STUDIES ON THE FAUNA OF SURINAME AND OTHER GUYANAS, No. 45.

CORIXIDAE OF SURINAME AND THE AMAZON

WITH RECORDS OF OTHER NEOTROPICAL SPECIES

by

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The material studied was mainly collected by Dr. P. H. VAN DOESBURG Jr. during his stay in Suriname and by Dr. P. WAGENAAR HUMMELINCK during various collecting trips while visiting Venezuela and Suriname. In addition, specimens from the Western Hemisphere brought together in the Rijksmuseum at Leiden by various collectors, and continental S. American specimens in the Copenhagen Museum have been studied. Finally an interesting set of Corixinae collected in the Amazon region by various workers during investigations sponsored by the "Max-Planck-Institut für Limnologie, Abt. Tropenökologie", at Plön (director Prof. Dr. H. SIOLI), and the "Instituto Nacional de Pesquisas da Amazonia" at Manaus and Brasilia (director Prof. Dr. D. BATISTA) have been studied.

Thanks are due to the following persons for permission to study the material in their charge: Dr. P. H. VAN DOESBURG Jr. (Leiden Museum), Dr. N. MØLLER ANDERSEN (Copenhagen Museum), Dr. P. WAGENAAR HUMMELINCK (Zoological Laboratory, Utrecht) and Dr. H. H. WEBER (Amazonian water-bugs; Schülp, D.B.R.). Mrs. E. DE GROOT-TAAT kindly corrected the greater part of the manuscript. Dr. I. LANSBURY (University Museum, Oxford) read the definitive text critically.

This work was made possible by a grant from the Foundation for Scientific Research in Surinam and the Netherlands Antilles.

The following abbreviations indicate the institutions in which the specimens are deposited: A., the collection of the I.N.P.A. at Manaus; B., the collection of the Koninklijk Belgisch Instituut voor Natuurwetenschappen at Brussels; K., the

Zoologiske Museum at Copenhagen; L., the Rijksmuseum van Natuurlijke Historie at Leiden; S., the reference collection at the "Afdeling Systematiek", Zoölogisch Laboratorium at Utrecht; U., the Zoölogisch Museum at Utrecht.

The Corixidae can be distinguished from other aquatic bugs by the rostrum which is not segmented although transverse sulcations usually are present.

The family is well diversified morphologically, although the colours are nearly always greyish, brownish or blackish. Consequently a great number of genera have been distinguished, the exact number depending on the specialist's concept. HUNGERFORD cites six subfamilies of Corixidae, three of which are represented in South America. These can be separated by the following KEY after HUNGERFORD 1948.

1a. Scutellum exposed for greater part (ocelli absent) . . . . Micronectinae
1b. Scutellum covered by pronotum (rarely apex visible) 2

2a. The infraocular portion of the genae very broad and the hypo-ocular suture arising near the subacute projection of the inferior angle of the eye . . . . . Heterocorixinae
2b. The infraocular portion of the genae not broad or, if broad, the hypo-ocular suture (if present) arising about midway along ventral margin of eye . . . . . Corixinae

The Micronectinae are represented in the Western Hemisphere by the genus *Tenagobia*, which is most abundant in the tropical zones, ranging from S. California (a single old record from literature) to N. E. Argentina (DEAY 1935, BACHMANN 1961)

The Heterocorixinae is a S. American subfamily, of only one genus *Heterocorixa*.

The Corixinae are cosmopolitan and distinctly more differentiated in temperate regions than in the tropics. In the tropical lowlands of America the only well-represented genera are *Trichocorixa* and *Sigara* (subg. *Tropocorixa*).

METHODS

Measurements were taken with the longitudinal and transverse axes of the animal in a horizontal plane. The greatest width of head was chosen as most reliable measurement for width. Other important measurements are the synthlipsis (smallest distance between eyes dorsally), the width along hind border of an eye dorsally, and the ocular index (ŠTYS 1960).

The structural characteristics used for the identification of males are: the claspers of the genital capsule, the flattened fore tarsus or pala and the shape of the abdominal terga. Unlike species of more temperate regions where examination of the male pala is often sufficient for identification, in South American species the genitalia nearly always have to be studied.

