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A COLLECTION OF PSOCIDAE (PSOCOPTERA) FROM CENTRAL BRAZIL

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ABSTRACT

An account is given of the adult Psocidae collected in Brazil during the Xavantina/Cachimbo Expedition. Twenty three species are represented: 21 are described as new (representing the genera *Amphigerontia*, *Blaste*, *Cerastipsocus*, *Psococerastis*, *Metylophorus*, *Ptycta*, *Steleops* and *Trichadenotecnum*) and figured, and the other two are regarded as *incertae sedis*. They are also figured.

INTRODUCTION

This paper is part of a taxonomic account of the Psocoptera collected in central Brazil during the Xavantina/Cachimbo Expedition, and deals with one of the largest and most widely distributed families in the order, the Psocidae. The Psocidae of South America are not well-known. Although about a hundred species have been described from the region, many of the descriptions are limited to brief details of colouration and wing venation. Forewings have been illustrated for only about 40 species, and genitalic information published for only seven (*Amphigerontia denticulata* Enderlein, 1910; *Elaphapsocus glaphyrostigma* Roesler, 1940; *Cerastipsocus iguazuensis* Williner, 1945 (by Badonnel, 1962); *Eremopsocus infumatus* McLachlan, 1866 (by Pearman, 1933); *Metylophorus forficularis* Roesler, 1943; *Trichadenotecnum continuatum*, Roesler, 1943; *T. punctipennis* New, 1972). In addition, the genitalia of two species occurring in Guatemala are known (Mockford, 1957). The North American Psocidae are also inadequately known. The genitalia of many species were figured by Chapman (1930), but the generic placing of some of these does not conform to more recent arrangements. A few species have been discussed or described more recently (Sommerman, 1944, 1948).

It appears from the available data that the Psocidae of North and South America are largely distinct, and that few species occur on both continents. However, identification of members of this family from published descriptions is often difficult, and the difficulty is enhanced by

our imperfect knowledge of generic groupings in the Psocidae. Although the genera as delimited by Roesler (1944) and later authors such as Badonnel (1955) and Thornton (1960) are for the most part discrete and separable on wing and genitalic characters, there are a number of generic groups which are hard to separate. The various genera and subgenera allied to *Blaste* Kolbe (1883) and *Euclismia* Enderlein (1910) were separated on male genitalic characters by Thornton (1960), and some females are difficult to place. Similarly, the group of genera allied to *Ptycta* Enderlein (1925) are at present not separable with any confidence.

Three groups of characters are commonly used to separate genera, namely those of the maxillary palpi, the forewings and the genitalia. The length of the maxillary palp is generally used to separate the Cerastipsocini from other Psocidae, but in one African species (*Psocidus guttulatus* Pearman, 1934), Badonnel (1955) found a sexual difference in this character, indicating that some caution in its use is necessary. Forewing venation is of considerable use in generic separation, but many characters assumed in the past to be stable may vary considerably, and their importance has thus been exaggerated. In particular, the mode of R-M fusion is variable, and not all individuals of *Amphigerontia*, for example, have a wellformed R-M crossvein. The shape of the discoidal cell and of the areola postica, the relative positions of the branches of R and M, and the curvature of these veins and of Rs are also subject to variation.

Most reliance in keys must be placed on genitalic characters (again emphasising the difficulty of interpreting inadequate descriptions), and single individuals, especially females, may be difficult to assign to genus. Most known species of *Blastopsocidus* Badonnel (1955), for instance, have a relatively short median lobe to the subgenital plate but one, (*B. caudatus* Badonnel, 1967) has this structure greatly elongated.

Most species described up to about 1930 were placed in the genus *Psocus*. This genus was redefined by Pearman (1932) in a much narrower sense, and he (Pearman, 1934) proposed a 'holding genus', *Psocidus*, to contain all species then excluded from *Psocus* (sens. Pearman, 1932) until their affinities could be clarified by reexamination of the types. Many of these appear to have been lost, little subsequent progress has been made, and about half the described South American Psocidae are still referred to *Psocidus*. In this paper, I have described species as new, as it has not been possible to find solid evidence for their previous description. However, if the types of all described species are ever traced and reexamined, it is possible that a few of those described below may be synonymised — especially in such large genera as *Amphigerontia*, which contain many superficially similar species. It is clear that many species which are very similar in wing characters and colouration are distinct on genitalic characters. Conversely, specimens showing minor variation in wing colour and venation have sometimes been described as separate species in the past, and the extent of such variation can only be checked by dissection of series of specimens.

A few of the species described here may, in fact, be found to typify new genera, but I consider that it is inadvisable to raise new genera in the Psocidae at the present time. The two new species referred to *Steleops* Enderlein (1910) are both represented by single specimens, and no genitalic information on the genus has been published. Both appear to differ from Enderlein's descriptions (1910) and from each other on characters of possible generic significance, but no other stalk-eyed genera have been described. Similarly, the two species described here under *Trichadenotecnum* (sens. lat. Roesler, 1944) differ markedly in characters of the hypandrium and (in one) the phallosome from all other described species, and do not fit adequately into any of Roesler's (1944) subgenera: their gonapophyses and forewings, however, closely resemble those of many *Trichadenotecnum* species. Until more reliable information on the limitations of the various genera, preferably with data on the variability and stability of a wide range of structural characters of a range of species in each, is available, multiplication of genera and subgenera can lead only to greater confusion in this family. The arrangement of genera in this account is that given by Smithers (1967); two particularly anomalous species are regarded as *incertae sedis*.

The specimens described below were collected during the Xavantina/Cachimbo Expedition organised by the Royal Society and Royal Geographical Society, together with the National Research Council of Brazil and other Brazilian Institutions. They were stored in alcohol, and all colours given are of preserved material. Genitalia were stained with acid fuchsin and mounted in Euparal; wings and other appendages were mounted without staining. Measurements are in mm.: for body and wing lengths they are correct to ± 0.02 mm., and for leg and antennal segments to ± 0.003 mm. Types of the 21 named new species will be deposited in the Museu de Zoologia da Universidade de São Paulo and, where possible, some paratypes in the British Museum (Natural History), London.

***Amphigerontia forcepata*, sp. n.**

(Figs. 1-7)

FEMALE

Colouration (in alcohol). Pale buff. Vertex with small dark brown spots dorsal to eyes and over posterior region of epicranial suture. Eyes black. Ocelli small, pale; ocellar region grey. Postclypeal striae strongly defined, narrow, dark grey to black. Anteclypeus pale. Labrum slightly darkened. Genae pale. Maxillary palpi darkened. Antennal base slightly darkened, flagellum dark brown. Thorax dorsally dark brown, with paler areas between lobes. Pleura paler, mainly mid-brown. Legs predominantly pale, tibiae slightly darker than femora, tarsi slightly darker than tibiae. Forewing usually hyaline, pterostigma blackened

and with similar pigment extending posteriorly from stigmal border; irregular brown suffusion sometimes present in basal half of wing, especially at margin of Cu_2 . Hindwing hyaline. Abdomen pale, unmarked or with few small dark brown dorsal markings; genital segments darkened.

Morphology. Forewing (Fig. 1) with Rs and M meeting in a short crossvein; first and second sections of $Cu1a$ of approximately equal length. Subgenital plate (Fig. 2) with broad median process bluntly rounded and with numerous short apical setae; main sclerotised region broad, bifurcate, with numerous short setae. Gonapophyses (Fig. 3) with ventral valve abruptly tapered near apex and bearing spicules; dorsal valve bluntly tapered to a point, with spicules; external valve triangular, with setae of moderate length. Epiproct (Fig. 4) broadly rounded, with numerous short setae apically and few longer lateral setae. Paraproct (Fig. 4) with field of 21 trichobothria. Basal hind tarsal segment with 19 ctenidia, apical hind tarsal segment with 0-2 ctenidia.

Dimensions. Body length (B) 2.95-3.22; Forewing length (FW) 2.860; Hindwing length (HW) 2.068; First flagellar segment length (f1) 0.493; Second flagellar segment length (f2) 0.442; f1/f2 1.115; Hind femur length (F) 0.578; Hind tibia length (T) 1.224; Basal hind tarsal segment length (t1) 0.288; Apical hind tarsal segment length (t2) 0.160; t1/t2 1.800.

MALE

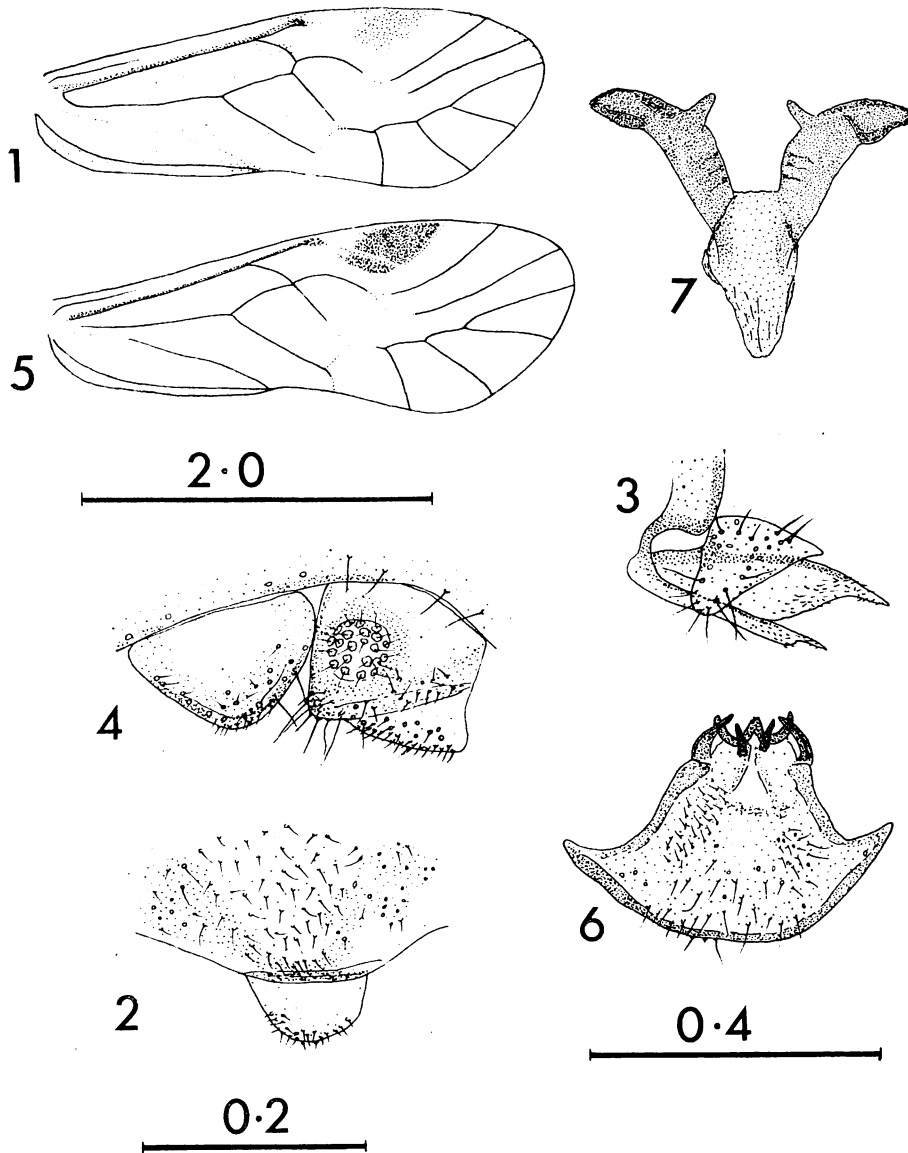
Colouration (in alcohol) as female, but pterostigma and abdomen usually slightly darker.

Morphology. Forewing (Fig. 5) as female. Hypandrium (Fig. 6) symmetrical with lateral groups of short setae on posterior face; apex with single incurved lateral hook on each side, smaller straight spine either side of midline, curved hooks anterior to these and fused in midline. Phallosome (Fig. 7) reduced to internal parameres, bluntly tapered, divergent posteriorly and with prominent blunt peg on inner border. Epiproct rounded with short setae. Paraproct with apical spine and field of about 40 trichobothria. Basal hind tarsal segment with 22 ctenidia, apical hind tarsal segment with 3 ctenidia.

Dimensions. B 2.90-3.15; FW 2.904; HW 2.244; f1 0.544; f2 0.459; f1/f2 1.185; F 0.595; T 1.258; t1 0.324; t2 0.136; t1/t2 2.382.

Holotype ♀, Brazil Mato Grosso, 12°49'W, 51°46'W, swept from cerrado vegetation, 14 September 1968, T. R. New.

Paratypes. All same locality. 5♂♂, 3♀♀, same data; 1♂, beaten 13 September 1968; 13♂♂, 2♀♀, beaten 16 September 1968; 1♀ 'Dry forest', on bark, 17 September 1968; 3♂♂, 1♀, cerrado, 19 September 1968; 3♂♂, 3♀♀, cerrado 23 September 1968; 1♂ Roadside edge of cerradão, on *Borreria* sp. 3 October 1968; 2♂♂, 4♀♀, same data but 5 October 1968.



Amphigerontia forcepata, sp. n. 1, female forewing; 2, subgenital plate; 3, gonapophyses; 4, female epiproct and paraproct; 5, male forewing; 6, hypandrium (posterodorsal aspect); 7, phallosome. (Scales in mm, 1, 5 to same scale; 2, 3, 4, 7, to same scale.)

On balance of characters, this species is referable to *Amphigerontia*, although the apex of the hypandrium is more elaborated than is usual in this genus. Genitalia of other South American species purporting to be *Amphigerontia* are not known, other than for *A. denticulata* Enderlein, and the variation in intensity of wing pigmentation minimises the value of further discussion of its affinities with described species. However, the forewing of *A. birabeni* Williner (1944) from Argentina is rather similar.

***Amphigerontia obscura*, sp. n.**

(Figs. 8-11)

FEMALE

Colouration (in alcohol). Mid brown. Vertex with indistinct darker brown markings dorsal to eyes, across back of head, and along epicranial suture. Eyes black. Ocelli pale, ocellar tubercle black. Postclypeus without distinct striae. Anteclypeus slightly paler than postclypeus, labrum slightly darker. Genae pale. Apical segment of maxillary palp darkened. Antenna with scape and pedicel pale, flagellum darkened. Thorax dorsally mid brown, slightly paler medially. Pleura mid brown. Legs uniform mid brown. Forewing slightly greyed, pterostigma greyish brown. Abdomen pale, unmarked.

Morphology. Forewing (Fig. 8) with Rs and M meeting in crossvein; pterostigma rounded and with venation hyaline; first section of Cula shorter than second section (2:3). Subgenital plate (Fig. 9) with broad bluntly-tapered median process bearing short apical and preapical setae; sclerotised region deeply bifurcate, arms narrow, short setae on surface, especially laterally. Gonapophyses (Fig. 10) with ventral valve slender and bearing spicules; external valve triangular, with pointed posterior projection and rows of long setae. Epiproct (Fig. 11) rounded, with apical and lateral setae. Paraproct (Fig. 11) with field of 27 trichobothria. Basal hind tarsal segment with 16 ctenidia, apical hind tarsal segment with 2 ctenidia.

Dimensions. B 3.72; FW 3.036; HW 2.244; f1 0.493; f2 0.442; f1/f2 1.115; F 0.544; T 1.071; t1 0.264; t2 0.108; t1/t2 2.444.

