the following characters: smaller size; inner basal portion of basistyli; length of dististylus in relation to basistylus (in *americana* the length of dististylus equals more or less the half of the length of basistylus); general form of the male genitalia conical; saliences of the ventral borders of the cavities of articulation of the dististyli more evident than in *americana* (fig. 14, v. sa); z closer to bifurcation of M.

Rhynchosciara baschanti Breuer

(Figs. 22, 30, 38, 47, 56, 64, 72)

Rhynchosciara baschanti Breuer, 1967: 259, figs. 1-10 (♀, ♂; type-locality: Brazil, São Paulo, Praia Grande, Mongaguá, Cidade da Criança).

As this species has already been described, only some illustrations of morphological details are given (figs. 22, 30, 38, 47, 56, 64, 72) for purpose of comparison with other species in the genus.

TAXONOMIC DISCUSSION

Baschanti differs from *americana* (Wied.) by the distribution of the groups of setae of the posterior prefront, in the form of the hypogynium, of the vaginal furca and its supports, of the base of the male genitalia, the shape of tegmen, and in the presence of an elbow between the basistylus' bridges and the dorsal apodemes. From *villosa* Rübs. by the same characters as above, except the form of the base of the male genitalia. From *argentiniensis* Leng. in the form of dististyli, tegmen, and presence of the elbow. From *guimaraesi*, sp. n., in the form of tegmen and ejaculatory apodeme.

Rhynchosciara villosa Rübsaamen

(Figs. 6, 15, 23, 39, 48, 57, 65)

Rhynchosciara villosa Rübsaamen, 1894: 29, pl. 1, figs. 3, 5, pl. 2, fig. 5, pl. 3, figs. 8, 20, 24 (♀; lectotype locality: Colombia, Bogotá).
Sciara americana Wiedemann of van der Wulp, 1891: 193 (♀).

Head: prefront (fig. 23): anterior prefront covered by irregularly distributed setae, excluding the median portion and with a central group of small setae (8 in one case) between the arms of the inverted Y-shaped sulcus, and each one of the lateral regions of the posterior prefront with a group of setae almost as long as those of the anterior prefront, those setae arrive almost near the upper border of the posterior prefront but not to the ocellar sclerite; upper border of the posterior prefront, at each side of the insertion of the antennae with an accentuate concavity; the three pairs of tentorial arms are present; wing-like expansions of prementum well-developed; last antennal segment larger than the penultimate.

Wing: section x with or without (2 in the lectotype) setae; $c = 2/5$ of w; st-Cu shorter than x; z passing very near to bifurcation of M in the lectotype, but presenting some variation and sometimes passing distally to the bifurcation of M, as in *americana*; fork of M/st-M = \bar{x} 1.77.

Pre-abdomen: very small setiform sense organs in the second sternite, in small number (6 in one case) situated in the center.

Female genitalia: hypogynium (fig. 39) with a median concavity in the posterior border, the two posterior corners covered with setae;

hypogynal valve (fig. 39) laterally expanded into ovoid lobes, anterior internal portion of hypogynal valve covered with setae; ventral vaginal sclerite (fig. 39) (sclerite localized ventrally in relation to the vagina) bifurcate posteriorly; vaginal furca (fig. 48) with parallel-sided arms, and not incrassate and curved in the middle as in *americana*.

Male: I have received the whole mount of the male of *villosa* studied by Rübsaamen, and it served for the drawings of the wing (fig. 6) and genitalia (fig. 15); however, it may not belong to the same species (*villosa*) as the female, since it was collected in a different locality, and only a mating pair or the rearing of the species in laboratory can decide this question. Anyway, as Rübsaamen included both sexes in the same species, I am going to complete the description of the wing: fork of M/M-st = 1.44; and to describe the genitalia of the male specimen: basal inner portion of basistyli impossible to see, for it was covered by sternite VIII; dististyli (fig. 57) ovoid, with 5 spines; tegmen (fig. 65) ending on both sides by a pointed spine, laterally directed, and without an elbow between the basistylus bridges and the dorsal apodemes.

LECTOTYPE DESIGNATION

Rübsaamen had studied specimens from Bogotá, Caracas, from the "Cordilleras" of Colombia, and Oaxaca, without selecting one specimen as the type. I thereby select as lectotype of this species a female specimen, from Colombia, near Bogotá (Steinheil und Petersen), n.º 7302 of the BZM, marked with n.º VII, and as paralectotypes the female specimens from Venezuela, Caracas (Gollmer); Colombia, "Cordilleras", Tierra Fria n.º III (ancient n.º 6773 of BZM; n.º V) (Thieme) and the male specimen (whole mount), from Mexico, Vera Cruz, Oaxaca (Deppe), now labelled n.º X, all in the BZM.

ADDITIONAL STUDIED MATERIAL

I have examined 5 female specimens from "Colombia" (Nolcken) (in one specimen written as "Nova Granada") (n.º I-V). These specimens are possible topotypes of *villosa*, since Baron J. H. W. von Nolcken travelled with Wilhelm Petersen, the collector of the types, in Colombia, in 1870-71 (Horn & Kahle, 1936: 206). Although more precise locality data are lacking it is possible that all the specimens studied by Rübsaamen and van der Wulp came from the same locality in Colombia.

Only one (n.º III) of these 5 specimens is in the ZMA, because unfortunately, four specimens were destroyed by accident during the transportation by air mail from São Paulo to Amsterdam.

TAXONOMIC DISCUSSION

Villosa differs from *americana* (Wied.) in the distribution of pre-frontal setae and in the form of hypogynium, arms of the vaginal furca and of the dististyli. From *argentinensis* Leng. in the form of tegmen.

From *guimaraesi*, sp. n., in the form of the dististyli and tegmen, and the absence of an elbow between the basistylus' bridge and the dorsal apodeme.

***Rhynchosciara argentiniensis* Lengersdorf, status n.**

(Figs. 7, 13, 17, 18, 58, 66)

Rhynchosciara villosa, var. *argentiniensis* Lengersdorf, 1930: 37 (♂, type-locality: Argentina, Buenos Aires).

Lengersdorf observed some differences in this specimen, which caused it to be described as a variety of *villosa*: however, as I have had the opportunity to study the type, through the courtesy of Prof. Dr. Erwin Lindner, I have found some consistent significant differences in the antennae, wings and genitalia, that indicate that this is a valid species distinct of *villosa* if compared with the male studied by Rübсаamen.

In the following lines I give some details to complete Lengersdorf's description: (the head was not dissected) *argentiniensis* differs from all other species in the genus by its last antennal segment, which is shorter than the penultimate (fig. 13).

Wing (fig. 7): section x with 4 setae; c=shorter than 1/2 of w; st-Cu shorter than x; z crosses the st-M well before the bifurcation of M, in what it differs from all other species; fork of M/st-M = 0.96, fork of M almost equal to length of st-M; in all other species st-M is shorter than the fork of M.

Male genitalia (figs. 17, 18): basal inner portions of basistyli not united (similar to *americana*); dististyli more or less ovoid (fig. 58) with 5-6 spines; posterior border of tegmen convex, ending at either side into a beak pointed to the anterior part of the body (fig. 66), without an elbow between the basistylus' bridges and the dorsal apodemes.

MATERIAL EXAMINED

I have studied the type of this species, a male specimen, from Argentina, Buenos Aires, XII. 1926 (E. Lindner) (SMNS).

TAXONOMIC DISCUSSION

Argentiniensis Leng. differs from all other species by its last antennal segment, which is shorter than the penultimate; in the wing, z crosses st-M well before the bifurcation of M; the length of the arms of the fork of M is almost equal to st-M.