TABLE 1

SPECIES AND LOCALITIES OF THE CORIXIDAE DISCUSSED IN THIS PAPER

Species	Venezuela	*Suriname*	Amazonas	Pará	Argentina	Chile	figures
Tenagobia latioculata		×					39–41
Tenagobia marmorata	×						42–44
Tenagobia serrata	×	×					45–47
Tenagobia signata	×	×					48–50
Tenagobia spinifera	×						51–53
Heterocorixa anduzei			×				54–57, 88
Heterocorixa boliviensis		×					58–61, 82
Heterocorixa chapadiensis			×				80, 83
Heterocorixa genupes			×				62–65, 81
Heterocorixa hungerfordi		?	×				66–68, 85
Heterocorixa longixiphus		×					86
Heterocorixa minuta			×				69, 89
Heterocorixa similis			×				70–73, 87
Heterocorixa surinamensis		×					74–77,84
Ectemnostegella tumidacephala						×	
Trichocorixa orinocoensis		×		×			90–91
Trichocorixa reticulata		×					92–93
Trichocorixa verticalis		×					94–96
Sigara chrostowskii					×		97–99

?indicates a record based on one female only, which in this case is not with certainty attributable to *H. hungerfordi*.

Drawings were made by means of a camera lucida. For this purpose legs must generally be cleared in hot KOH solution for a few minutes; the genital claspers can usually be drawn without clearing.

The synonymy given is abridged; older synonyms may be found in HUNGERFORD 1948.

In the distributional records an exclamation mark (!) indicates a new locality.

MICRONECTINAE Jaczewski, 1924

Tenagobia Bergroth, 1899

Tenagobia latioculata n.sp.

SURINAME: Suriname, Zanderij, Malasie Kreek, small pool, *Sta. 830*, 25.II. 1964, 1 ♂, 1 ♀ brachypterous (P. Wagenaar Hummelinck, S.).

Length, male 2.7, female 2.8 mm; width of head, male 0.94, female 0.95 mm.

Colour brownish, hemielytra with a large hyaline patch on the base of scutellum and a linear hyaline stripe on apex of corium and basal part of membrane.

Posterior margin of head with a small median tubercle. Caudolateral angles of interocular space not distinctly projected laterally. Ratio of width of eye: synthlipsis male 2.0, female 1.9; ocular index male 0.54, female 0.58. Prothorax with moustache-like bristles on lateral margins, pronotum about 7 times wider than long, slightly narrower than head. Posterior margin not distinctly truncate in front of base of hemielytra, narrowed at sides. Basal width of scutellum about 1.3 times its median length and about 0.47 times the width of head. Hemielytra with small spine-like setae which are difficult to see. Membranal suture rather distinct on right hemielytron, membrane somewhat reduced.

Male right clasper Fig. 40, left clasper Fig. 39, left part of last abdominal segment Fig. 41.

This species belongs to the *trunctata*-group of DEAY 1935, but differs clearly from these species as well as from all remaining species of *Tenagobia* by the ratio width of an eye: synthlipsis which is not more than 1.3 in any of the other *Tenagobia*.

Holotype male and allotype female from Zanderij, Malasie Kreek, presently in the collection of the "Afd. Systematiek", Zoölogisch Laboratorium at Utrecht; to be transferred to the Zoölogisch Museum at Utrecht as soon as more specimens become available.