MALE

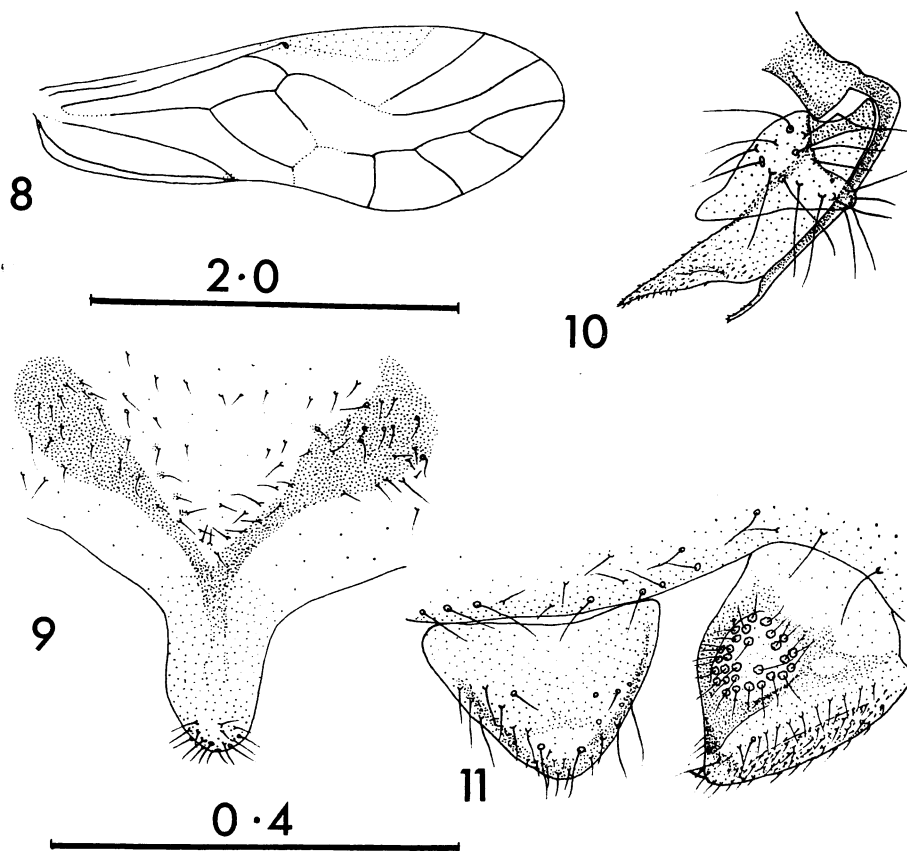
Unknown.

Holotype ♀, Brazil, Mato Grosso, 12°49'S., 51°46'W., cerrado, on bark, 19 April 1969. T. R. New.

Paratype ♀, same data, but 16 September 1968.

This species is readily separable from *A. forcepata* on details of body colouration, especially the lack of postclypeal striae. There are

also genitalic differences, notably the more deeply bifurcated sclerotisation of the subgenital plate and the more prominent posterior lobe to the external gonapophysis valve.



Amphigerontia obscura, sp. n. 8, forewing; 9, subgenital plate; 10, gonapophyses; 11, epiproct and paraproct. (Scales in mm, 9-11 to same scale).

Blaste (Blastopsocidus) brasiliensis, sp. n.

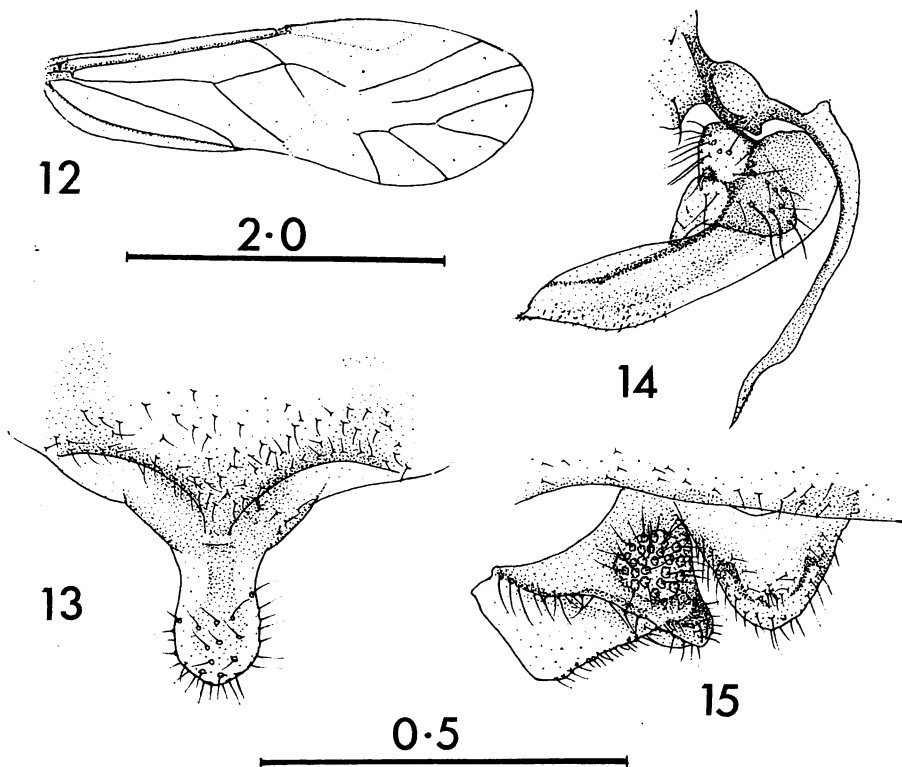
(Figs. 12-15)

FEMALE

Colouration (in alcohol). Pale brown. Vertex with slightly darker brown markings dorsal to eyes and along epicranial suture. Eyes dark grey. Ocelli small, pale; ocellar tubercle black. Postclypeal striae narrow and feebly indicated. Labrum dark brown. Genae pale. Apical segment

of maxillary palp darkened. Antenna with scape and pedicel pale, flagellum darker. Meso- and metathoracic lobes darkened, pleura pale. Legs predominantly pale, tarsi slightly darkened. Forewing with membrane slightly yellowed; pterostigma darker. Hindwing hyaline. Abdomen pale and unmarked.

Morphology. Forewing (Fig. 12) with Rs and M fusing for a short length; pterostigma rounded; first and second sections of Cula about equal. Subgenital plate (Fig. 13) with median process rounded and bearing short setae around margin and on surface; sclerotised arms broadly divergent and with setae absent anteriorly. Gonapophyses (Fig. 14) with ventral valve tapered and bearing few spicules; dorsal valve bluntly tapered to narrow apex and with numerous spicules; external valve small, broadly triangular, bearing setae of moderate length and with tapered posterior lobe. Epiproct (Fig. 15) rounded with numerous setae near margins. Paraproct (Fig. 15) with field of 26 trichobothria. Basal hind tarsal segment with 18 ctenidia, apical hind tarsal segment with 2 ctenidia.



Blaste (Blastopsocidus) brasiliensis, sp. n., female. 12, forewing; 13, subgenital plate; 14, gonapophyses; 15, epiproct and paraproct. (Scales in mm; 13-15 to same scale).

Dimensions. B 3.60; FW 3.300; HW 2.464; f1 0.664; f2 0.544; f1/f2 1.221; F 0.578; T 1.122; t1 0.320; t2 0.120; t1/t2 2.667.

MALE

Unknown.

Holotype ♀, Brazil, Mato Grosso, 12°49'S., 51°46'W., cerrado, on dead palm foliage, 16 April 1969, T. R. New.

Blastopsocidus has hitherto been recorded only from Africa (Baddonnel, 1955, 1967) but, although females of the *Blaste* group are difficult to separate, the gonapophyses of this and the next species strongly indicate their placing in *Blastopsocidus*. In both, the sclerotisation of the subgenital plate is Y-shaped, as in described species of the genus. They are distinct from all African species on genitalic characters.

***Blaste (Blastopsocidus) macrurus*, sp. n.**

(Figs. 16-19)

FEMALE

Colouration (in alcohol). Mid brown. Vertex with conspicuous small brown patches dorsal to eyes and along posterior half of epicranial suture. Eyes black. Ocelli pale; ocellar tubercle small, dark brown. Frons with narrow brown band extending from ocelli to antennal base. Postclypeus pale, striae very indistinct. Labrum dark grey-brown. Maxillary palp grey-brown. Antenna with scape and pedicel grey brown, flagellum black. Thorax dorsally with lobes dark glossy brown, median area paler. Pleura and legs pale. Forewing with grey brown suffusion over whole surface; pterostigma darker. Hindwing hyaline. Abdomen mainly pale, anterior tergites and genital segments dark brown.

Morphology. Forewing (Fig. 16) with Rs and M meeting in a short crossvein, pterostigma rounded; first section of Cula slightly shorter than second section. Subgenital plate (Fig. 17) with long median process bearing marginal and surface setae; main sclerotised region broadly Y-shaped, with numerous short setae. Gonapophyses (Fig. 18) with ventral valve narrow, tapered, bearing spicules; dorsal valve broad, with short apical process and numerous spicules; external valve small, setose, with strongly developed posterior lobe. Epiproct (Fig. 19) trapezoidal, with setae near apex. Paraproct (Fig. 19) with field of 23 trichobothria. Basal hind tarsal segment with 20 ctenidia, apical hind tarsal segment with a single ctenidium.

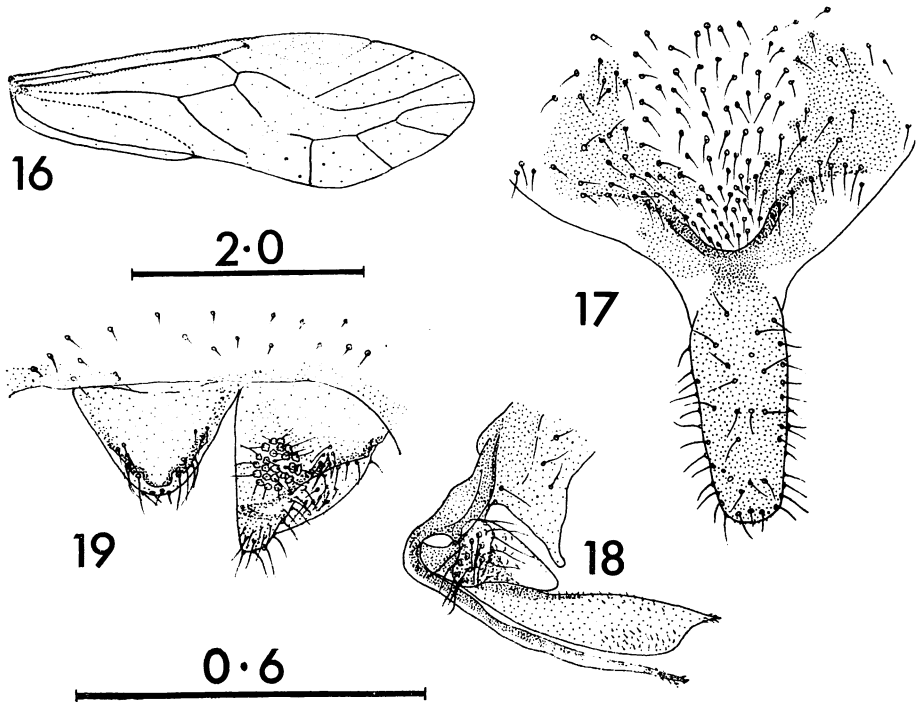
Dimensions. B 4.14; FW 3.838; HW 2.860; f1 0.630; f2 0.612; f1/f2 1.029; F 0.680; T 1.428; t1 0.288; t2 0.148; t1/t2 1.946.

MALE

Unknown.

Holotype ♀, Brazil, Mato Grosso, 12°49'S., 51°46'W., cerradão, on bark, 25 March 1969, T. R. New.

This species is rather similar to *B. brasiliensis*, but is easily separable by the more prominent median lobe to the subgenital plate and on the shape of the dorsal valve of the gonapophyses.



Blaste (Blastopsocidus) macrurus, sp. n., female. 16, forewing; 17, subgenital plate; 18, gonapophyses; 19, epiproct and paraproct. (Scales in mm; 17-19 to same scale).

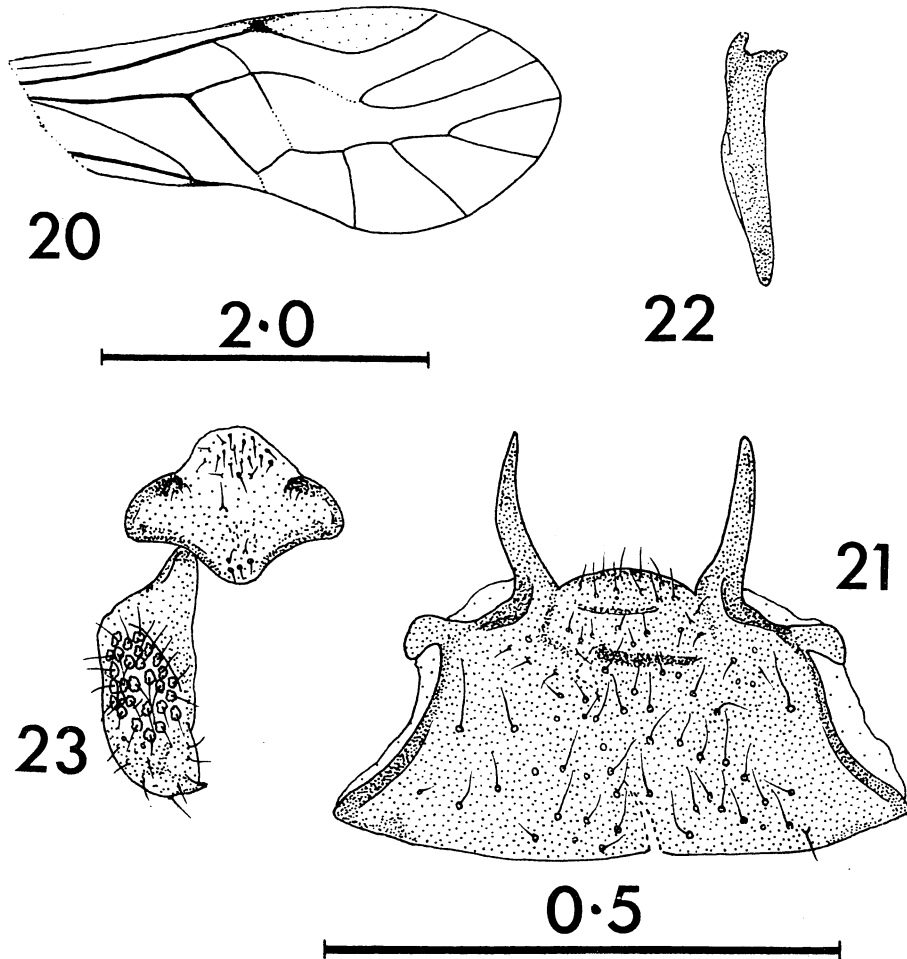
***Blaste richardsi*, sp. n.**

(Figs. 20-23)

MALE

Colouration (in alcohol). Grey brown. Vertex with darker brown streaks either side of midline. Eyes black. Ocelli pale, ocellar tubercle dark brown. Postclypeus darkened medially, not striated. Anteclypeus paler than postclypeus, labrum darker. Genae pale. Maxillary palp dark-

ened. Antennae uniform dark grey brown. Mesothoracic lobes dark glossy brown, with slightly paler intermediate areas; metathoracic lobes uniformly dark. Pleura mid brown. Legs pale grey brown, with apex of tibiae and whole of tarsi darker. Forewing hyaline, pterostigma slightly browned. Hindwing hyaline. Abdomen pale, with numerous small brown dorsal markings; genital segments darkened.



Blastelrichardsi, sp. n., male. 20, forewing; 21, hypandrium; 22, paramere; 23, epiproct and paraproct. (Scales in mm; 21-23 to same scale).

Morphology. Forewing (Fig. 20) with Rs and M meeting almost at a point, pterostigma rounded, first section of Cula slightly shorter than second section. Hypandrium (Fig. 21) symmetrical, with numerous setae and two long laterodorsal spines. Phallosome reduced to inner pa-

rameres (Fig. 22) which are short and slightly hooked, each with an internal preapical spine. Epiproct (Fig. 23) small, diamond-shaped, and with short setae. Paraproct (Fig. 23) with short apical spine and field of 37 trichobothria. Basal hind tarsal segment with 22 ctenidia, apical hind tarsal segment with 3 ctenidia.