Moreover it differs from *americana* (Wied.) in the form of the dististyli and tegmen; from *guimaraesi*, sp. n., by both characters and by the absence of an elbow between the basistylus' bridge and the dorsal apodeme; from *milleri* Nonato & Pavan in the form of the dististyli,

tegmen, ejaculatory valve apodeme, and from *mathildae*, sp. n., in the form of the dististyli and tegmen.

Rhynchosciara guimaraesi, sp. n.

(Figs. 16, 19, 59, 67, 73)

Rhynchosciara brevicornis Rübsaamen of Enderlein, 1911: 145 (♂, type-locality: Brazil, Santa Catarina, Colônia Hansa = Corupá).

This specimen has been identified by Enderlein as *brevicornis*. Examining the specimen, I have had the opportunity to dissect the genitalia, and I found that, although very similar to *baschanti* Breuer, it has some significant differences, which have led me to create a new species.

I have not had the permission to dissect the head; the last antennal segment is larger than the penultimate.

Wing: section x with 10 setae, $c = 2/5$ of w, st-Cu shorter than x, z passing distally to the bifurcation of M; fork of M/st-M = 1.45.

The male genitalia (figs. 16, 19) differs from *baschanti* in being more robust; the basal inner portions of basistyli are united through a certain extension, the dististyli have 5-6 spines (fig. 59); posterior border of tegmen (fig. 67) more curved and convex than in *baschanti*, ending at either side into a beak pointed to the anterior part of the body; tegmen in relation to the dorsal apodemes shorter than in *baschanti*; both species show an elbow (figs. 16, 67, 64) between the basistylus' bridges and the dorsal apodemes; arms of the ejaculatory apodeme (fig. 73) with an angle more acute, the stem being more curved and longer than in *baschanti*.

Female: unknown.

Holotype male, from Brazil, Santa Catarina, Colônia Hansa (= Corupá) (Luederwaldt) marked by me with n.º IX (BZM).

TAXONOMIC DISCUSSION

Enderlein thought that this specimen was the male of *brevicornis*, but *brevicornis* belongs to group III which does not show setae on section x, while *guimaraesi*, sp. n., has 10 setae on that section; *guimaraesi*, sp. n., is very closely related to *baschanti* which belongs to group I, differing from the latter in general form of the male genitalia, the posterior border of the tegmen, as well as its shorter length, when compared to the dorsal apodemes, in the more acute angle of the arms of the ejaculatory apodeme, and the longer length of the latter's stem. It differs from *americana* (Wied.) in the form of the base of the male genitalia, of the tegmen, the presence of an elbow between the basistylus' bridges and the dorsal apodemes, and in the form of the ejaculatory valve apodeme; from *milleri* in the form of the dististyli, tegmen and ejaculatory valve apodeme; and from *mathildae* in the form of the tegmen and ejaculatory valve apodeme.

This species is dedicated to Mr. José Henrique Guimarães, of the Departamento de Zoologia da Secretaria da Agricultura do Estado de São Paulo.

GROUP II

(milleri-like)

Key to species (females only)

1. Posterior border of hypogynium more or less straight (fig. 41) ...
..... *grelleti*, sp. n.
- Posterior border of hypogynium with an accentuated concavity, presenting in its middle a sclerotized projection (fig. 40) ...
..... *milleri* Pavan & Breuer

Since only of *milleri* both sexes are known, *grelleti* being described solely based on females, the key is given only based on females.

***Rhynchosciara milleri* Pavan & Breuer**

(Figs. 24, 31, 35, 40, 49, 60, 68, 74)

Rhynchosciara milleri Pavan & Breuer, 1955: 330, figs. 1-12. (♀, ♂, type-locality: Brazil, São Paulo, Praia Grande, Vila Atlântica).

The following details will complement the original description:

Head: prefront (fig. 24): stem of the inverted Y-shaped sulcus short; consequently anterior prefront long; anterior prefront covered by irregularly distributed setae, and with a group of small setae situated in the triangle delimited by the divergent arms of the Y-shaped sulcus, in this, *milleri* differs from *grelleti*; posterior prefront with a group of setae in each side of stem of the Y-shaped sulcus, which reach to the upper border (24-35 in 10 groups of setae in females); prementum (fig. 31) with laterally-developed wing-like expansions, not well developed, but these larger than in *grelleti*; prementum apodeme very long in relation to the width of the wing-like expansions; dorsal arms of tentorium absent, sometimes only represented by a very small vestige in the anterior tentorium.

Wing: section x without setae, sometimes only 1 appears in the transition with section y; $c = 1/2$ of w; st-Cu shorter than x; z passing distally to the fork of M; fork of M/st-M: $\bar{x} = 2.16$ in 20 ♀, $\bar{x} = 2.00$ in 10 ♂.

Pre-abdomen: setiform sense organs on second sternite in great number (14-24 in 11 insects) (fig. 35, shown by an arrow).

Female genitalia: hypogynium (fig. 40), with an accentuate concavity in the posterior border, occupied in the middle by a projection; postero-lateral corners of hypogynium covered with setae; hypogynal valve (fig. 40) without pronounced lateral expansions not forming ovoid

lobes; vaginal furca (fig. 49) with a long stem, in what it differs from all other species.

Male genitalia: basal inner portions of basistyli united through a certain extension; dististyli (fig. 60) much thicker on the distal end, with 7-10 spines; between the basistyli, ventrally, there is a slight sclerotized area covered by small and short setae in what it differs from all other species; tegmen (fig. 68) (named hypandrium in Pavan & Breuer, 1955: fig. 4) with fine spinules on the posterior border, and without laterally pointed beaks; ejaculatory valve apodeme (fig. 74) with short arms and a ventral projection.

MATERIAL EXAMINED

The holotype and 13 paratypes, from Brazil, São Paulo, Praia Grande, Vila Atlântica, VI.1951 and X.1955 (C. Pavan) are deposited in the DZSP. I have examined more specimens from the same locality, reared in our laboratories.

Rhynchosciara grelleti, sp. n.

(Figs. 8-10, 25, 32, 41, 50)

Female: body length: 7 mm; wing length: 9-9.5 mm.

Head (figs. 8-9): prefront (fig. 25): stem of the inverted Y-shaped sulcus short, consequently anterior prefront long, being covered by irregularly distributed setae, which do not form a distinct group between the arms of the Y-shaped sulcus, as in *milleri*; posterior prefront similar to *milleri*; the setae reaching the upper border, and being in number of 20-34 setae (in 12 groups of setae); prementum (figs. 10, 32) with not well-developed wing-like lateral expansions, prementum apodeme very long if compared to the wing-like expansions; dorsal arm of tentorium (fig. 9) absent.

Wing: section x without setae, sometimes 1 appears in the transition with section y; $c = 1/2$ of w, or more; st-Cu shorter than section x; z passing distally to the fork of M; fork of M/st-M = 1.64.

Pre-abdomen: setiform sense organs on second sternite in large numbers (14-19 in 6 insects).

Female genitalia: hypogynium (fig. 41) long, with a straight slightly curved posterior border; postero-lateral corners covered with setae; antero-lateral borders with a concave profile; hypogynal valve (fig. 41) without pronounced lateral expansions, not forming ovoid lobes, but more angulate than in *milleri*; vaginal furca (fig. 50) with small supports. Male: unknown.

Holotype female, from Peru, Machu-Picchu (on ruins, 2600-2800 m), VII.1964 (B. Malkin), and paratype female, same data as holotype, in DZSP.

TAXONOMIC DISCUSSION

Rhynchosciara grelleti, sp. n., differs from *milleri* Pavan & Breuer in the distribution of the setae on the anterior prefront, in the form of the hypogynium and in the form of the supports of the vaginal furca in which it differs from all other species.

This species is dedicated to my great friend Mr. Milton Grellet.