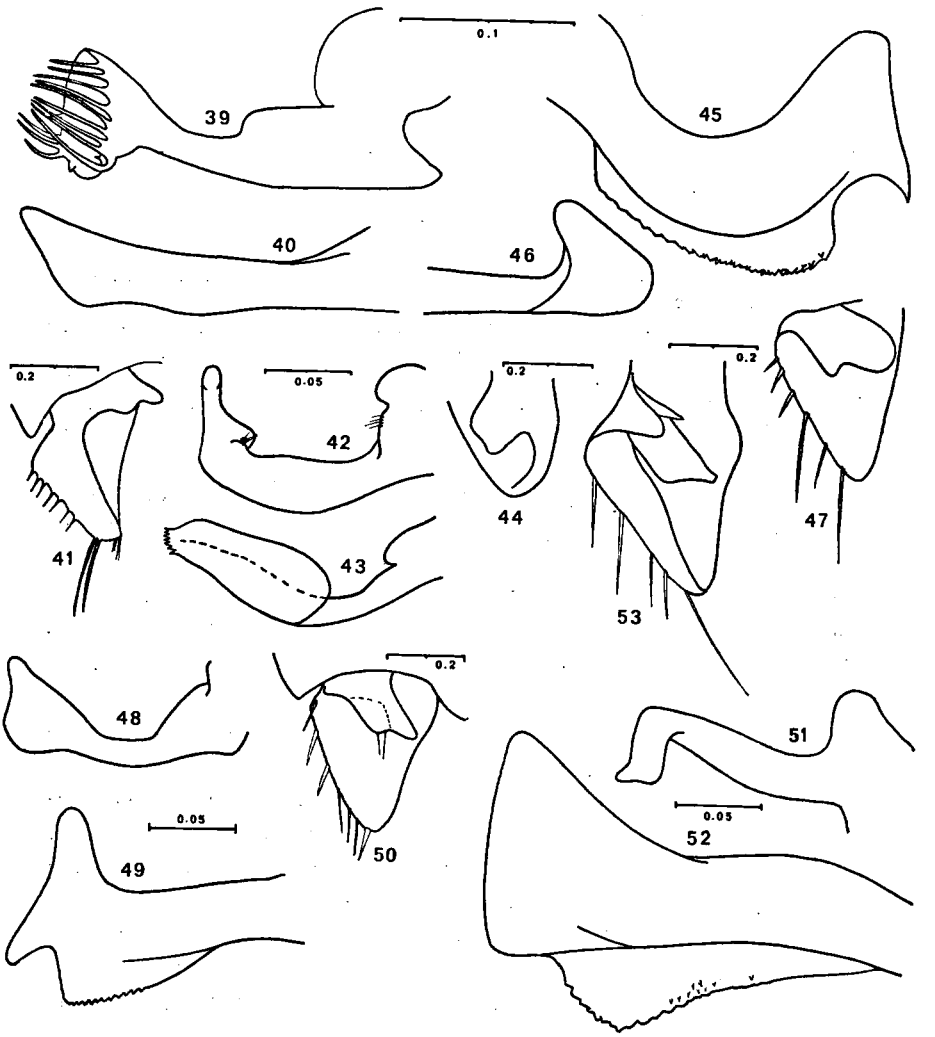


Fig. 39–41. *Tenagobia latioculata*, male holotype, from Suriname: 39, left genital clasper; 40, right genital clasper; 41, left part of 8th abdominal segment.

Fig. 42–44. *Tenagobia marmorata*, male, from Venezuela: 42, right clasper; 43, left clasper; 44, left part of 8th abdominal segment.

Fig. 45–47. *Tenagobia serrata*, male, from Suriname: 45, right clasper; 46, left clasper; 47, left part of 8th abdominal segment.

Fig. 48–50. *Tenagobia signata*, male, from Suriname: 48, left clasper; 49, right clasper; 50, left part of 8th abdominal segment.

Fig. 51–53. *Tenagobia spinifera*, male, paratype from Venezuela: 51, left clasper; 52, right clasper; 53, left part of 8th abdominal segment.

Tenagobia serrata Deay, 1930

Tenagobia serrata DEAY, 1930, p. 175–176 (Bolivia).
Tenagobia serrata; DEAY 1935, p. 450, pl. 41 fig. 7, 15.
Tenagobia serrata; DEAY in HUNGERFORD 1948, p. 81–82, pl. 12 fig. 7, 15.

SURINAME!, Suriname; VENEZUELA!, Falcón; BOLIVIA.