Dimensions. B 2.86; FW 3.344; HW 2.552; f1 0.680; f2 0.562; f1/f2 1.210; F 0.680; T 1.378; t1 0.376; t2 0.124; t1/t2 3.032.

FEMALE

Unknown.

Holotype ♂, Brazil, Paraná, nr. Curitiba, on house, 12 March 1970, O. W. Richards.

This male is clearly referable to *Blaste* s. str., the lateral lobes of the hypandrium being particularly prominent, and enabling separation from other described species.

***Blaste alfineta*, sp. n.**

(Figs. 24-27)

MALE

Colouration (in alcohol). Pale brown. Vertex with slightly darker brown markings dorsal to eyes and along epicranial suture. Eyes dark grey. Ocelli pale; ocellar tubercle small, dark grey. Postclypeal striae narrow and indistinct. Labrum darkened. Apical segment of maxillary palp slightly darkened. Antenna pale. Thorax pale, except for discrete darker patches on meso- and metathoracic lobes. Legs pale. Forewing slightly browned, apical half with veins very dark brown. pterostigma yellowish brown. Abdomen pale, unmarked.

Morphology. Forewing (Fig. 24) with Rs and M meeting in short crossvein, pterostigma rounded, first section of Cula slightly shorter than second section (5:6). Hypandrium (Fig. 25) symmetrical and with long setae, especially laterally; apex with single medially-directed blunt hook each side of midline, each with four small articulated 'pegs'. Phallosome reduced to internal parameres; each (Fig. 26) broadened posteriorly and with hook on inner apical border. Epiproct (Fig. 27) with anteriorly-directed lateral arms, short setae centrally and near apex. Paraproct (Fig. 27) with short apical spine and field of about 24 trichobothria. Basal hind tarsal segment with 21-23 ctenidia, apical hind tarsal segment with 2 ctenidia.

Dimensions. B 3.16-3.28; FW 3.124-3.388; HW 2.288-2.332; f1 0.527-0.578; f2 0.493-0.527; f1/f2 1.069-1.097; F 0.612-0.646; T 1.224-1.258; t1 0.304-0.312; t2 0.100-0.124; t1/t2 2.516-3.040.

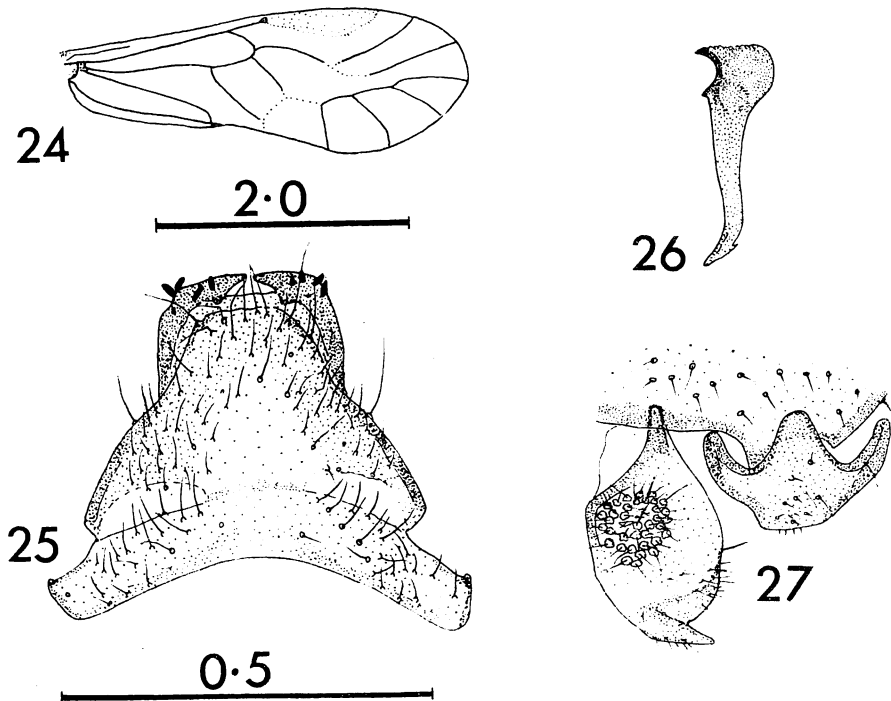
FEMALE

Unknown.

Holotype ♂, Brazil, Mato Grosso, 12°49'S., 51°46'W., cerrado, on dead palm foliage, 30 December 1968. T. R. New.

Paratype ♂, same data.

This species is distinct from the last-named on numerous genitalic characters, and is referred to *Blaste* s.l.. The median lobe of the hypandrium is lacking and, although the lateral lobes are pointed, they are incurved. The small peg-like processes on these are distinctive.



Blaste alfineta, sp. n., male. 24, forewing; 25, hypandrium; 26, paramere; 27, epiproct and paraproct. (Scales in mm; 25-27 to same scale).

***Cerastipsocus beaveri*, sp. n.**

(Figs. 28-34)

FEMALE

Colouration (in alcohol). Pale brown. Vertex with few indistinct markings. Eyes dark grey. Ocelli pale; ocellar tubercle black. Postclypeal striae indistinct, labrum slightly darkened, genae grey. Apical segment of maxillary palp darkened. Antenna with scape and pedicel brown,

flagellum black. Thorax pale, almost cream, not conspicuously darkened in any region. Legs pale except for slight darkening of tibiae and tarsi. Forewing with dark grey brown suffusion as in Fig. 28 and basal venation yellow. Hindwing slightly paler. Abdomen brown, unmarked.

Morphology. Forewing (Fig. 28) with Rs and M fused for a short length, pterostigma angled, R_{2+3} and R_{4+5} separating at a right angle, first section of Cula about twice as long as second section. Subgenital plate (Fig. 29) with long slender median process bearing short setae and spicules near apex; main body of plate lightly sclerotised, with groups of long setae. Gonapophyses (Fig. 30) with ventral valve tapered near apex, bearing spicules; dorsal valve bluntly rounded; external valve large, reniform, with numerous setae and conspicuous posterior membranous lobe. Epiproct (Fig. 31) rounded, with setae of different lengths, some very long. Paraproct (Fig. 31) with field of about 55 trichobothria. Basal hind tarsal segment with 26 ctenidia, apical hind tarsal segment with 7 ctenidia.

Dimensions. B 7.26; FW 6.902; HW 5.134; f1 1.836; f2 2.125; f1/f2 0.864; F 1.445; T 3.026; t1 0.560; t2 0.292; t1/t2 1.921.

MALE

Colouration (in alcohol). As female.

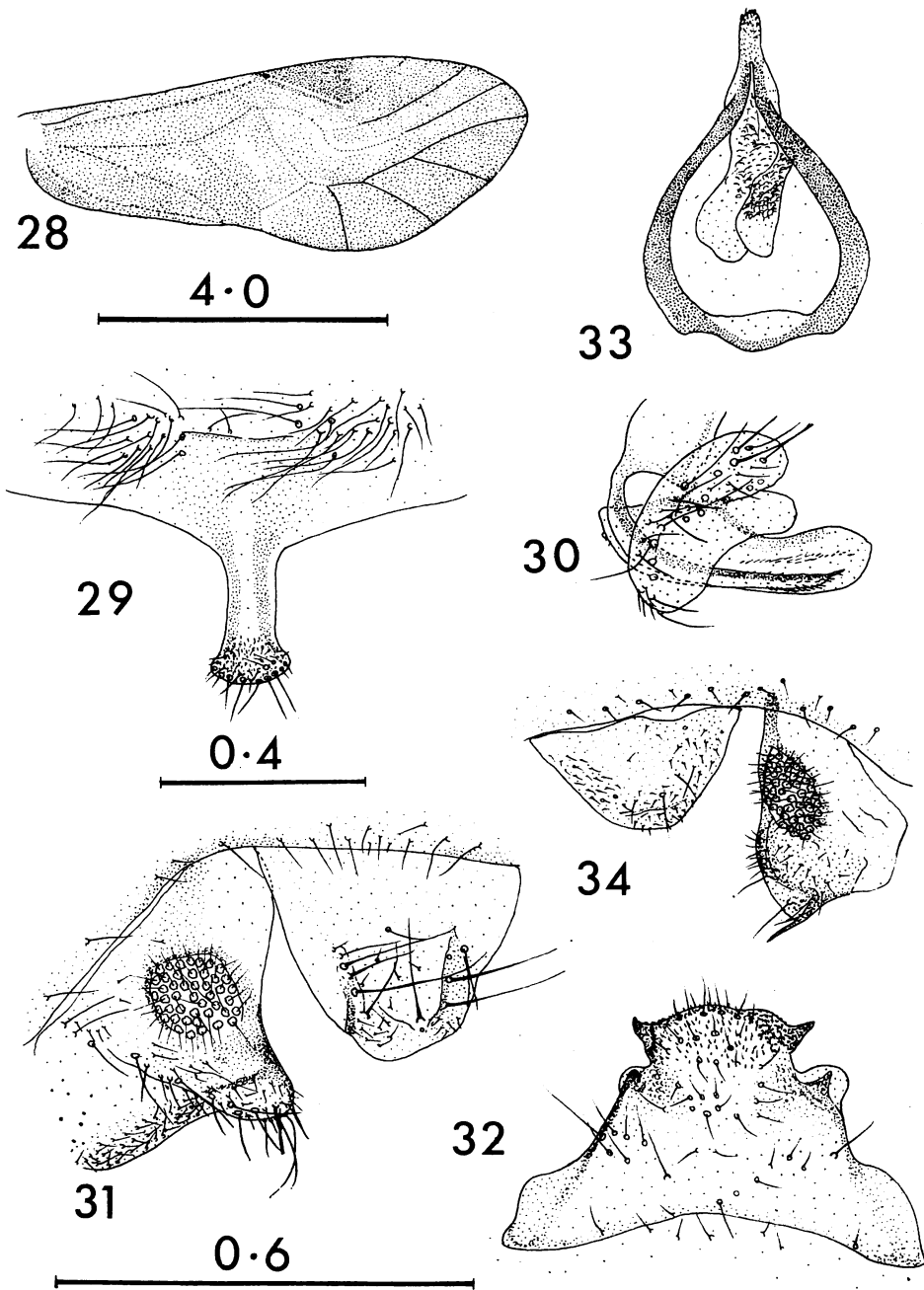
Morphology. Forewing as female. Hypandrium (Fig. 32) symmetrical with setae most numerous dorsally; central dorsal region with spicules; short curved dorsolateral hooks, each with a basal denticular field. Phallosome (Fig. 33) with long narrow posterior process bearing spicules; broad medially and anteriorly rounded; penial bulb with numerous small denticles. Epiproct (Fig. 34) rounded with short lateral setae. Paraproct (Fig. 34) with slender apical spine and field of 64-68 trichobothria. Basal hind tarsal segment with 24 or 25 ctenidia, apical hind tarsal segment with 6 or 7 ctenidia.

Dimensions. B 5.82-7.10; FW 5.661-6.072; HW 3.808-4.180; f1 1.479-1.649; f2 1.666-1.859; f1/f2 0.887-0.890; F 1.190-1.326; T 2.380-2.567; t1 0.532-0.544; t2 0.236-0.260; t1/t2 2.046-2.305.

Holotype ♀, Brazil, Mato Grosso, 12°49'S., 51°46'W., gallery forest, on foliage, 9 December 1968, R. A. Beaver.

Paratypes (all same locality) 2♂♂, 1♀, same data; 1♂, edge of cerradão, swept 20 September 1968, T. R. New; 1♀, gallery forest, 25 September 1968, T. R. New.

The phallosome and paraprocts of this species closely resemble those of a supposed *C. iguazuensis* Williner (1945) figured by Badonnel (1962). However, the hypandrium differs considerably. Badonnel pointed out that his specimen appeared to be closely related to *Psocus ochraceostriatus* Enderlein (1900), and this species is also similar. There are a number of dark-winged *Cerastipsocus* species in South America, and the ones described are difficult to recognise, especially those of Kolbe (1883).



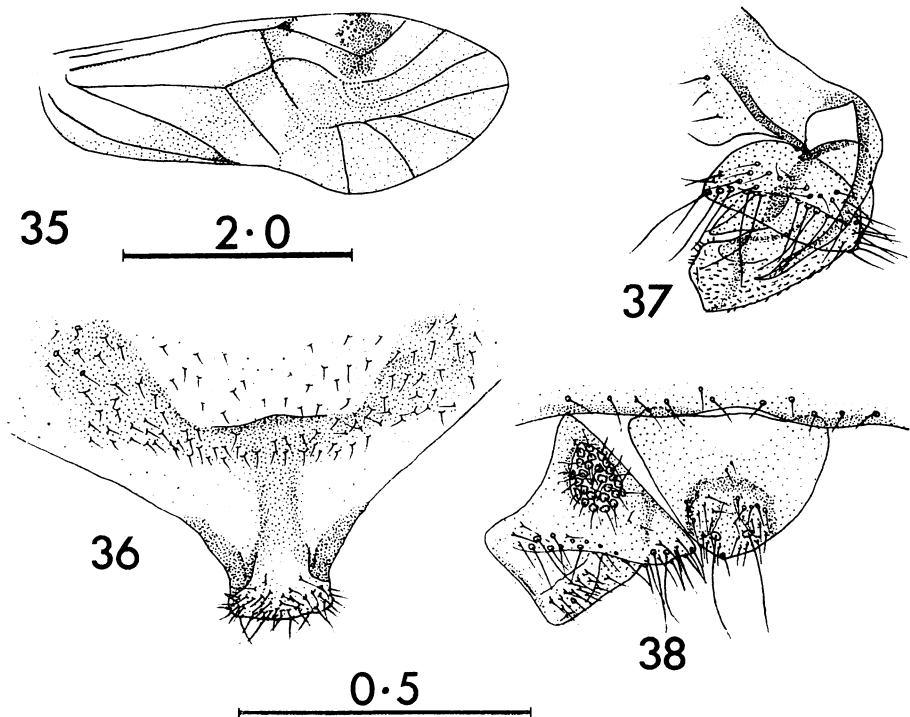
Cerastipsocus beaveri, sp. n.. 28, female forewing; 29, subgenital plate; 30, gonapophyses; 31, female epiproct and paraproct; 32, hypandrium; 33, phallosome; 34, male epiproct and paraproct. (Scales in mm; 29, 30, 32-34 to same scale).

Cerastipsocus kolbei, sp. n.

(Figs. 35-38)

FEMALE

Colouration (in alcohol) Buff. Vertex cream with slight markings in epicranial region, and pale brown markings dorsal to eyes. Eyes dark grey. Ocelli small, pale, ocellar tubercle dark grey. Postclypeal striae in central region only, obsolete at sides of postclypeus. Labrum slightly greyed. Apical segment of maxillary palp darkened. Antenna with scape, pedicel and first flagellar segment pale, rest of flagellum darker. Thorax dorsally dark brown, with median areas paler and anterior mesothoracic lobe blackened. Pleura pale, with some darkening above coxae. Legs pale brown with apex of tibiae and whole of tarsi black. Forewing grey brown, paler near base, and with apical half of pterostigma blackened as in Fig. 35. Hindwing slightly greyed. Abdomen mainly pale, with traces of dark brown dorsal annulations. Genital segments darkened.



Cerastipsocus kolbei, sp. n., female. 35, forewing; 36, subgenital plate; 37, gonapophyses; 38, epiproct and paraproct. (Scales in mm, 36-38 to same scale).

Morphology. Forewing (Fig. 35) with Rs and M meeting in a short crossvein, pterostigma angled, and first section of Cula about twice as long as second section. Subgenital plate (Fig. 36) broad, with short median projection bluntly angled and bearing numerous short setae near apex; main sclerotised region transverse, with arms thickened laterally, bearing numerous short setae. Gonapophyses (Fig. 37) with ventral valve slender and bearing few spicules; dorsal valve rectangular, blunt-ended and with numerous spicules; external valve large, oval, with long setae and small pointed posterior lobe. Epiproct (Fig. 38) rounded, with two long preapical setae and shorter setae. Paraproct (Fig. 38) with field of 24 trichobothria. Basal hind tarsal segment with 22 ctenidia, apical hind tarsal segment with 3 ctenidia.