GROUP III

(*mathildae*-like)

Key to species (females only)

1. Anterior border of hypogynium narrower than the posterior border; setae in the postero-lateral corners arriving to the posterior border 2
- Anterior border of hypogynium almost as wide or wider than the posterior border; setae in the postero-lateral corners not arriving to the posterior border (fig. 43) *busaccai*, sp. n.
2. Posterior border of hypogynium with a median projection in the concavity, antero-lateral borders with a concave profile (fig. 44) *mathildae*, sp. n.
- Posterior border of hypogynium concave, but without a median projection (fig. 42) *brevicornis* Rübsaamen

Only *mathildae* is represented by both sexes; the two other species are known only from females.

***Rhynchosciara brevicornis* Rübsaamen**

(Figs. 42, 51)

Rhynchosciara brevicornis Rübsaamen, 1894: 30, pl. 2, fig. 4 (♀, type-locality: Venezuela, La Guayra).

I have not had the permission to dissect the head; last antennal segment larger than the penultimate; Rübsaamen erred in his drawing, representing the antenna with 2+15 segments — the type has only 2+14.

Wing: section x without setae; setae of section y do not reach section x; c = slightly more than 1/2 of w; st-Cu shorter than x; z passing distally to the fork of M; fork of M/st-M = 1.56.

Female genitalia: hypogynium (fig. 42) with the posterior border somewhat concave; the two posterior corners covered with setae; antero-lateral borders of hypogynium without a concave profile in what it differs from *mathildae*; hypogynal valve (fig. 42) with laterally-expanded projections, which do not form ovoid lobes, vaginal fork (fig. 51) very similar to *mathildae*.

Male: unknown

MATERIAL EXAMINED

I have seen the female specimen studied by Rübсаamen, n.º 6772 (marked by me as n.º I), which served for his drawings (pl. 2, fig. 4), and which was selected as the lectotype of the species. The lectotype is from Venezuela, near La Guayra (Haeberlin) and is deposited in the ZMB.

Rhynchosciara busaccai, sp. n.

(Figs. 4, 5, 26, 33, 44, 52)

Sciara americana Wiedemann of Osten Sacken, 1886: 1 (in part) (♀).

Female: body length: 7-8 mm; wing length: 8.5-9 mm.

Head (figs. 4,5): prefront (fig. 26): anterior prefront with irregularly distributed setae which occupy also the central portion, being differentiated into a group of small setae in the central posterior part of the anterior prefront; this small group is composed of 12 setae in the holotype; each side of the posterior prefront with a group of small setae situated in the central portion, and less densely set than in *americana*; genae long; prementum (fig. 33) with a long apodeme and with its wing-like lateral expansions shorter than the apodeme, but larger than in *milleri* and *grelleti*; two pairs of tentorial arms present, the dorsal pairs incomplete, not reaching the ocellar sclerite (fig. 5); last antennal segment larger than the penultimate.

Wing: section x without setae, setae of section y do not reach section x; $c = 1/2$ of w; st-Cu shorter than x; z passes distally to the fork of M; fork of M/st-M = 1.60.

Pre-abdomen: setiform sense organs in the second sternite in great number (12 in one case).

Female genitalia: hypogynium (fig. 44) approximately trapezoidal, similar to *americana*; postero-lateral parts covered by setae, which do not reach the posterior border; hypogynal valve (fig. 44) with laterally-expanded projections, not forming ovoid lobes; anterior internal portions of hypogynal valve with setae; vaginal furca (fig. 52) with characteristic lateral outer expansions in the arms (shown by an arrow in the figure).

Male: unknown.

MATERIAL EXAMINED

Holotype ♀, from Costa Rica, Irazu, 6-7000 ft (H. Rogers) n.º 6. 1 ♀ paratype from the same place n.º 5, and 4 ♀ paratypes from Nicaragua, Chontales (Janson) n.º 4, 8, 10, 38, deposited in the BMNH; 1 ♀ paratype from Guatemala, Zapote (G. C. Champion) n.º 3 was deposited in the DZSP.

TAXONOMIC DISCUSSION

Busaccii, sp. n., differs from *brevicornis* Rübs. in the form of the hypogynium and arms of the vaginal furca; and from *mathildae*, sp. n., in the distribution of setae in the posterior prefront, and in the form of the hypogynium and arms of the vaginal furca.

This species is named in honor of Dr. Archimede Busacca, M.D., who gave the first impulse in my scientific career.

Rhynchosciara mathildae, sp. n.

(Figs. 11, 27, 43, 53, 61, 69, 75)

Sciara atra Macquart of Bellardi, 1859: 12 (♂).

Sciara americana Wiedemann of Osten Sacken, 1886: 1 (in part) (♀).

Rhynchosciara villosa Rübsaamen of Enderlein, 1911: 116 (♂).

Head: prefront (fig. 27): stem of the inverted Y-shaped sulcus short; anterior prefront covered by irregularly distributed setae, also in its central portion, and with a group of smaller setae (18 in one case) in the central superior part; posterior prefront with irregularly distributed setae in either side of the stem of the inverted Y-shaped sulcus, which reach the upper border and the eyes' margin, in what it differs from all other species; upper border of the posterior prefront, below the insertion of antennae, with a very concave outline; genae long; premetum with well-developed laterally expanded wing-like projections, but shorter than length of apodeme; three pairs of tentorial arms present (found in 1 ♀ and 1 ♂), in 1 ♀ the dorsal arms are atrophied, not reaching the ocellar sclerite (like fig. 5); last antennal segment longer than the penultimate.

Wing: section x without setae, setae of section y do not reach section x; $c =$ less than $1/2$ of w ; $st-Cu$ shorter than x (in 1 specimen it is longer); z passing distally to the fork of M ; fork of $M/st-M = 1.62$.

Pre-abdomen: setiform sense organs on the second sternite in great number (15, in the holotype).

Female genitalia: hypogynium (fig. 43), the posterior border receding, with a median sclerotized beak, very much characteristic, somewhat similar to *brevicornis*; postero-lateral corners with setae; antero-lateral borders with a concave profile; hypogynal valve (fig. 43) with lateral expansions, not forming ovoid lobes; vaginal furca (fig. 53) with the median portion of the arms not so thickened as in *americana*, but similar to *brevicornis*.

Male genitalia (fig. 11): basal inner portions of basistyli united through a certain extension; dististyli (fig. 61) slightly thicker on the distal end, with 6-8 spines; posterior border of tegmen (fig. 69) slightly convex, ending at either side with very short and indistinct beaks, visible only on certain positions; the posterior border of tegmen

covered with very short spinules; without an elbow between the basis-tylus' bridges and the dorsal apodemes; ejaculatory apodeme with fine and long arms (fig. 75) very characteristic.

MATERIAL EXAMINED

Holotype ♀ (in copula), from Mexico, Vera Cruz, Xico (= Jico) n.º 23 (BMNH), 1 ♀ paratype from Mexico, Vera Cruz, Coscomatepec n.º 15 (*S. atra* Macq. of Bellardi), 2 ♀ paratypes from Costa Rica, Irazu n.º 7, 9 (*S. americana* Wied. of Osten Sacken), and 1 ♂ paratype, from Mexico, Vera Cruz, Xico (=Jico) (n.º 23, in copula, in the same pin as the holotype ♀), in the BMNH; 2 ♀ paratypes, from Mexico, Coscomatepec, n.º I and II, 1 ♀ paratype from Mexico, Orizaba n.º IV and 2 ♂ paratypes from Mexico, Coscomatepec n.º V and VI (*S. atra* Macq. of Bellardi), in the IMZ and finally 1 ♀ paratype from Mexico, Vera Cruz, Coscomatepec n.º III, and 2 ♂ paratypes, from same locality n.º VII and VIII (*S. atra* Macq. of Bellardi) in the DZSP.