Dimensions. B 4.52; FW 4.004; HW 2.992; f1 1.054; f2 1.003; f1/f2 1.051; F 0.867; T 1.700; t1 0.440; t2 0.164; t1/t2 2.683.

MALE

Unknown.

Holotype ♀, Brazil, Mato Grosso, 12°49'S., 51°46'W., bred from nymph found on dead branch, gallery forest, 1 February 1969, T. R. New.

Paratype ♀, same data, found as adult.

Most known species of *Cerastipsocus* have the forewings very dark, and this species is unusual in having the basal region pale. It is separable from *C. beaveri* on the shape of the gonapophyses and subgenital plate.

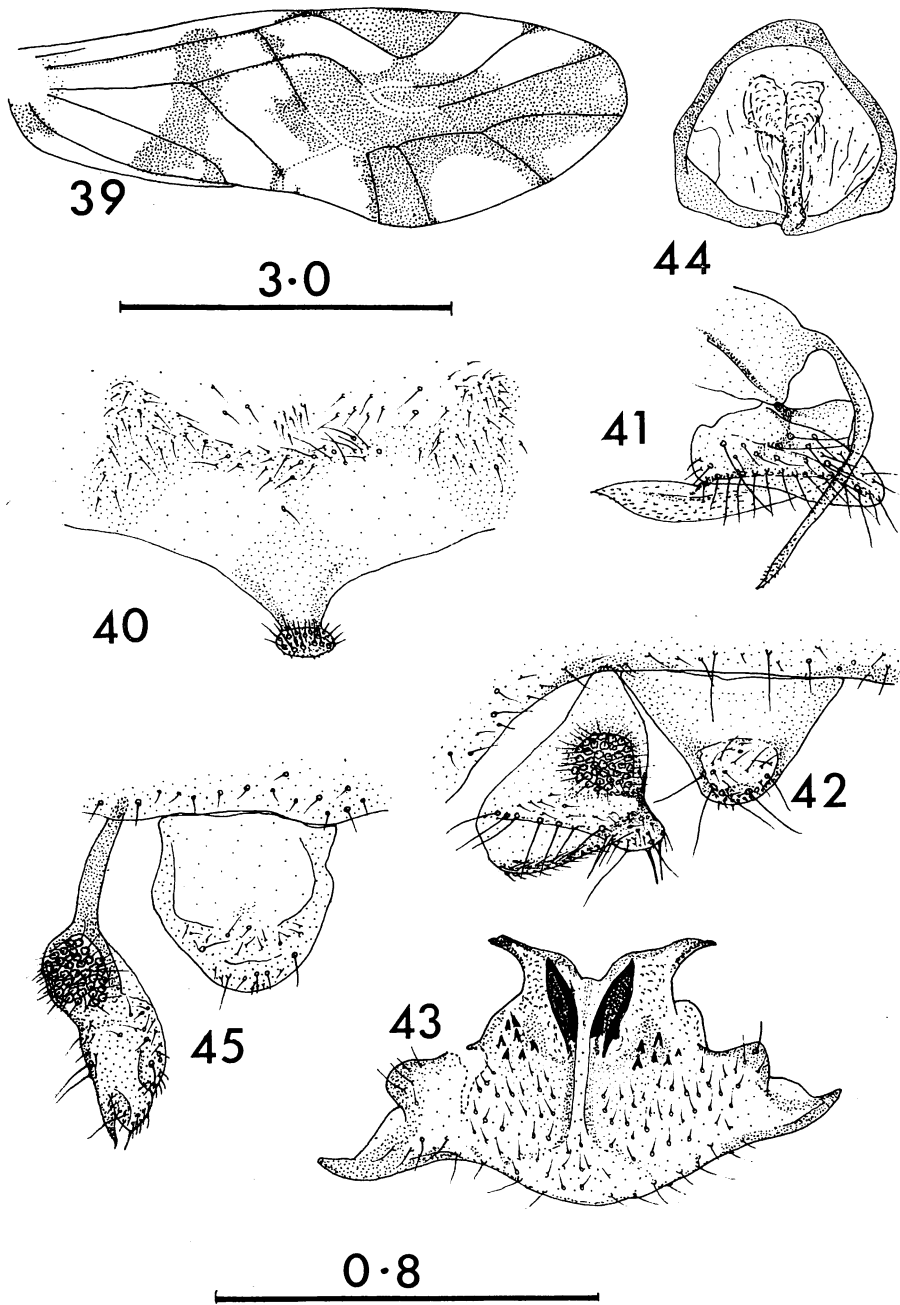
***Psococerastis hageni*, sp. n.**

(Figs. 39-45)

FEMALE

Colouration (in alcohol). Mid brown. Vertex with numerous small grey brown patches. Eyes dark grey. Ocelli pale; ocellar tubercle dark. Postclypeus pale. Labrum grey. Genae pale. Apical segment of maxillary palp darkened. Antennal base slightly darkened, first flagellar segment pale, rest of flagellum darker. Thorax mainly pale, pleura darker. Forewing strongly marked with dark brown (Fig. 39): a transverse band near base of wing, pterostigma and central region of wing dark, cells except m_3 partially hyaline. Hindwing hyaline. Abdomen pale, with few slight dorsal markings.

Morphology. Forewing (Fig. 39) with Rs and M meeting at a point, first section of Cula twice as long as second section. Subgenital plate (Fig. 40) with rounded median projection bearing numerous short setae and spicules; anterior region lightly sclerotised, transverse, and with short setae. Gonapophyses (Fig. 41) with ventral valve slender and bearing spicules; dorsal valve narrow and tapered, with numerous



Psococerastis hageni, sp. n. 39, female forewing; 40, subgenital plate; 41, gonapophyses; 42, female epiproct and paraproct; 43, hypandrium; 44, phallosome; 45, male epiproct and paraproct. (Scales in mm; 40-45 to same scale).

spicules; external valve long, directed anteriorly with numerous long setae and posterior membranous lobe. Epiproct (Fig. 42) rounded and with apical and preapical setae of different lengths. Paraproct (Fig. 42) with field of 33 trichobothria. Basal hind tarsal segment with 22 ctenidia, apical hind tarsal segment with 5 ctenidia.

Dimensions. B. 6.42; FW 5.202; HW 3.485; f1 1.394; f2 1.513; f1/f2 0.921; F 1.020; T 2.176; t1 0.456; t2 0.220; t1/t2 2.073.

MALE

Colouration (in alcohol). As female, but overall slightly darker.

Morphology. Forewing as female. Hypandrium (Fig. 43) symmetrical, with numerous short setae on posterior face; two prominent posterior spines and field of smaller denticles external to these; anterodorsal divergent hooks and small lateral lobes. Phallosome (Fig. 44) simple, broad, rounded, with few small penial sclerites. Epiproct (Fig. 45) rounded. Paraproct (Fig. 45) with long basal arm, short apical spine, and field of 34-36 trichobothria. Basal hind tarsal segment with 23 ctenidia, apical hind tarsal segment with 5 ctenidia.

Dimensions. B. 6.26; FW 5.588; HW 3.652; f1 1.411; f2 1.700; f1/f2 0.830; F 1.054; T 2.142; t1 0.472; t2 0.228; t1/t2 2.070.

Holotype ♀, Brazil, Mato Grosso, 12°49'S., 51°46'W., 'Dry forest', living foliage, 15 September 1968, T. R. New.

Paratypes, 1♂, same data; 1♀ same locality, cerrado on bark, 12 April 1969, T. R. New.

P. hageni most resembles the Oriental species of *Psococerastis* allied to *P. taprobanes* (Hagen, 1858) in having strongly marked forewings. This character is found also in a few African species [such as *P. fulleborni* (Enderlein, 1902)], but *P. hageni* is distinct from all this group for which genitalia have been described on genitalic characters of both sexes. The single South American species at present referred to *Psococerastis* [*P. fumigatus* (Kolbe, 1883)] does not have strongly marked wings. On its wing markings it is possible that *Psocidus opulentus* (Navas, 1930) may also belong to this group.

***Psococerastis interrupta*, sp. n.**

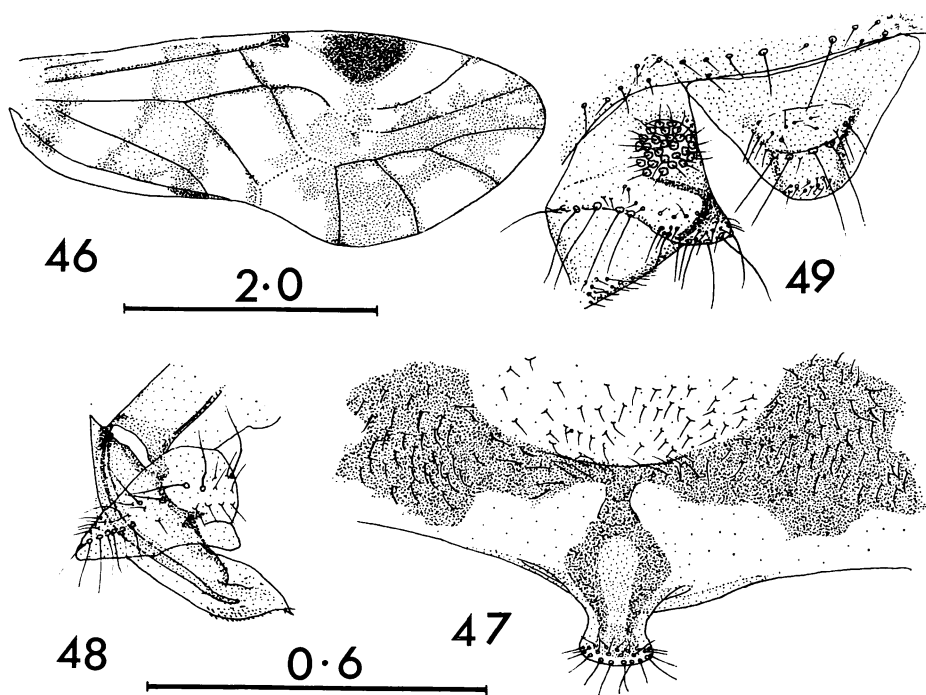
(Figs. 46-49)

FEMALE

Colouration (in alcohol). Pale buff. Vertex with small discrete brown patches dorsal to eyes and flanking epicranial suture. Eyes dark grey. Ocelli pale, each in a small dark brown patch. Frons with small dark brown mark anterior to median ocellus. Postclypeal striae very pale, narrow. Labrum grey. Last two segments of maxillary palp dark brown. Antenna with scape and pedicel dark brown, first flagellar seg-

ment pale brown, rest of flagellum almost black. Thorax with mesothorax dorsally predominantly pale, anterior border darkened; metathorax darker. Pleura pale brown, sutural areas darker. Legs: coxa I pale, coxae II and III darker; all femora greyed dorsally over apical half; tibiae pale except for apical darkening; tarsi darker. Forewing marked with dark brown as in Fig. 46; a broad transverse basal band, pterostigma and much of apical half of wing brown. Hindwing hyaline. Abdomen buff, slightly darker markings dorsally, genital segments dark brown.

Morphology. Forewing (Fig. 46) with Rs and M fused for a short length; pterostigma deep and rounded; first section of Cula about 2.5 times as long as second section. Subgenital plate (Fig. 47) broad, with apex of short median projection rounded and expanded, bearing two rows of setae; main body of plate heavily sclerotised, with numerous short setae. Gonapophyses (Fig. 48) with ventral valve slender and bearing spicules; dorsal valve broad and tapered to short apical process, with spicules; external valve large, bearing long setae, and with small posterior lobe. Epiproct (Fig. 49) rounded, with few long setae and more numerous short setae. Paraproct (Fig. 49) with field of 29 trichobothria. Basal hind tarsal segment with 21 ctenidia, apical hind tarsal segment with 5 ctenidia.



Psococera interrupta, sp. n., female. 46, forewing; 47, subgenital plate; 48, gonapophyses; 49, epiproct and paraproct. (Scales in mm; 47-49 to same scale).

Dimensions. B 4.88; FW 4.532; HW 3.124; f1 1.292; f2 1.564; f1/f2 0.826; F 0.970; T 1.836; t1 0.384; t2 0.200; t1/t2 1.920.

MALE

Unknown.

Holotype ♀, Brazil, Mato Grosso, 12°49'S., 51°46'W., cerradão, dead palm foliage, 16 April 1969, T. R. New.

This species is closely similar to *P. hageni*, and the wing differences may prove to be trivial. However, the differences in the shape of the subgenital plate, in which the anterior sclerotised region is narrower, and of the dorsal valve of the gonapophyses, clearly indicate that it is distinct.

***Metylophorus bishopi*, sp. n.**

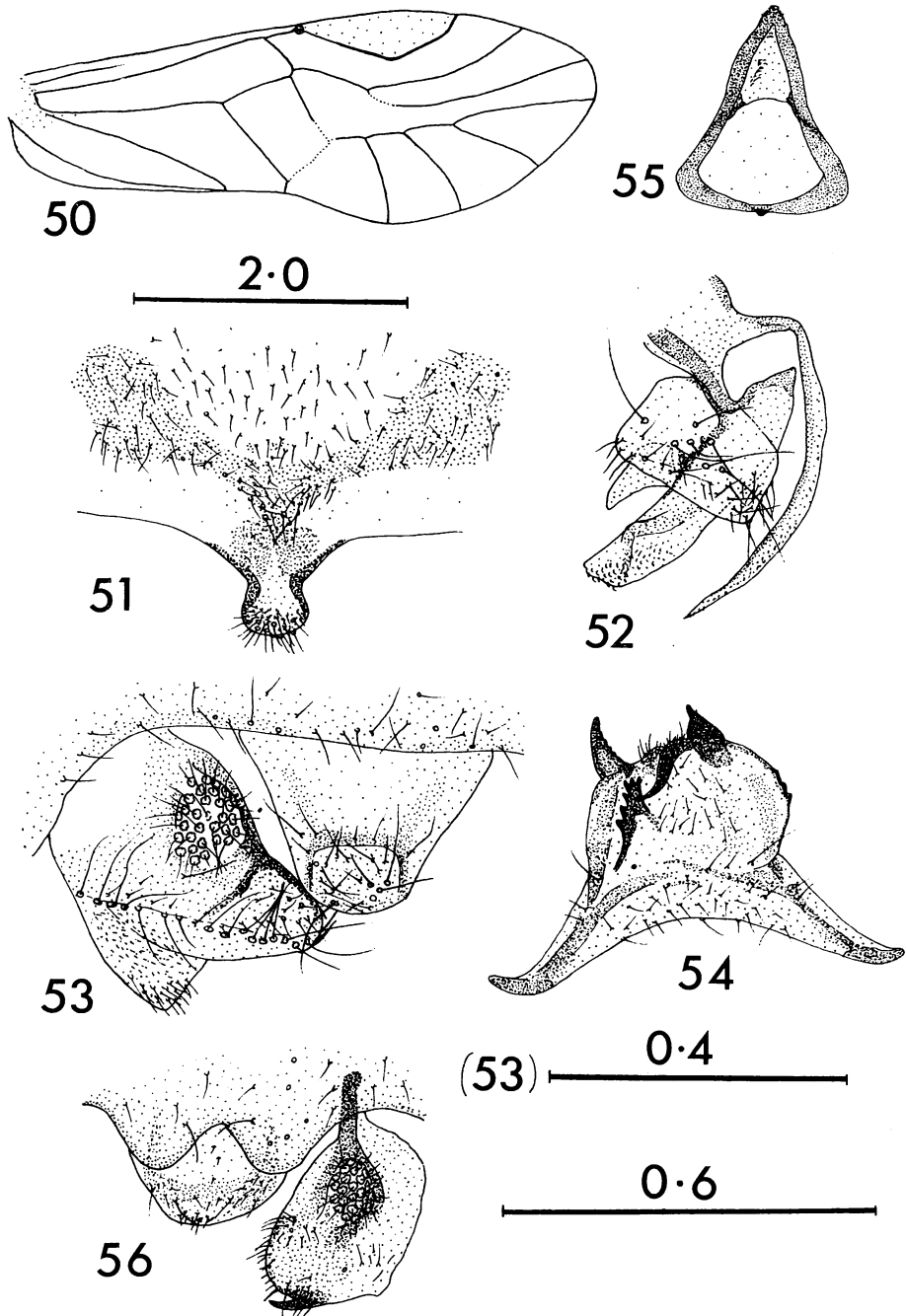
(Figs. 50-56)

FEMALE

Colouration (in alcohol). Pale yellowish brown. Vertex with very slight grey markings on epicranial region and across back of head. Eyes very dark grey. Ocelli small, pale; ocellar tubercle small, dark grey. Postclypeal striae mid brown, narrow, obsolete laterally. Central region of labrum grey. Genae pale. Apical segment of maxillary palp dark, almost black. Antenna with scape and pedicel pale, basal region of first flagellar segment pale, rest of flagellum black. Thorax with meso- and metathoracic lobes black with narrow pale intermediate areas. Pleura pale except for slight darkening immediately above coxae. Legs predominantly pale, tarsi dark brown. Forewing predominantly hyaline, pterostigma pale brown. Hindwing hyaline. Abdomen pale, with broad median dorsal dark brown stripe and broad lateral stripe.