One ♂ specimen from Colombia (Moritz) n.º VIII (*R. villosa* Rübs. of Enderlein), in the BZM, presents some differences with the remaining specimens of *mathildae*, in the wing (st-Cu longer than x), dorsal apodeme of the male genitalia shorter and slender, and arms of the ejaculatory apodeme shorter and somewhat more open, hypoproctal valve narrower. However, I consider that these differences are not sufficient to erect a new species, and include this specimen in the species *mathildae*.

TAXONOMIC DISCUSSION

Mathildae, sp. n., differs from *brevicornis* Rübs. in the distribution of setae in the posterior prefront, and in the form of the hypogynium.

This species is named in honor of my mother Mathilde Erps, born Schiller.

UNRECOGNIZED SPECIES

The following species must remain unrecognized, because I have not had access to the types.

"*Sciara cognata*" Walker

Sciara cognata Walker, 1848: 103 (type-locality: Bogotá).

"Mas. *S. praecipuae* coloribus sed alarum venis structura diversa.

Body black: feelers and legs also black: wings piceous, especially along the base of the fore border, which is convex, as in *S. praecipua*: fore border veins black; the rest piceous and slender; the branches of the fork of the third longitudinal vein are less diverging from each other than in *S. praecipua* and lower branch is also more parallel

to the fourth vein in the latter part of its course; poisers black. Length of the body 3 lines; of the wings 8 lines”.

“*Sciara praecipua*” Walker

Sciara praecipua Walker, 1848: 103 (Type-locality: Brazil).

“Mas. Atra, antennis pedibusque nigris, alis nigro-piceis.

Body black: feelers and legs also black: wings dark piceous especially at the base and along the fore border, which is convex from the base to beyond middle; veins of the fore border black: the rest piceous and more slender; poisers black. Length of body 3 1/2 lines; of the wings 9 lines.”

“*Sciara primogenita*” Walker

Sciara primogenita Walker, 1856: 418, (Type-locality: Cayenne).

“Atra; antennae sat validae, thorace vix breviores; abdomen latiusculum, thorace duplo longius; pedes validis, subpubescentes; alae nigricantes, latiusculae, basi et apud costam nigrae.

Deep black — antennae rather stout, nearly as long as the thorax. Abdomen rather broad, about twice the length of the thorax. Legs stout, minutely pubescent. Wings blackish, rather broad, black towards the base and along the costa; veins black; forks of the subapical vein almost as long as the basal part. Length of the body 3 lines; of the wings 8 lines.”

“*Sciara propinqua*” Walker

Sciara propinqua Walker, 1848: 103. (Type-locality: not stated).

“Nigro-fusca, antennis nigris, pedibus piceis, alis nigro-piceis.

Body deep-brown: feelers black; legs piceous; wings dark piceous, especially towards the base, when the fore border is convex: fore border veins black; the rest piceous and more slender. Length of the body 3 lines; of the wings 8 lines.”

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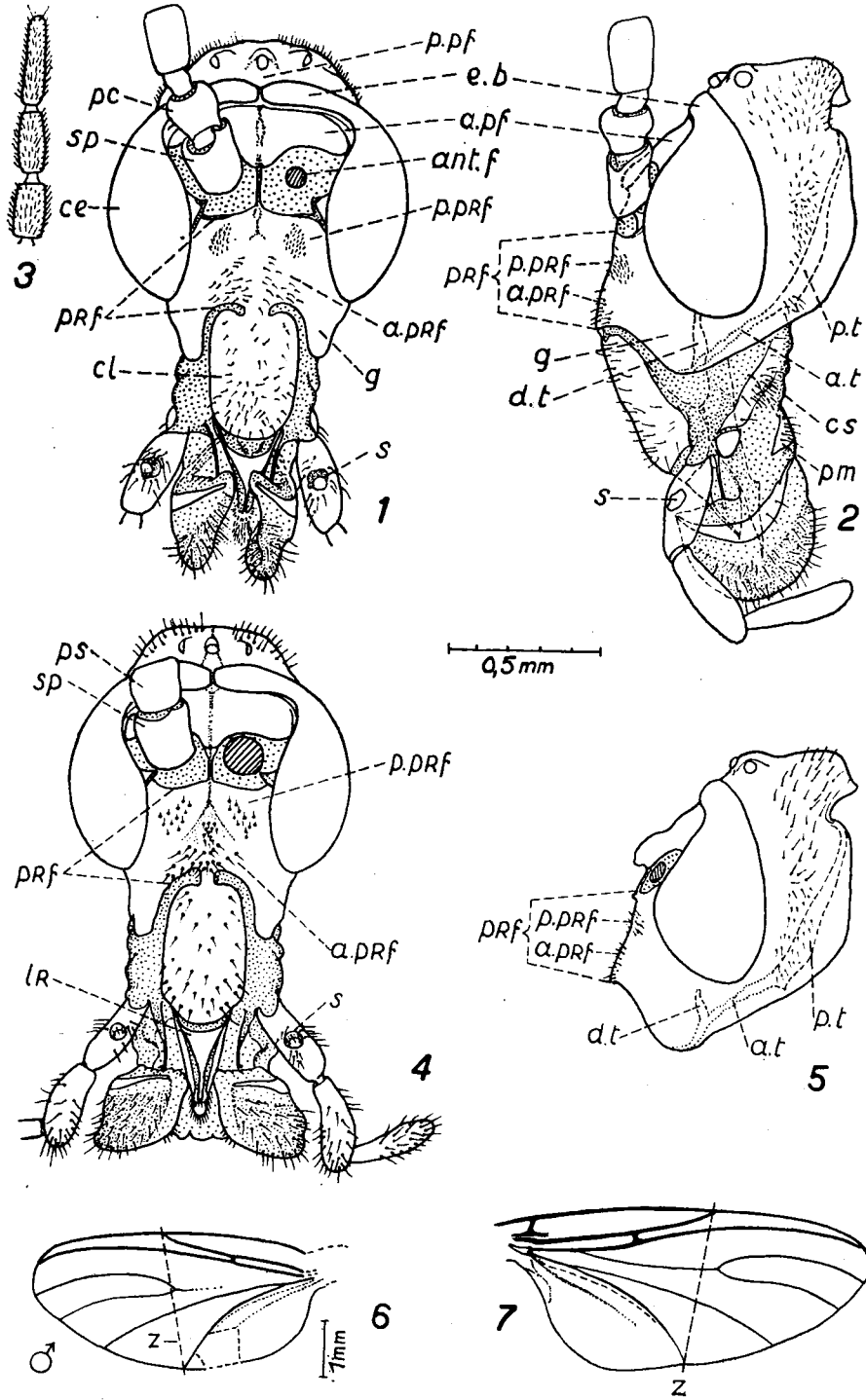


Plate 1: *Rhynchosciara americana* Wied., ♀, lectotype, 1, frontal view of head; 2, lateral view of head; 3, three last segments of antenna; *R. busaccii*, sp. n., 4, frontal view of head; 5, lateral view of head capsule; 6, wing of *R. villosa* Rübsaamen; 7, wing of *argentiniensis* Leng.

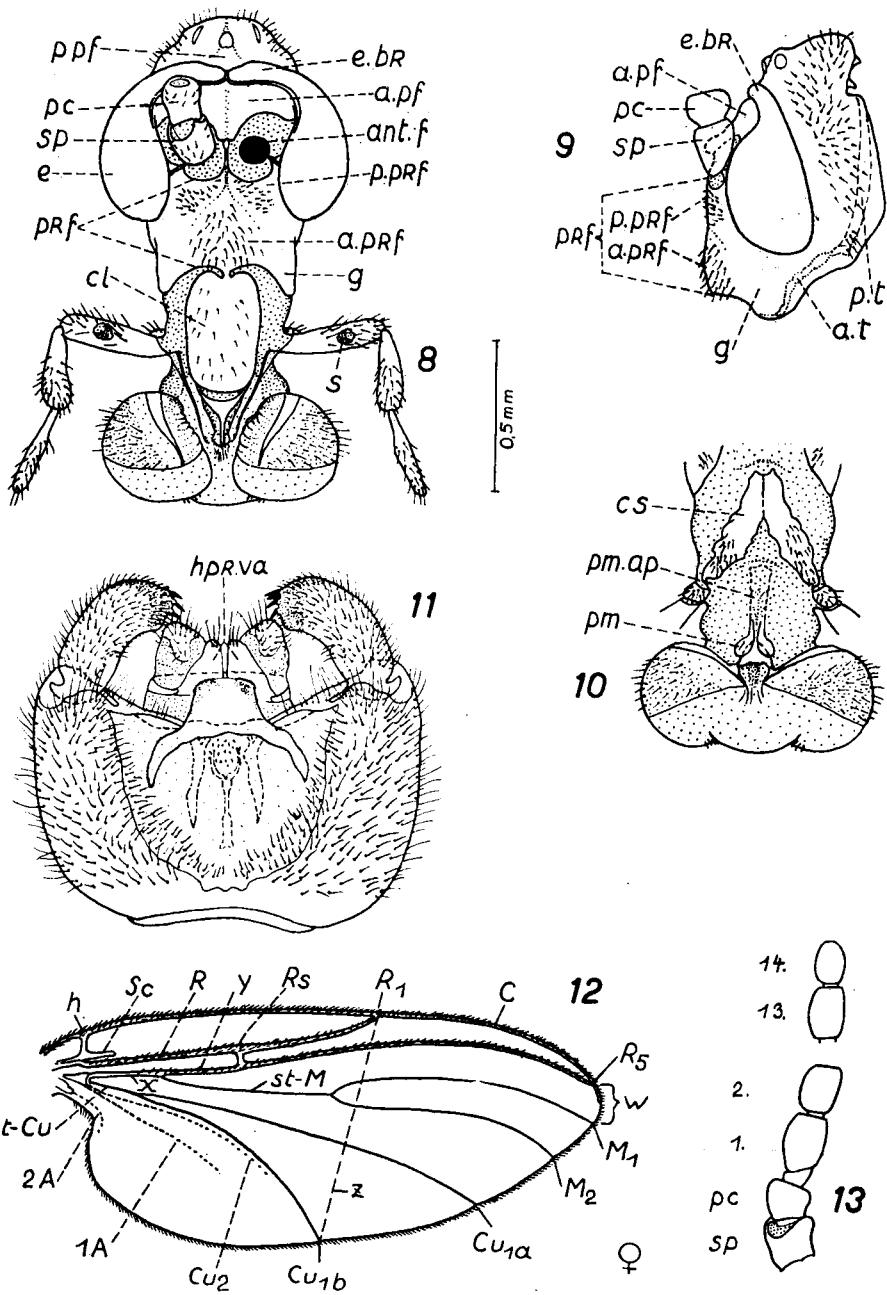


Plate 2: *Rhynchosciara grelleti*, sp. n., 8, frontal view of head; 9, lateral view of head capsule; 10, caudal view of proboscis; 11, *mathildae*, sp. n., ventral view of male terminalia; 12, wing of *americana* Wied.; 13, *argentiniensis* Leng., base and distal end of antenna, setae omitted.

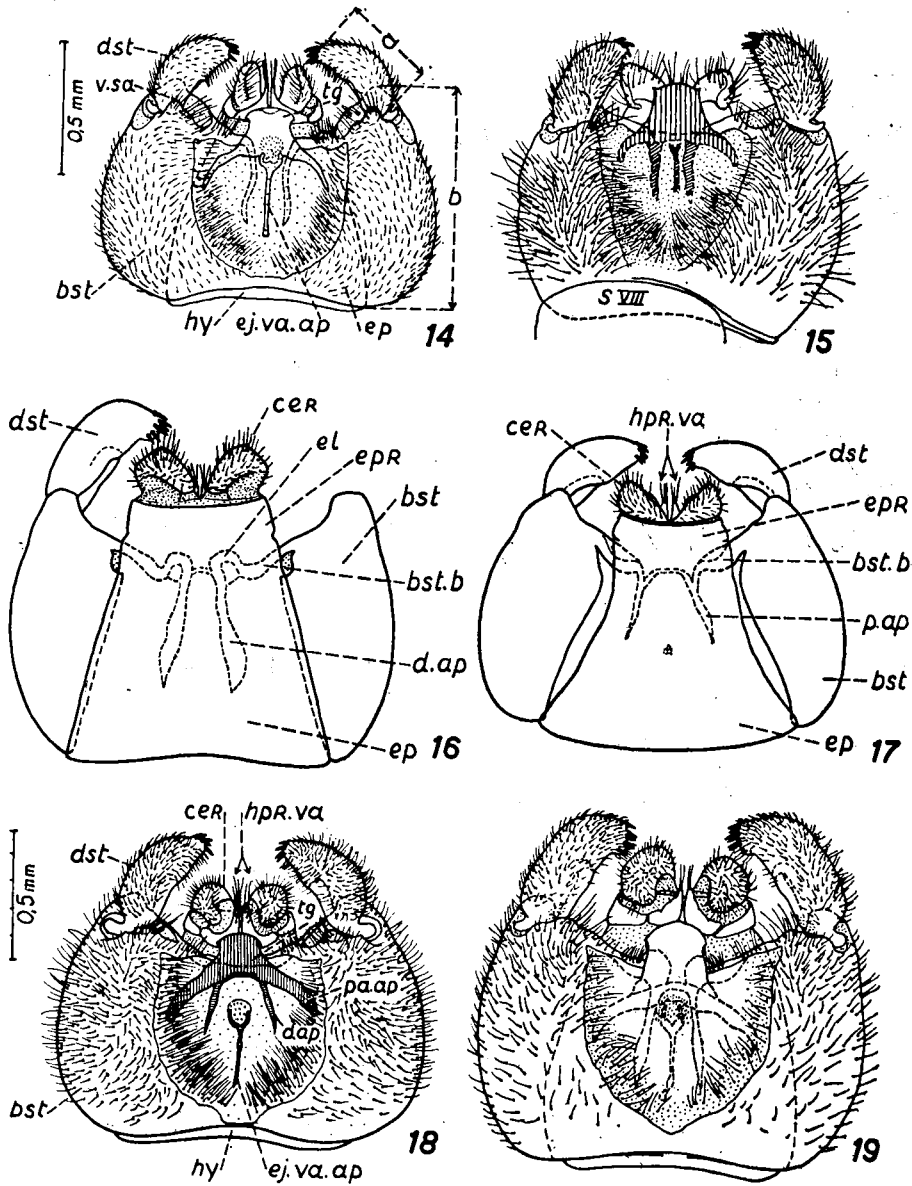


Plate 3: Ventral view of male terminalia: 14, *Rhynchosciara* sp., a, length of dististylus; b, length of basistylus; 15, *villosa* Rübsaamen; 16, dorsal view of male terminalia, *guimaraesi*, sp. n.; 17, *idem*, *argentiniensis* Leng.; 18, ventral view of male terminalia, *argentiniensis* Leng.; 19, *idem*, *guimaraesi*, sp. n.