Morphology. Forewing (Fig. 50) with Rs and M meeting in a short crossvein; pterostigma angled; first section of Cula longer than second section (c. 3:2). Subgenital plate (Fig. 51) broad, with short bulbous median process bearing numerous apical and preapical setae; sclerotised region narrow, transverse, short setae especially dense towards midline. Gonapophyses (Fig. 52) with ventral valve narrow, tapered gradually and with few spicules; dorsal valve rectangular with numerous apical spicules; external valve rectangular with setae of different lengths, and pointed posterior lobe. Epiproct (Fig. 53) bluntly rounded with apical and preapical setae. Paraproct (Fig. 53) with sclerotised bar and field of about 35 trichobothria. Basal hind tarsal segment with 33 ctenidia, apical hind tarsal segment with 3 ctenidia.

Dimensions. B 5.23; FW 5.016; HW 3.520; f1 1.224; f2 1.105; f1/f2 1.108; F 1.275; T 2.346; t1 0.784; t2 0.204; t1/t2 3.843.



Metylophorus bishopi, sp. n. 50, female forewing; 51, subgenital plate; 52, gonapophyses; 53, female epiproct and paraproct; 54, hypandrium; 55, phallosoma; 56, male epiproct and paraproct. (Scales in mm; 51, 52, 54-56 to same scale).

MALE

Colouration (in alcohol). As female, but pterostigma slightly darker.

Morphology. Forewing as female. Hypandrium (Fig. 54) asymmetrical; numerous short setae dorsally and over posterior face; few longer setae towards sides; curved hook, serrated on inner edge, on left dorsal surface; deeply serrated sclerite behind this; right side of hypandrium bulbous, with few slight lateral serrations and dorsal tapered process. Phallosome (Fig. 55) tapered posteriorly with few apical spicules, broad and bluntly angled anteriorly and with slight median anterior process. Border of last tergite deeply divided. Epiproct (Fig. 56) rounded, with numerous short setae towards apex. Paraproct (Fig. 56) with strong basal arm, short curved apical spine, and field of about 32 trichobothria. Basal hind tarsal segment with 27 ctenidia, apical hind tarsal segment with 3 ctenidia.

Dimensions. B 4.63; FW 4.004; HW 2.684; f1 0.986; f2 0.969; f1/f2 1.018; F 0.969; T 1.734; t1 0.608; t2 0.180; t1/t2 3.378.

Holotype ♀, Brazil, Mato Grosso, 12°49'S., 51°46'W., cerradão, on bark, 8 April 1969, T. R. New.

Paratypes, 2 ♀ ♀, same locality, gallery forest, on dead foliage, 7 March 1969; 3 ♂ ♂, 5 ♀ ♀, same locality, discarded roofing palm (*Mauritia*) on ground, 27 January 1969, T. R. New.

This species, although pale-winged unlike most *Metylophorus* species, is clearly referable to this genus on venation, gonapophyses and male genitalia. Roesler (1943) proposed a separate subgenus (*Ophthalmopsocus*) for another palewinged species, (*M. forficularis*) from Bolivia, but the median lobe of the subgenital plate is much longer than in *M. bishopi*, and other genitalic characters are also distinct.

***Metylophorus ctenatus*, sp. n.**

(Figs. 57-60)

FEMALE

Unknown.

MALE

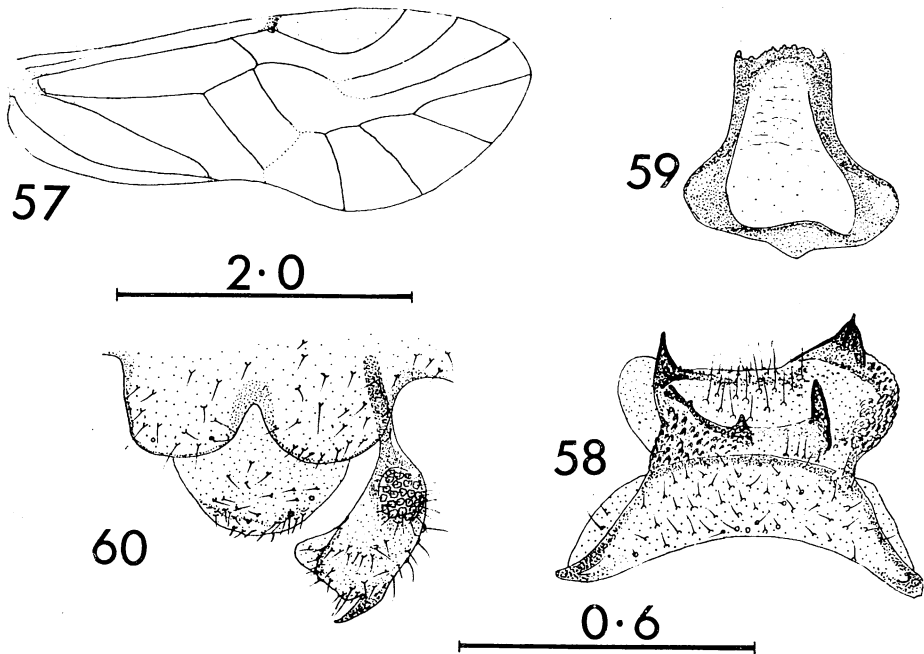
Colouration (in alcohol). Greyish brown. Vertex darker brown, with indistinct markings on epicranial region. Eyes black. Ocelli small, pale; ocellar tubercle black. Frons darkened medially. Postclypeus greyed, without distinct striae. Labrum dark grey brown. Genae pale. Maxillary palp dark brown. Antenna with scape and pedicel pale, flagellum dark brown. Thorax dorsally dark grey brown, with slightly paler areas between lobes. Pleura paler. Legs predominantly pale, tarsi slightly darkened. Forewing predominantly pale, pterostigma pale brown. Hindwing hyaline. Abdomen brown, with darker dorsal bands across tergites.

Morphology. Forewing (Fig. 57) with Rs and M meeting in a short crossvein; pterostigma rounded; first section of Cula longer than second section. Hypandrium (Fig. 58) asymmetrical, with numerous short setae on ventral half and posterodorsally; asymmetrical denticular fields, the right-hand one being expanded; two posterior sclerites and two posterodorsal spines. Phallosome (Fig. 59) with broad posterior serrated margin; anteriorly broad, bluntly rounded and with slight median indentation; no internal sclerites. Border of last tergite with median indentation. Epiproct (Fig. 60) rounded, with numerous short setae. Paraproct (Fig. 60) with long basal arm, short curved apical spine, and a field of 32 trichobothria. Basal hind tarsal segment with 25 ctenidia, apical hind tarsal segment with 3 ctenidia.

Dimensions. B 3.86; FW 3.476; HW 2.508; f1 0.867; f2 0.799; f1/f2 1.085; F 0.765; T 1.564; t1 0.528; t2 0.168; t1/t2 3.143.

Holotype ♂, Brazil, Mato Grosso, 12°49'S., 51°46'W., gallery forest, on dead branch, 1 February 1969, T. R. New.

On wing characters, this species is similar to *M. bishopi*, but the phallosome is broader posteriorly, and the hypandrium differs considerably.



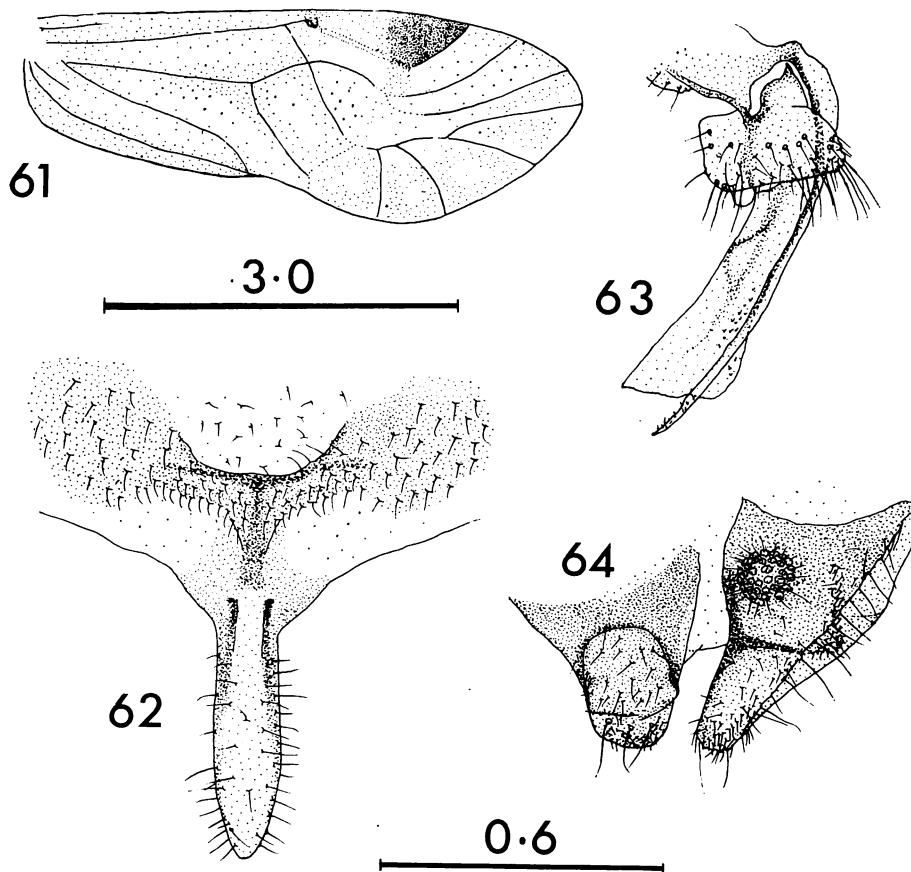
Metylophorus ctenatus, sp. n., male. 57, forewing; 58, hypandrium; 59, phallosome; 60, epiproct and paraproct. (Scales in mm; 58-60 to same scale).

Metylophorus pallidus, sp. n.

(Figs. 61-64)

FEMALE

Colouration (in alcohol). Pale greyish brown. Dense dark brown markings dorsal to eyes and along whole of epicranial region. Eyes dark grey. Ocelli pale; ocellar tubercle dark grey. Frons brown medially. Postclypeal striae dark brown, broad. Anteclypeus and labrum dark. Genae pale except for dark spot immediately below eye. Last two segments of maxillary palp dark. Antenna with scape, pedicel and first flagellar segment pale, rest of flagellum black. Thorax with meso- and metathoracic lobes darkened, intermediate areas paler. Pleura mid brown with sutural areas paler. Legs grey brown, tarsi slightly darker than



Metylophorus pallidus, sp. n., female. 61, forewing; 62, subgenital plate; 63, gonapophyses; 64, epiproct and paraproct. (Scales in mm; 62-64 to same scale).

preceding segments. Forewing with grey brown suffusion as Fig. 61, apical half of pterostigma almost black. Hindwing grey. Abdomen pale, with slight irregular dorsal brown markings.

Morphology. Forewing (Fig. 61) with Rs and M meeting at a point, pterostigma angled, first section of Cula about twice as long as second section. Subgenital plate (Fig. 62) with long slender tapering median process bearing lateral and a few central setae; main body of plate transverse with numerous short setae. Gonapophyses (Fig. 63) with ventral valve long and slender with spicules near apex; dorsal valve rectangular and bluntly pointed dorsally; external valve small, rectangular, with numerous setae, and small posterior lobe. Epiproct (Fig. 64) trapezoidal with numerous setae. Paraproct (Fig. 64) with apical region elongated, and a field of about 30 trichobothria. Basal hind tarsal segment with 29 ctenidia, apical hind tarsal segment with 3 ctenidia.

Dimensions. B 5.42; FW 4.620; HW 3.432; f1 0.970; f2 1.986; f1/f2 0.984; F 1.020; T 1.922; t1 0.616; t2 0.192; t1/t2 3.208.

Holotype ♀, Brazil, Mato Grosso, 12°49'S., 51°46'W., cerradão, on bark, 26 March 1969, T. R. New.

Paratype ♀, same locality, 'Dry forest', living foliage, 14 September 1968, T. R. New.

This species is both larger and darker than the two described earlier in this paper, and is separated clearly by the pigmentation of the pterostigma, as well as by characters of the subgenital plate and gonapophyses from *M. bishopi* and other species described in the literature.

Ptycta

Many species of the *Copostigma-Ptycta* complex have been described, and the usual character for separation of *Ptycta* from others of this group is the presence of a few hairs around the apical wing borders. The group is currently under revision, and for the present it seems wise to adhere to the above separation. The following four species are therefore referred to *Ptycta*. They are distinct from recently-discovered Galapagos species (Thornton, pers. com., 1970) and from several recently described from Micronesia (Thornton, Lee & Chui, 1971) as well as earlier described species.

Ptycta pearmani, sp. n.

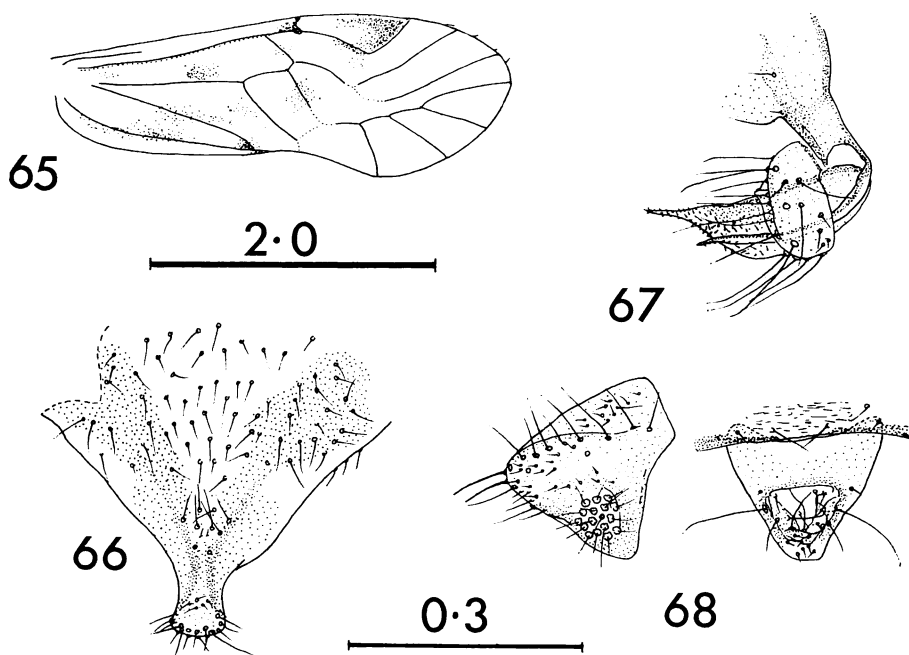
(Figs. 65-68)

FEMALE

Colouration (in alcohol). Pale grey brown. Vertex with dark brown spots dorsal to eyes, and along epicranial suture. Eyes dark grey. Ocelli pale; ocellar tubercle dark grey to black. Postclypeal striae dark, narrow,

widely-spaced and interrupted laterally and anteriorly. Labrum grey. Genae pale except for dark spot below eye. Apical segment of maxillary palp darkened. Antennae pale. Thorax dorsally dark brown, paler between lobes. Pleura dark brown, with paler areas. Legs predominantly pale, coxae darker, femora with slight darker preapical band, tibiae pale, tarsi darker brown. Forewing with irregular grey brown or brown markings, intensity variable, but darker in basal half of wing and in pterostigma. Hindwing hyaline. Abdomen pale with dark brown annulations conspicuous dorsally and laterally; genital segments darkened.

Morphology. Forewing (Fig. 65) with Rs and M meeting at a point or in a short crossvein; pterostigma angled; a few small hairs around apical border, especially in radial region. Subgenital plate (Fig. 66) with narrow apically-expanded median lobe with few small central setae; main sclerotised region deeply bifurcate anteriorly, with scattered setae, concentrated laterally and towards midline. Gonapophyses (Fig. 67) with ventral valve slender and bluntly pointed; dorsal valve tapered to a fine point with numerous spicules; external valve oval, with long central and marginal setae. Epiproct (Fig. 68) bluntly tapered with single long lateral seta each side and group of short median setae. Paraproct (Fig. 68) with field of 19 trichobothria. Basal hind tarsal segment with 21 ctenidia, apical hind tarsal segment with 2 ctenidia.



Ptycta pearmani, sp. n., female. 65, forewing; 66, subgenital plate; 67, gonapophyses; 68, epiproct and paraproct. (Scales in mm; 66-68 to same scale).

Dimensions. B 3.24-3.45; FW 2.816-3.080; HW 2.156-2.244; f1 0.510-0.663; f2 0.510-0.527; f1/f2 0.968-1.300; F 0.510-0.578; T 1.105-1.207; t1 0.332-0.376; t2 0.108-0.124; t1/t2 3.032-3.074.

MALE

Unknown.

Holotype ♀, Brazil, Mato Grosso, 12°49'S., 51°46'W., cerrado, on bark, 17 April 1969, T. R. New.

Paratype ♀, same data, but 1 April 1969.

P. pearmani, on genitalic characters, most resembles an undescribed Galapagos species but is separable on the form of the subgenital plate from all known species.

***Ptycta lunulata*, sp. n.**

(Figs. 69-72)

FEMALE

Colouration (in alcohol). Pale to mid-brown. Vertex with slight darkening across back of head. Eyes dark grey. Ocelli pale, moderately large. Frons dark brown. Postclypeal striae pale grey, narrow and indistinct. Postclypeus dark brown anteriorly. Labrum dark. Genae pale. Last two segments of maxillary palp dark brown. Antenna pale. Thorax predominantly dark brown, slightly paler between lobes. Legs with coxae dark brown, femora pale except for dark preapical band, tibiae pale except at apex, tarsi darker. Forewing with grey brown markings as in Fig. 69: apical half of pterostigma dark brown, hyaline areas in all cells. Hindwing hyaline. Abdomen mid brown, unmarked, genital segments darkened.

Morphology. Forewing (Fig. 69) with Rs and M fused for a short length, pterostigma angled, first section of Cula slightly longer than second section; few short hairs around apical border. Subgenital plate (Fig. 70) with bluntly angled median process bearing long setae towards apex and short setae on surface; transverse row of long setae across base of median process, sclerotised region deeply bifurcate, with numerous short setae. Gonapophyses (Fig. 71) with ventral valve slender; dorsal valve broad, tapered to long dorsal apical projection with spicules; external valve small, oval, with long setae. Epiproct (Fig. 72) rounded with few long setae and more numerous short setae. Paraproct (Fig. 72) with field of 21 trichobothria. Basal hind tarsal segment with 18 ctenidia, apical hind tarsal segment with 2 ctenidia.

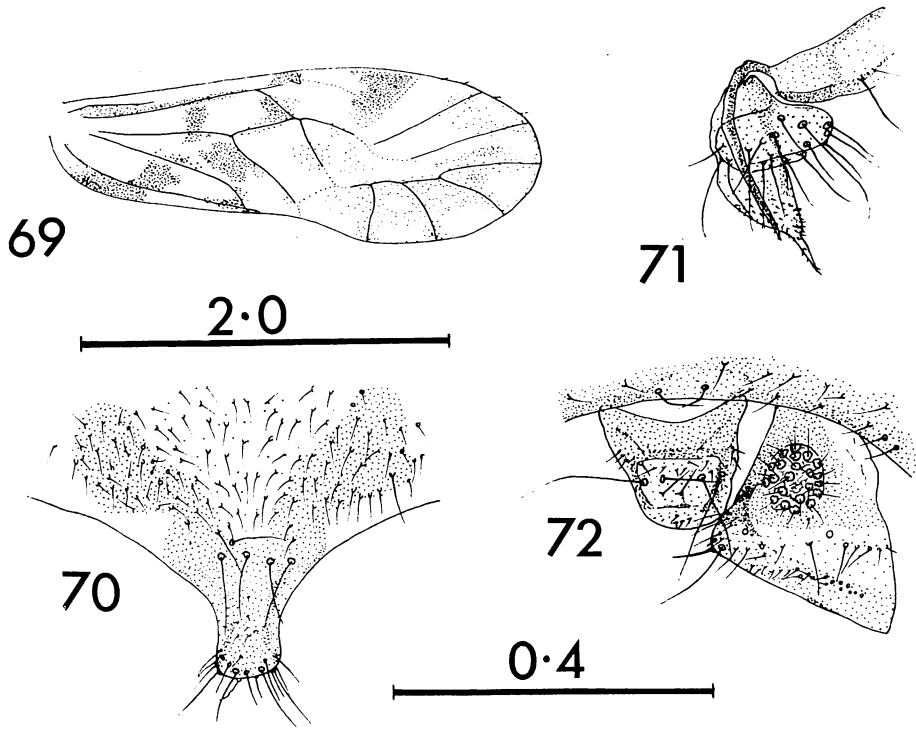
Dimensions. B 3.41; FW 2.904; HW 2.156; f1 0.544; f2 0.442; f1/f2 1.231; F 0.527; T 1.156; t1 0.320; t2 0.116; t1/t2 2.759.

MALE

Unknown.

Holotype ♀, Brazil, Mato Grosso, 12°49'S., 51°46'W., cerradão, on bark, 17 April 1969, T. R. New.

The forewing of *P. lunulata* is much more heavily marked than that of *P. pearmani*, and there are small genitalic differences, especially in the subgenital plate and gonapophyses, which clearly indicate its specific status.



Ptycta lunulata, sp. n., female. 69, forewing; 70, subgenital plate; 71, gonapophyses; 72, epiproct and paraproct. (Scales in mm; 70-72 to same scale).

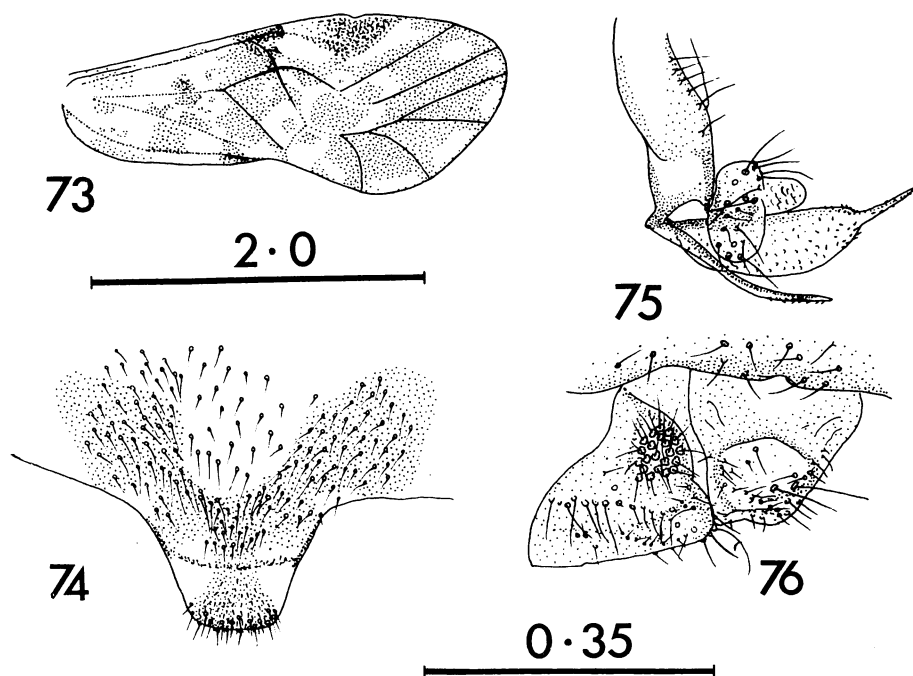
***Ptycta reticulata*, sp. n.**

(Figs. 73-76)

FEMALE

Colouration (in alcohol). Pale to mid brown. Vertex with numerous dark brown markings dorsal to eyes, across back of head and along epicranial suture. Eyes mid grey. Ocelli pale; ocellar tubercle dark grey.

Postclypeal striae broad, obsolete anteriorly. Labrum dark brown. Genae darkened immediately below eye, paler ventrally. Apical segment of maxillary palp darkened. Antenna mid brown. Thorax dorsally dark brown, with paler areas between lobes. Pleura dark brown, with sutural areas paler. Legs predominantly pale, coxae and apex of femora dark brown. Forewing irregularly marked with grey brown as in Fig. 73; hyaline lunules on margins of median cells. Abdomen mid brown with darker dorsal annulations; genital segments darkened.



Ptycta reticulata, sp. n., female. 73, forewing; 74, subgenital plate; 75, gonapophyses; 76, epiproct and paraproct. (Scales in mm; 74-76 to same scale).

Morphology. Forewing (Fig. 73) with Rs and M meeting at a point, pterostigma bluntly rounded, first and second sections of Cula approximately equal, third section recurved. Subgenital plate (Fig. 74) with median process broad and bluntly angled; sclerotised region with arms divergent, with numerous short setae and spicules. Gonapophyses (Fig. 75) with ventral valve slender and considerably shorter than dorsal valve; dorsal valve smoothly tapered and with long apical point bearing spicules; external valve small, oval, with long setae and conspicuous rounded membranous posterior projection. Epiproct (Fig. 76) trapezoidal with numerous short setae. Paraproct (Fig. 76) with field of 24 trichobothria. Basal hind tarsal segment with 23 ctenidia, apical hind tarsal segment with 5 ctenidia.

Dimensions. B. 4.47; FW 3.872; HW 2.728; f1 1.106; f2 1.156; f1/f2 0.957; F 0.850; T 1.683; t1 0.448; t2 0.184; t1/t2 2.435.

MALE

Unknown.

Holotype ♀, Brazil, Mato Grosso, 12°49'S., 51°46'W., 'Dry forest', on dead foliage, 1 March 1969, T. R. New.

The much broader subgenital plate of this species immediately differentiates it from *P. pearmani* and *P. lunulata*. Characters of the gonapophyses and forewing are also distinctive.

***Ptycta sinuatistigma*, sp. n.**

(Figs. 77-80)

FEMALE

Colouration (in alcohol). Greyish buff. Vertex with elongated dark brown markings dorsal to eyes, across back of head and along epicranial suture. Eyes dark grey. Ocelli pale; ocellar tubercle small, dark grey. Frons with median dark markings. Postclypeal striae narrow. Anteclypeus, labrum and genae pale. Apical segment of maxillary palp darkened. Antenna pale. Thoracic lobes dark brown, with paler intermediate areas. Pleura mid- to dark brown, sutural areas paler. Legs with coxae dark brown, femora pale with narrow preapical dark brown band, tibiae pale, tarsi dark brown. Forewing with band of dark brown in basal half, pterostigma darkened; brown pigment extending posterior to pterostigma as in Fig. 77. Hindwing hyaline. Abdomen pale, with traces of darker brown annulations, genital segments darkened.

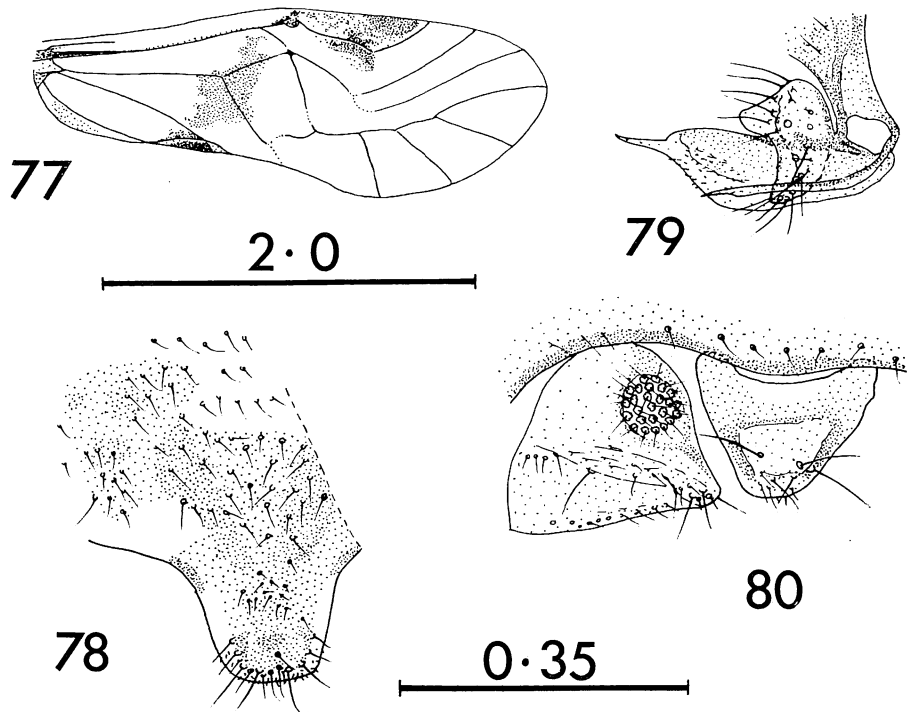
Morphology. Forewing (Fig. 77) with Rs and M meeting at a point, pterostigma angled, first section of Cula sinuous and about the same length as second section. Subgenital plate (Fig. 78) with broad, bluntly rounded median projection bearing apical spicules and short central and preapical setae; sclerotised region broad and with numerous short setae. Gonapophyses (Fig. 79) with ventral valve slender and bearing spicules; dorsal valve tapered to narrow apical process; external valve oval, bearing long setae. Epiproct (Fig. 80) bluntly rounded with few short preapical setae and longer central setae. Paraproct (Fig. 80) with field of 23 trichobothria. Basal hind tarsal segment with 16 ctenidia, apical hind tarsal segments with 3 ctenidia.

Dimensions. B 3.52; FW 3.080; HW 2.112; f1 0.476; f2 0.442; f1/f2 1.077; F 0.510; T 1.054; t1 0.280; t2 0.128; t1/t2 2.188.

MALE

Unknown.

Holotype ♀, Brazil, Mato Grosso, 12°49'S., 51°46'W., cerrado, living vegetation, 18 October 1968, T. R. New.



Ptycta sinuatistigma, sp. n., female. 77, forewing; 78, subgenital plate; 79, gonapophyses; 80, epiproct and paraproct. (Scales in mm, 78-80 to same scale).

On forewing characters, this species shows some resemblance to *Copostigma pindapoense* Williner (1943) from Argentina, for which no genitalic details are available.