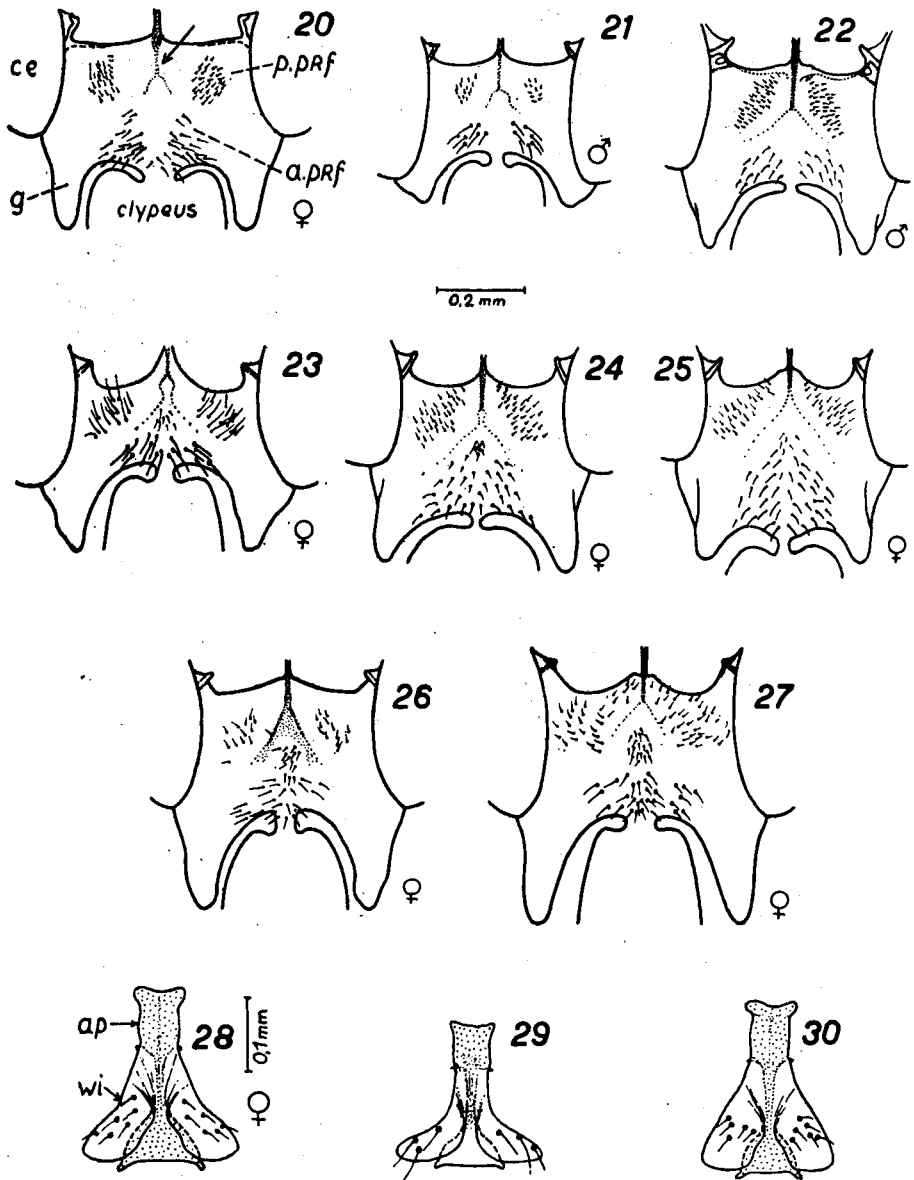


Plate 4: Prefront: 20, *americana* Wied.; 21, sp.; 22, *baschanti* Breuer; 23, *villosa* Rübsaamen; 24, *milleri* Pavan & Breuer; 25, *grelleti*, sp. n.; 26, *busaccati*, sp. n.; 27, *mathildae*, sp. n.; Prementum: group I: 28, *americana* Wied.; 29, sp.; 30, *baschanti* Breuer.

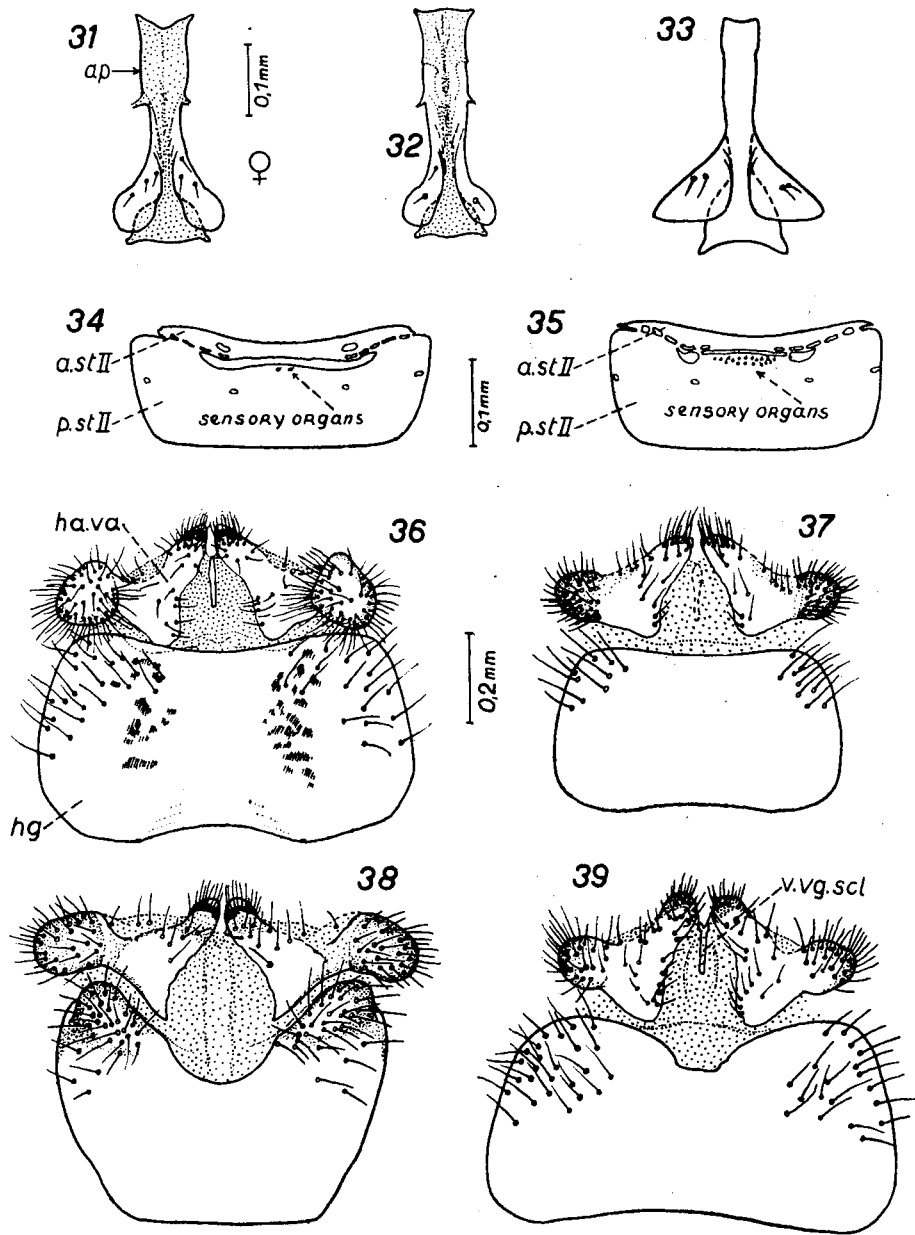


Plate 5: Prementum: group II: 31, *milleri* Pavan & Breuer; 32, *grelleti*, sp. n.; group III: 33, *busaccai*, sp. n.; Abdominal sternite II (setae and other sensory organs omitted): 34, *americana* Wied.; 35, *milleri* Pavan & Breuer; Hypogynium with hypogynal valve: group I: 36, *americana* Wied.; 37, sp.; 38, *baschanti* Breuer; 39, *villosa* Rübsaamen.