***Steleops maculata*, sp. n.**

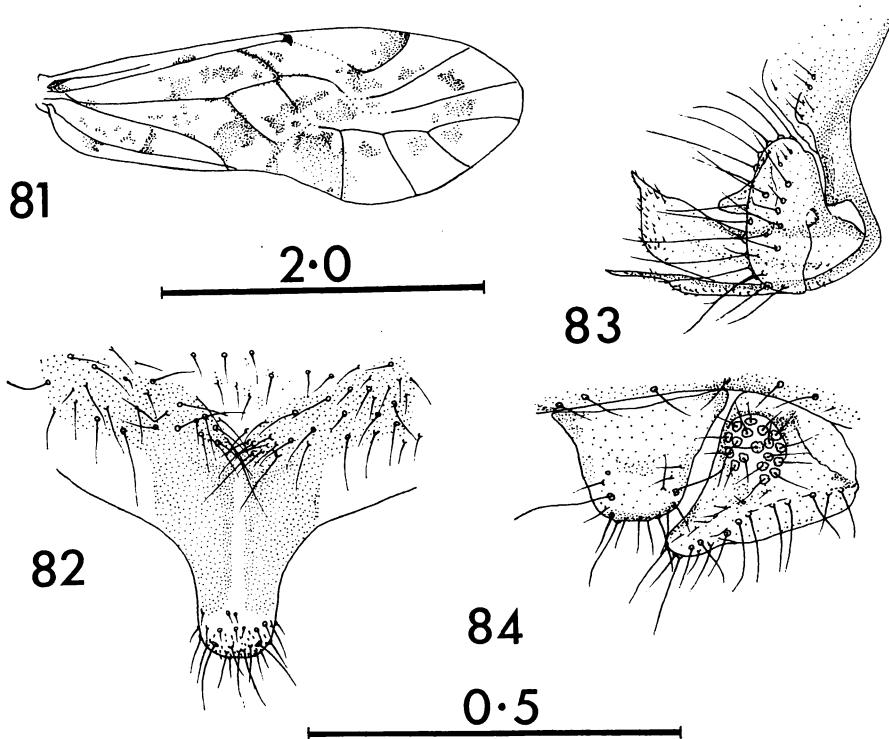
(Figs. 81-84)

FEMALE

Colouration (in alcohol). Pale yellowish brown. Vertex with slight darker brown markings on anterior epicranial region, more pronounced brown markings anterior to each eye. Eyes very dark grey. Ocelli pale; ocellar tubercle not well-defined. Postclypeal striae strongly defined, but obsolete anteriorly; anterior border of postclypeus darkened. Anteclypeus, labrum and genae pale. Maxillary palp and antenna pale. Thorax pale, with slight darker markings on lobes. Legs predominantly pale: tibiae and tarsi with small irregular dark brown spots, especially ventrally. Forewing hyaline with well-defined pale grey brown markings as in Fig. 81; a distinct row of spots in the radial and median cells. Hind-

wing hyaline. Abdomen pale, with slight darker brown markings over dorsal surface.

Morphology. Head long; postclypeus and labrum not bulbous, elongated; eyes protuberant, on dorsolateral stalks. Forewing (Fig. 81) with Rs and M meeting in a short crossvein, pterostigma abruptly rounded, first section of Cula slightly longer than second section. Subgenital plate (Fig. 82) with median projection moderately long, bluntly rounded and with apical setae and spicules; sclerotised region divided medially and with arms divergent anteriorly, bearing long setae. Gonapophyses (Fig. 83) with ventral valve slender, abruptly tapered before apex and bearing spicules; dorsal valve broad, with apical dorsal process and spicules; external valve oval with long setae and small posterior lobe. Epiproct (Fig. 84) trapezoidal with long apical and lateral setae. Paraproct (Fig. 84) with field of 18 trichobothria. Basal hind tarsal segment with 26 ctenidia, apical hind tarsal segment with 4 ctenidia.



Steleops maculata, sp. n., female. 81, forewing; 82, subgenital plate; 83, gonapophyses; 84, epiproct and paraproct. (Scales in mm; 82-84 to same scale).

Dimensions. B 2.82; FW 3.036; HW 2.112; f1 0.782; f2 0.698; f1/f2 1.120; F 0.714; T 1.428; t1 0.492; t2 0.156; t1/t2 3.154.

MALE

Unknown.

Holotype ♀, Brazil, Mato Grosso, 12°49'S., 51°46'W., 'Dry forest', on bark, 12 April 1969, T. R. New.

This species has very conspicuous stalked eyes, and the forewing is basically similar to that of *S. pedunculata* Enderlein (1910) (illustrated by Williner, 1946), except that the branches of R separate at a greater angle and the apical region of the wing is relatively shorter. *S. pedunculata* is recorded from Paraguay and Brazil, but has uniform unmarked wings. The forewing of *S. punctipennis* Enderlein (1910) is marked, but it appears to be a larger species: although Enderlein gives the body length as 2.8-3 mm, the forewing length is given as 3.6-4 mm. Details of colouration also differ from those given in Enderlein's description.

***Steleops pulchra*, sp. n.**

(Figs. 85-88)

FEMALE

Colouration. (in alcohol). Yellowish brown. Vertex with dark brown spots across posterior region and slight grey markings extending along epicranial suture; dark brown spots also posterior and ventral to eyes. Eyes black. Ocelli pale, small; ocellar tubercle dark grey. Frons, clypeus and labrum dark brown. Postclypeus with faint traces of striae distinct posteriorly. Maxillary palpi pale. Antennal base dark brown, antenna pale. Thorax with anterior mesothoracic lobe dark brown centrally and paler towards sides; metathorax paler. Pleura pale with few brown markings, especially around coxae. Hind coxa dark brown dorsally, others pale; femora and tibiae pale; tarsi slightly darkened. Forewing with dark brown markings as in Fig. 85. Hindwing hyaline. Abdomen pale, with slight lateral browning over anterior half.

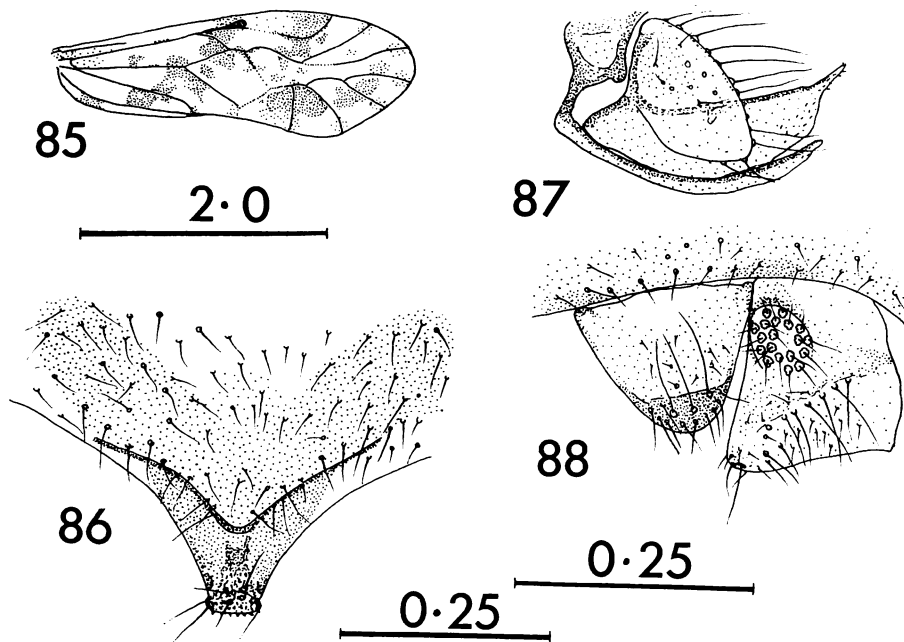
Morphology. Head long; postclypeus and labrum not bulbous, elongated. Eyes on short stalks. Forewing (Fig. 85) with Rs and M fused for a short length, pterostigma rounded; first and second sections of Cula meeting at wide angle, first section longer than second. Subgenital plate (Fig. 86) with median process tapered and angled, bearing few long setae and numerous spicules; arms of sclerotised region broad, transverse. Gonapophyses (Fig. 87) with ventral valve bluntly tapered and bearing few spicules; dorsal valve tapered, with narrow spiculate apical process; external valve oval, with row of long marginal setae and few short surface setae. Epiproct (Fig. 88) rounded, with few long and more numerous shorter setae. Paraproct (Fig. 88) with field of 17 trichobothria. Basal hind tarsal segment with 20 ctenidia, apical hind tarsal segment with 3 ctenidia.

Dimensions. B 3.22; FW 2.904; HW 1.804; antenna broken; F 0.612; T 1.242; t1 0.400; t2 0.120; t1/t2 3.333.

MALE

Unknown.

Holotype ♀, Brazil, Mato Grosso, 12°49'S., 51°46'W., gallery forest, in water trap, 16 September 1968, T. R. New.



Steleops pulchra, sp. n., female. 85, forewing; 86, subgenital plate; 87, gonapophyses; 88, epiproct and paraproct. (Scales in mm; 87, 88 to same scale).

This species, in which the eyes are bulbous but only slightly stalked, appears in some characters to be intermediate between *Steleops* and *Trichadenotecnum*. The forewing, especially, resembles that of the latter genus, as the first and second sections of Cula are almost in a straight line. However, although the eyes of some male *Trichadenotecnum* species are enlarged, no known species have them stalked, and, in most, the female eyes are considerably smaller. This, together with the narrow separation of the branches of R in the forewing and the flattened face (as in *S. maculata*) lead me to place this species tentatively in *Steleops*. The subgenital plate and gonapophyses of both these new species are of the *Trichadenotecnum* type, and the two genera may be closely related.

Trichadenotecnum roesleri, sp. n.

(Figs. 89-95)

FEMALE

Colouration (in alcohol). Mid brown. Vertex pale, with small rectangular brown patches dorsal to eyes, and long epicranial suture. Eyes small, pale, each surrounded by a dark annulus. Postclypeal striae few, widely spaced, narrow, and interrupted anteriorly. Labrum pale. Genae dark except near antennal base. Maxillary palp darkened. Antennae pale. Thorax slightly darkened on lobes and with dark brown pleural stripe. Legs dark brown. Forewing with grey brown markings as in Fig. 89, concentrated to form elongate spots between R and M and in median cells, most pronounced in m_1 and m_2 . Hindwing hyaline. Abdomen mid brown, unmarked, genital segments darkened.

Morphology. Forewing (Fig. 89) with Rs and M meeting at, or almost at, a point, pterostigma rounded, first section of Cula about twice as long as second section. Subgenital plate (Fig. 90) with short blunt median process bearing apical and central setae; main sclerotised region broad, transverse and with short setae. Gonapophyses (Fig. 91) with ventral valve reduced; dorsal valve broad, with long apical process, bearing spicules; external valve small, rounded, setose, with small posterior lobe. Epiproct (Fig. 92) trapezoidal, with long apical setae and short surface setae. Paraproct (Fig. 92) with field of 19 trichobothria. Basal hind tarsal segment with 18 or 19 ctenidia, apical hind tarsal segment with 2 ctenidia.

Dimensions. B 2.60-2.74; FW 2.288-2.376; HW 1.760-1.804; f1 0.289; f2 0.221; f1/f2 1.308; F 0.374; T 0.799; t1 0.228-0.248; t2 0.096; t1/t2 2.375-2.583.

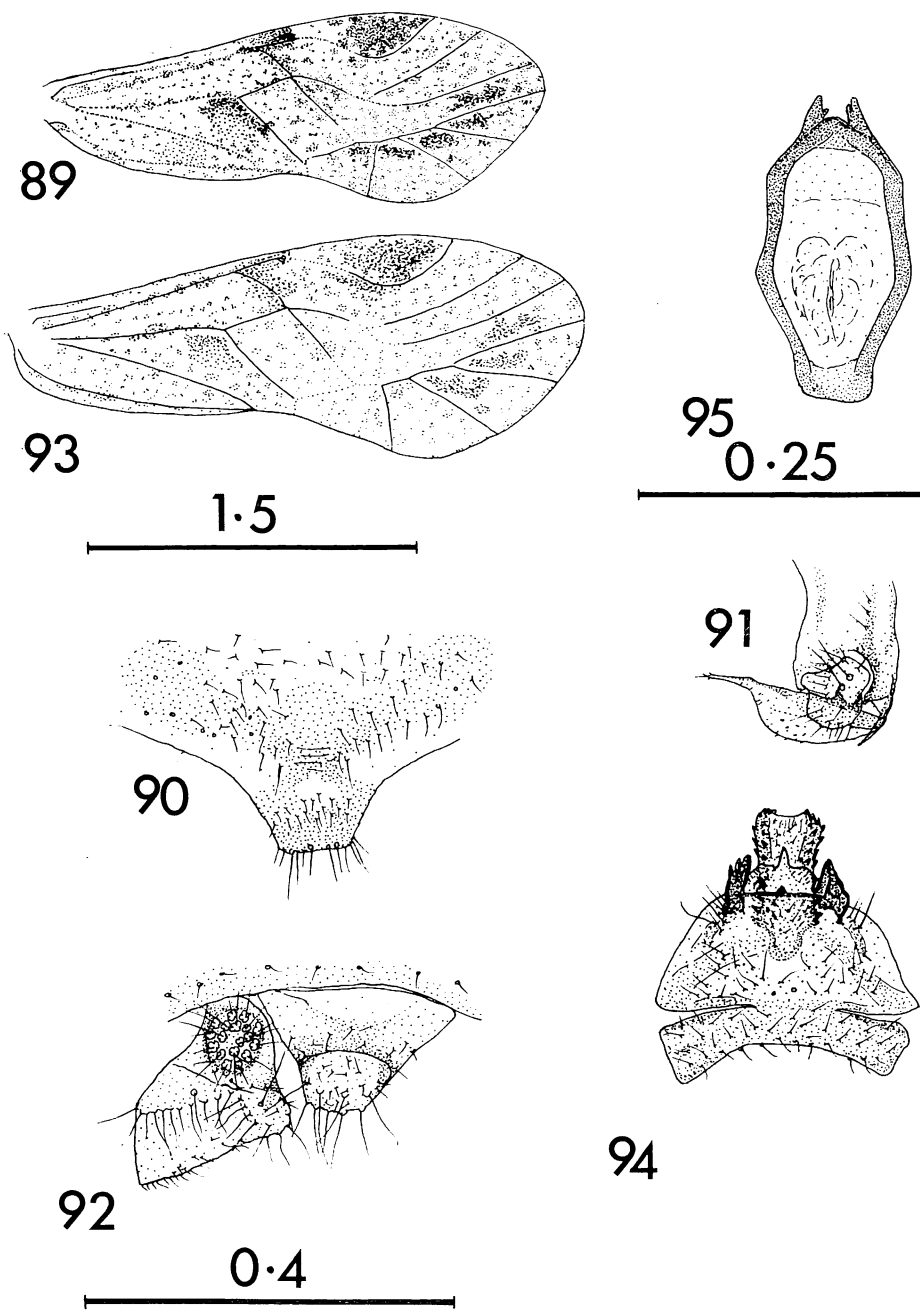
MALE

Colouration (in alcohol). As female, but abdomen with traces of darker dorsal annulations.

Morphology. Eyes large and prominent. Fcrewing (Fig. 93) as female. Hypandrium (Fig. 94) with prominent median dorsal denticulated process; a small central spine basal and posterior to this; a prominent lateral denticulate process on each side and a basal denticulate field. Phallosome (Fig. 95) bluntly rounded posteriorly; external parameres apically bifurcate; no conspicuous penial sclerites. Epiproct rounded. Paraproct with field of 14-17 trichobothria. Basal hind tarsal segment with 19 ctenidia, apical hind tarsal segment with 2 ctenidia.

Dimensions. B 2.58; FW 2.332; HW 1.760; f1 0.357; f2 0.272; f1/f2 1.313; F 0.374; T 0.816; t1 0.240; t2 0.088; t1/t2 2.727.