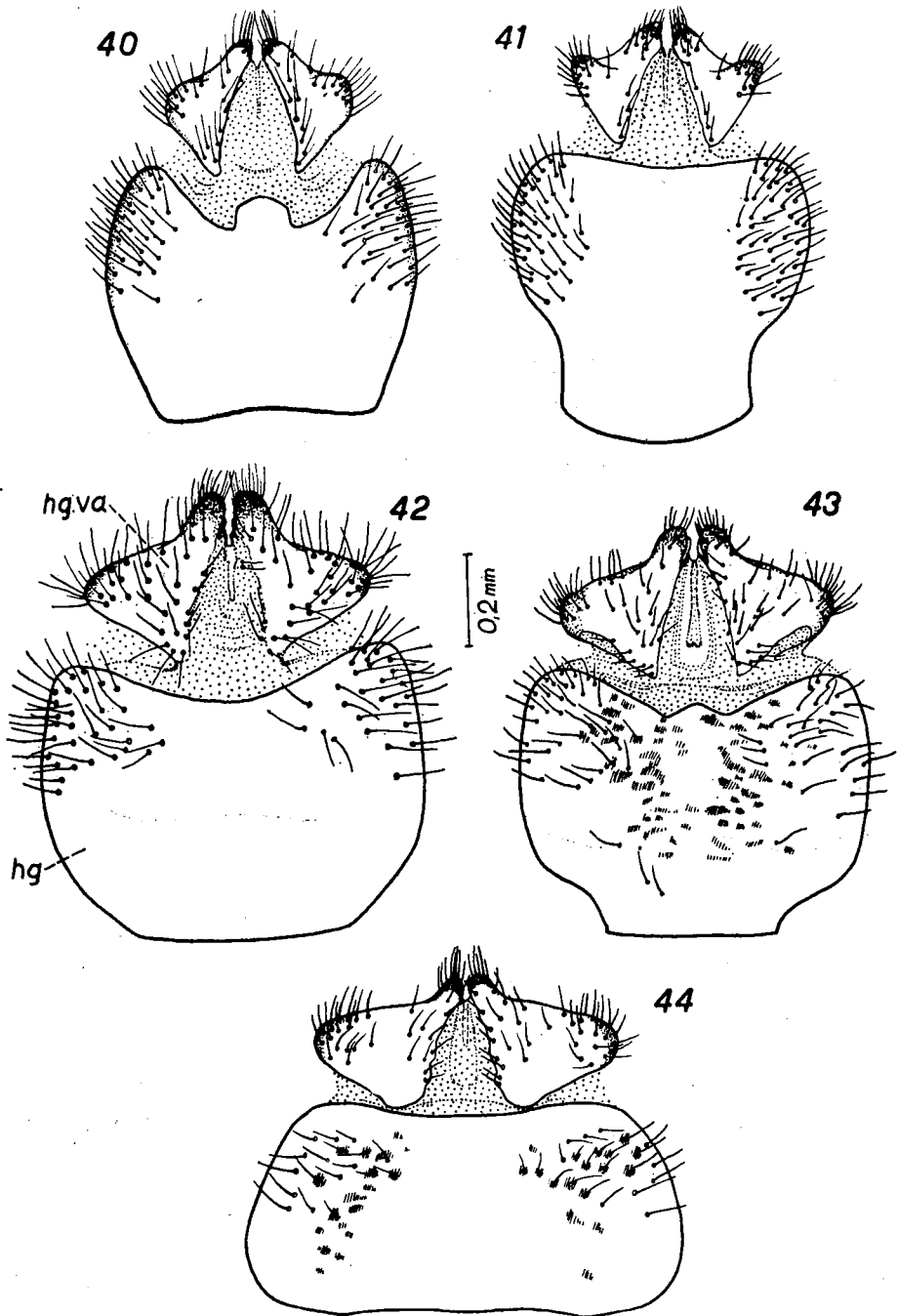


Plate 6: Hypogynium with hypogynal valve: group II: 40, *milleri* Pavan & Breuer; 41, *grelleti*, sp. n.; group III: 42, *brevicornis* Rübsaamen; 43, *mathildae*, sp. n.; 44, *busaccai*, sp. n..

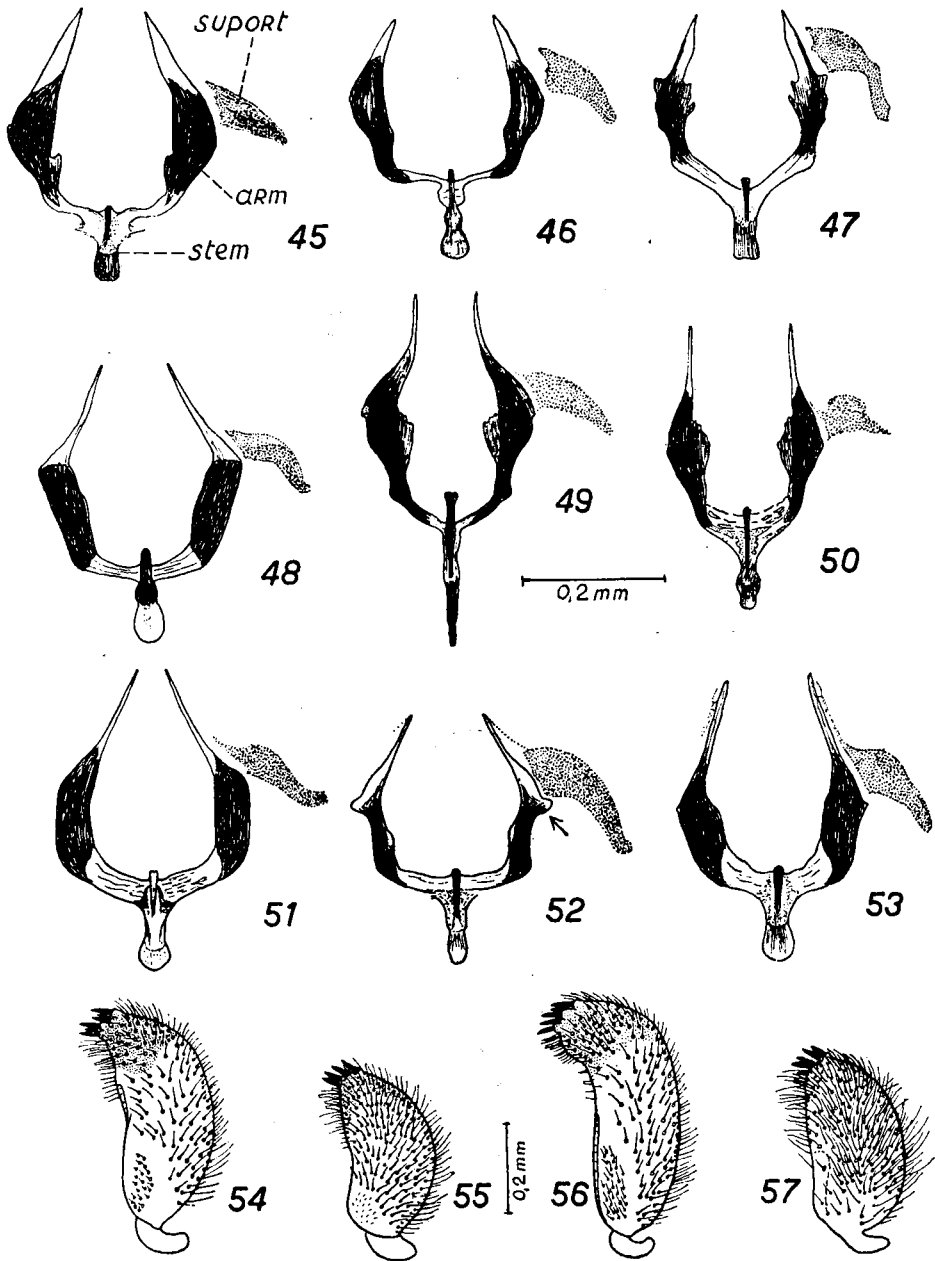


Plate 7: Vaginal furca with supports: 45, *americana* Wied.; 46, sp.; 47, *baschanti* Breuer; 48, *villosa* Rübсаamen; 49, *milleri* Pavan & Breuer; 50, *grelleti*, sp. n.; 51, *brevicornis* Rübсаamen; 52, *busaccai*, sp. n.; 53, *mathildae*, sp. n.; Dististylus: 54, *americana* Wied.; 55, sp.; 56, *baschanti* Breuer; 57, *villosa* Rübсаamen.