Holotype ♀, Brazil, Mato Grosso, 12°49'S., 51°46'W., cerrado, on bark, 17 April 1969, T. R. New.



Trichadenotecnum roesleri, sp. n. 89, female forewing; 90, subgenital plate; 91, gonapophyses; 92, female epiproct and paraproct; 93, male forewing; 94, hypandrium; 95, phallosome. (Scales in mm; 89, 93, to same scale; 90-92, 94 to same scale).

Paratypes (all same locality), 1 ♀ 16 September 1968, 4 ♂♂, 5 ♀♀, 1-19 April 1969, T. R. New.

This and the next species appear to be closely related and are separable mainly by the degree of pigmentation of the forewing, the phallosome shape, small details of hypandrial structure, and the sclerotisation pattern of the subgenital plate.

Both differ from all described species of *Trichadenotecnum* sens. lat. (Roesler, 1944), especially on male genitalic characters, but on forewing and female genitalia are clearly retainable within this group.

***Trichadenotecnum sinuatum*, sp. n.**

(Figs. 96-103)

FEMALE

Colouration (in alcohol). Pale cream to buff. Vertex unmarked. Eyes mid grey. Ocelli pale. Postclypeal striae feebly indicated, obsolete posteriorly and anteriorly. Anteclypeus, labrum and genae brown. Maxillary palpi brown. Antenna with scape and pedicel grey, flagellum pale. Thorax dorsally pale, with slight darkening of lobes. Pleura pale. Legs with coxae and femora brown, tibiae and tarsi paler. Forewing with numerous grey brown spots as in Fig. 96. Hindwing hyaline. Abdomen cream, no darker markings.

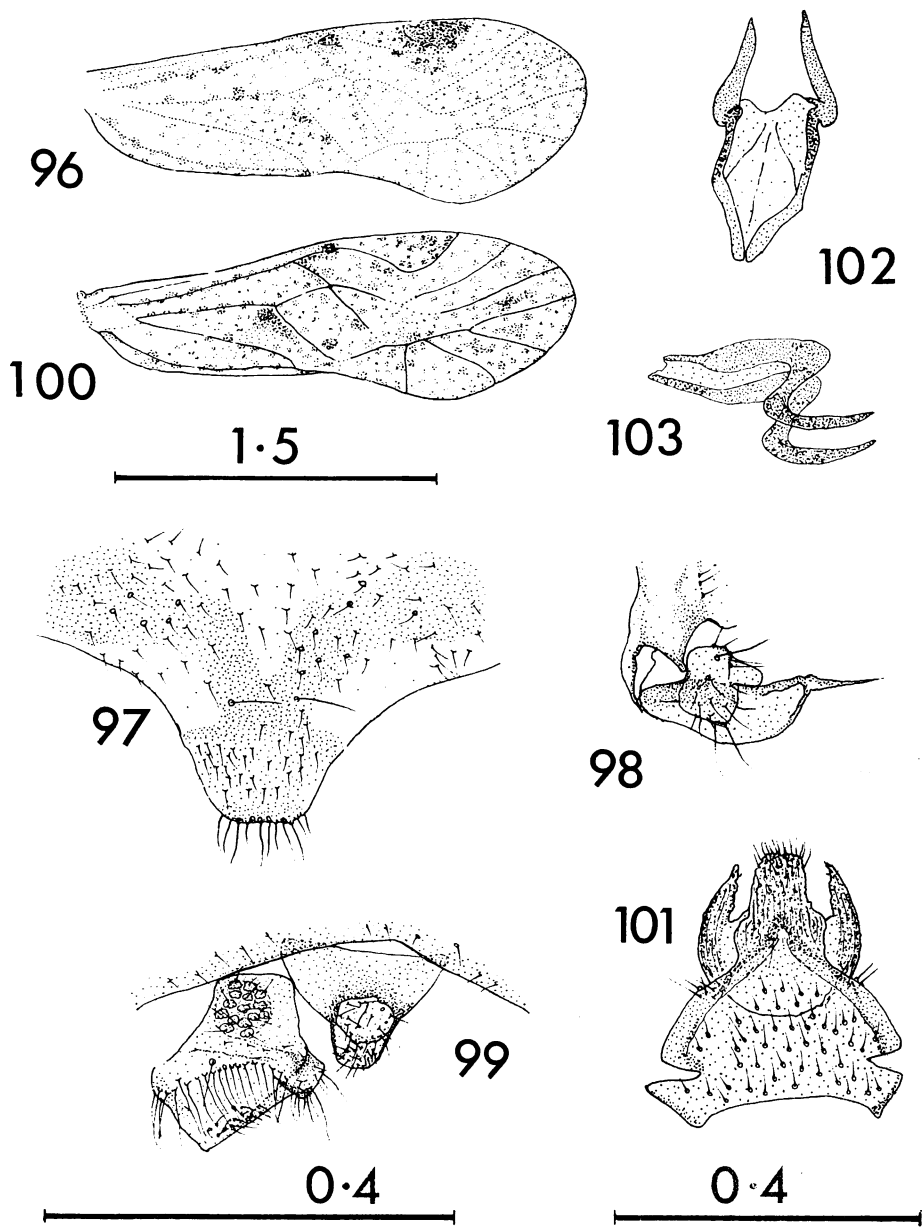
Morphology. Forewing (Fig. 96) with Rs and M fused for short length, pterostigma rounded. Subgenital plate (Fig. 97) with short blunt median process with row of marginal setae and more numerous surface setae; sclerotised region bifurcate, with short setae. Gonapophyses (Fig. 98) with ventral valve reduced; dorsal valve broad with long apical process with few spicules; external valve rectangular, small, setose with small posterior lobe. Epiproct (Fig. 99) rounded, with numerous short setae. Paraproct (Fig. 99) with field of 15 trichobothria. Basal hind tarsal segment with 16 ctenidia, apical hind tarsal segment with 2 ctenidia.

Dimensions. B 2.58; FW 2.420; HW 1.804; f1 0.340; f2 0.270; f1/f2 1.259; F 0.426; T 0.918; t1 0.264; t2 0.100; t1/t2 2.640.

MALE

Colouration (in alcohol). As female.

Morphology. Eyes large. Forewing (Fig. 100) as female. Hypandrium (Fig. 101) with furrowed setose median process, flanked by long curved spines; inconspicuous basal denticular field; numerous short setae on basal region. Phallosome (Fig. 102, 103) with parameres separated posteriorly and strongly reflexed dorsally, sinuous. Epiproct rounded, paraproct with field of about 17 trichobothria. Basal hind tarsal segment with 18 or 19 ctenidia, apical hind tarsal segment with 2 ctenidia.



Trichadenotecnum sinuatum, sp. n.. 96, female forewing; 97, subgenital plate; 98, gonapophyses; 99, female epiproct and paraproct; 100, male forewing; 101, hypandrium; 102, phallosome, dorsal aspect; 103, phallosome, lateral aspect. (Scales in mm; 96, 100 to same scale, 97-99 to same scale, 101-103, to same scale).

Dimensions. B 2.46-2.58; FW 2.112-2.244; HW 1.540-1.672; f1 0.340; f2 0.255-0.290; f1/f2 1.333-1.724; F 0.374; T 0.782; t1 0.248-0.280; t1 0.088-0.092; t1/t2 2.696-3.182.

Holotype ♀, Brazil, Mato Grosso, 12°49'S., 51°46'W., cerradão, on dead palm foliage, 16 April 1969, T. R. New.

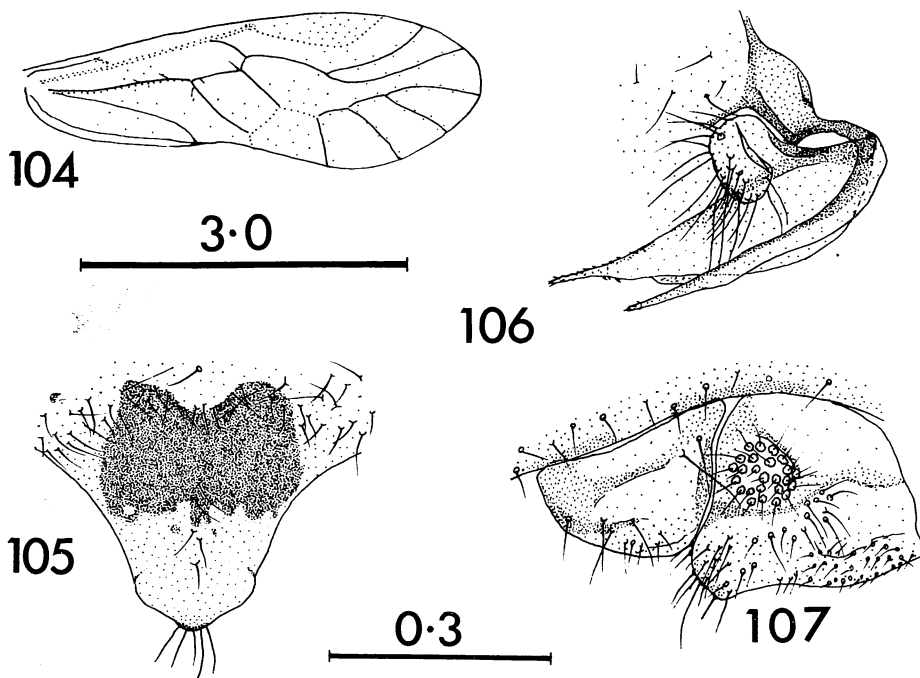
Paratypes (all same locality), 1♂, 'Dry forest', 31 October 1968; 1♂, 'Dry forest', 16 January 1969; 1♂, 5♀, cerrado, 5-19 April 1969, T. R. New.

INCERTAE SEDIS

Specimen A (Figs. 104-107)

Female, Brazil, Mato Grosso, 12°49'S., 51°46'W., Dry forest, 22 September 1968, T. R. New.

Colouration (in alcohol). Pale yellow brown. Vertex with slight markings dorsal to eyes and across back of head. Eyes dark grey. Ocelli pale; ocellar tubercle small, dark grey. Postclypeal striae very pale, almost obsolete. Labrum slightly darkened. Genae pale. Maxillary palpi and whole of antennae pale. Thorax with grey brown patches on meso- and metathoracic lobes, otherwise pale. Legs pale. Forewing with pale grey



Specimen A. 104, forewing; 105, subgenital plate; 106, gonapophyses; 107, epiproct and paraproct. (Scales in mm, 105-107 to same scale).

brown suffusion, slightly darker in pterostigma. Hindwing hyaline. Abdomen pale.

Morphology. Forewing (Fig. 104) with Rs and M meeting in a short crossvein, pterostigma rounded, first and second sections of Cula about equal in length; a few small setae on veins in basal half of wing. Subgenital plate (Fig. 105) rounded, with group of median apical setae; sclerotised region compact, rectangular with scattered setae. Gonapophyses (Fig. 106) with ventral valve slender and with few spicules; dorsal valve gradually tapered to fine apex, with numerous spicules; external valve small, oval and with numerous long setae. Epiproct (Fig. 107) rounded, with few lateral and preapical setae. Paraproct (Fig. 107) with field of about 26 trichobothria. Basal hind tarsal segment with 20 ctenidia, apical hind tarsal segment with 2 ctenidia.

Dimensions. B 2.94; FW 2.564; HW 2.552; f1 0.544; f2 0.572; f1/f2 1.032; F 0.680; T 1.310; t1 0.312; t2 0.112; t1/t2 2.786.

This female is apparently referable to the Amphigerontiinae but, beyond that, its affinities are not clear. The setae on the basal venation of the forewing are anomalous, and the highly peculiar subgenital plate, which is concentrated to a large blunt median lobe is unlike any described species. The apical group of setae is, however, rather like that in some species of *Euclismia*.

Specimens B & C (Figs. 108-111)

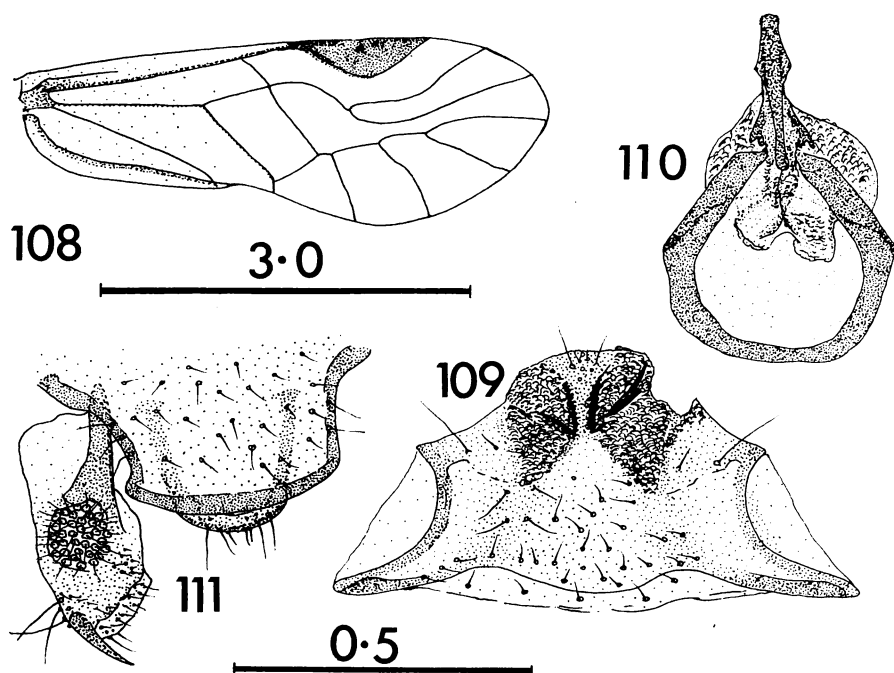
Males, Brazil, Mato Grosso, 12°49'S., 51°46'W., gallery forest, dead foliage, 15 February 1969, T. R. New.

Colouration (in alcohol). Pale to mid-brown. Vertex with darker markings, largely indistinct. Eyes black. Ocelli small, pale; ocellar tubercle black. Postclypeal striae narrow and feebly indicated. Anteclypeus pale. Labrum grey. Genae pale. Maxillary palpi dark brown. Antenna with scape and pedicel brown, flagellum dark brown to black. Thorax with meso- and metathoracic lobes very dark glossy brown, intermediate areas paler. Pleura mid brown, sutural areas paler. Coxae and femora pale to mid brown, tibiae darkened over apical third, tarsi dark brown. Forewing with membrane slightly greyed, and with pterostigma reddish brown. Hindwing hyaline. Abdomen with dark brown bands across all tergites, genital segments darkened.

Morphology. Forewing (Fig. 108) with Rs and M meeting at point or fused for short length; no venation hyaline; first section of Cula longer than second section (c. 5:2). Hypandrium (Fig. 109) not encapsulated, slightly asymmetrical, broad; denticular field either side of midline, each with two long straight sclerites. Phallosome (Fig. 110) with long posterior process bearing few small apical spicules; anteriorly broad and rounded; penial bulb with denticles. Epiproct (Fig. 111) rounded, with apical setae and short preapical setae. Paraproct (Fig. 111) with strong basal arm, curved external apical spine; field of 29 trichobothria. Basal hind tarsal segment with 23 or 24 ctenidia, apical hind tarsal segment with 5 or 6 ctenidia.

Dimensions. B 3.25-3.33; FW 3.960-4.136; HW 2.728-2.904; f1 1.054-1.292; f2 1.122-1.411; f1/f2 0.916-0.939; F 0.816-0.952; T 1.700-1.870; t1 0.464-0.480; t2 0.208; t1/t2 2.231-2.308.

The affinities of these males are not at all clear. They are apparently excluded from the *Cerastipsocini* on palp characters and by having relatively short antennae, but the phallosome is similar to that of some *Cerastipsocus* species. The forewing resembles that of some *Psocus* species, except that Rs is sinuous rather than straight as is usual in this genus.



Specimen B. 108, forewing; 109, hypandrium; 110, phallosome; 111, epiproct and paraproct. (Scales in mm; 109-111 to same scale).

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