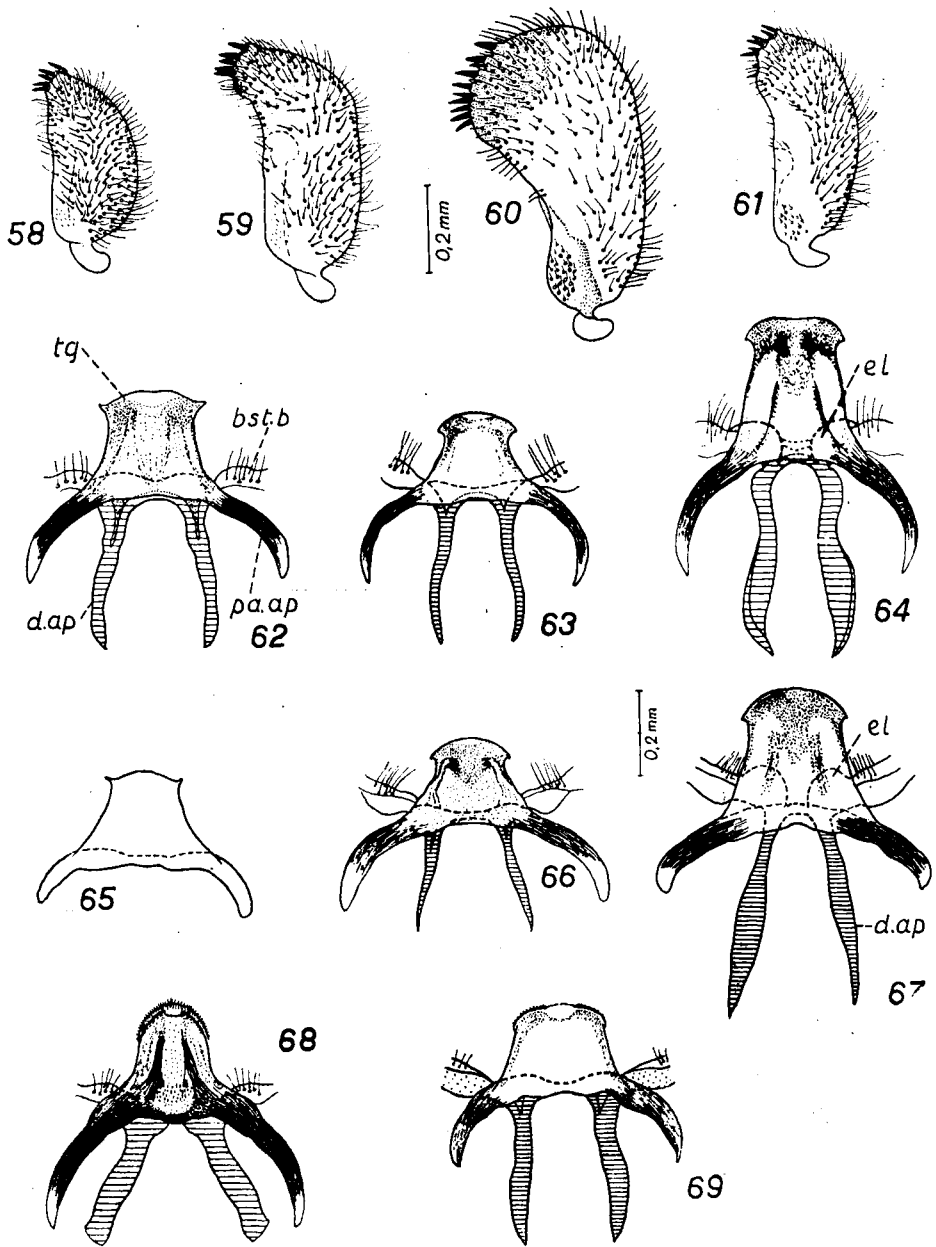


Plate 8: *Dististylus*: 58, *argentiniensis* Leng.; 59, Aedeagus: *guimaraesi*, sp. n.; 60, *milleri* Pavan & Breuer; 61, *mathildae*, sp. n.; 62, *americana* Wied.; 63, sp.; 64, *baschanti* Breuer; 65, *villosa* Rübsaamen; 66, *argentiniensis* Leng.; 67, *guimaraesi*, sp. n.; 68, *milleri* Pavan & Breuer; 69, *mathildae*, sp. n.

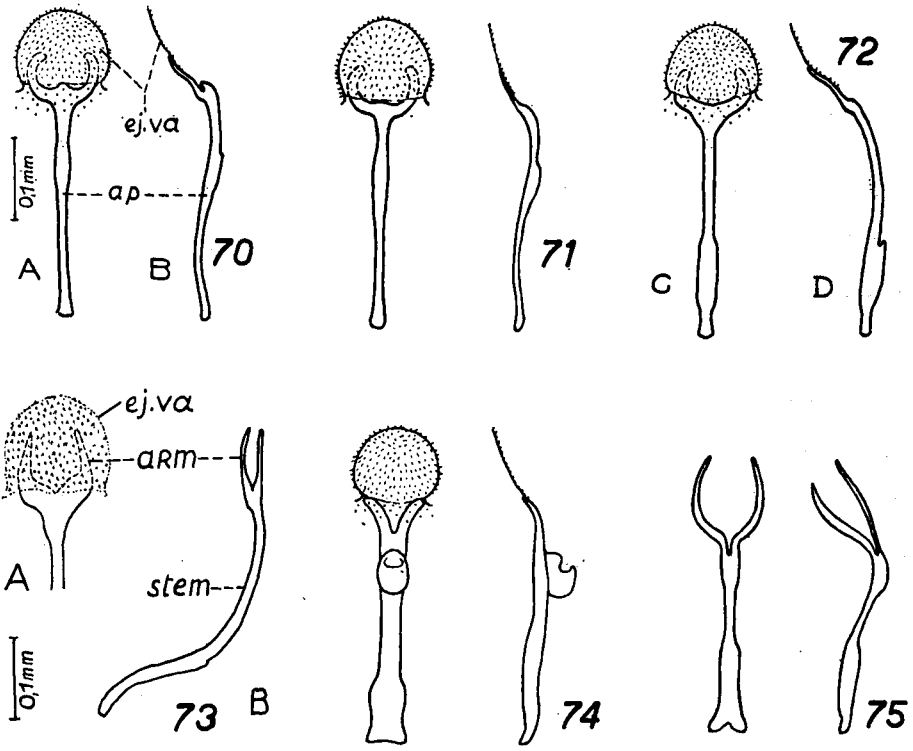


Plate 9: Ejaculatory valve with apodeme: 70, *americana* Wied.; 71, sp.; 72, *baschanti* Breuer; 73, *gutmaraesi*, sp. n.; 74, *milleri* Pavan & Breuer; 75, *mathildae*, sp. n..