VENEZUELA: Paraguaná, Estanque de Santa Fé, *Sta. 109*, 18.II.1937, 1 ♂, 1 ♀ (Hummelinck, S.).
SURINAME: Suriname, Paramaribo, 24.VI.1938, at light, 1 ♀ (Geijskes, L.); Kabelstation, decaying palm in pool, *566*, 2.IX.1955, 1 ♂, 2 ♀ (Hummelinck, S.); Paramaribo, 27.VI.1958, at light, 1 ♂; Paramaribo, 9.IX.1958, at light, 1 ♂, 1 ♀; Paranam, 26.VII.1962, 3 ♂, 4 ♀; Commewijne, Plantage Berlijn, 7.IX.1961, 17 ♂, 18 ♀ (all Van Doesburg, L.).

Length, male 2.40–*2.46*–2.61, female, 2.62–*2.69*–2.80 mm; width of head, male, 0.89–*0.93*–1.00, female 0.96–*1.00*–1.09 mm, all measurements based on 5 specimens of each sex.

Colour light castaneous with eyes darker, hemielytra in many specimens with faint linear light and dark bands, base of clavus with a hyaline V-shaped figure, a narrow hyaline linear stripe on right hemielytron caudal to claval suture, membrane of left hemielytron hyaline, lateral border of corium with four dark maculations. Venter and legs yellowish.

Posterior margin of head with a small median tubercle. Caudolateral angles of interocular space rather sharply projected laterally. Ratio of synthlipsis: width of an eye, male 1.08–*1.13*–1.21, female 1.08–*1.14*–1.20; ocular index, male, 1.34–*1.39*–1.45, female, 1.27–*1.43*–1.53. Prothorax without moustache like bristles on lateral margins, pronotum 5–6 times wider than long, 2–2.3 times as wide as synthlipsis and 2–2.2 times wider than base of scutellum. Posterior margin of pronotum not truncate anterior to base of hemielytra. Scutellum 1.2–1.5 times as wide at base as its median length and 2.5–2.8 times the length of pronotum. Membranal suture distinct on right hemielytron only, apical part of membranes with numerous scattered peg-like setae. All specimens macropterous.

Male right clasper Fig. 45, twice serrate ventrally; left clasper Fig. 46, left part of last abdominal segment Fig. 47.

This species is virtually identical with *T. signata* and can only be distinguished from *signata* by the male right clasper. When specimens for comparison are available the latero-caudal angles of the interocular space, which are sharper in *T. serrata*, may be used too. *T. serrata* is slightly larger on the average, more often castaneous with lateral maculations of membrane less distinct.

Tenagobia signata (White, 1879)

Sigara signata WHITE, 1879, p. 274 (Amazonas).
Tenagobia signata; LUNDBLAD 1928, p. 13–16 (Amazonas).
Tenagobia signata; DEAY 1935, p. 443–446, pl. 39 fig. 7, pl. 41 fig. 8, 12 (Amazonas).
Tenagobia signata; DEAY in HUNGERFORD 1948, p. 74–77, pl. 10 fig. 7, pl. 12 fig. 8, 12 (Amazonas).
not *Tenagobia signata*; JACZEWSKI 1930, 1931.

SURINAME!, Suriname; BRASIL, Amazonas; VENEZUELA!, Falcón.

VENEZUELA: Paraguaná, Poza de San Antonio, E. of Carirubana, *Sta. 106*, 16.II.1937, 1 ♂, 1 ♀; Paraguaná, Estanque de Moruy, *108*, 18.II.1937, 5 ♀ (all Hummelinck).
SURINAME: Suriname, Kabelstation, ditch, *646*, 2.IX.1955, 13 ♂, 17 ♀ (Hummelinck, S.).

Length, male 2.10–*2.16*–2.32, female 2.32–*2.46*–2.58 mm; width of head, male 0.82–*0.86*–0.89, female 0.92–*0.94*–0.95 mm, all measurements based on 5 specimens of each sex.

Colour as *T. serrata* but more often greyish brown and lateral maculations on corium more distinct.

Caudo-lateral angles of interocular space less pointedly projected as in *T. serrata*. Ratio of synthlipsis: width of an eye, male 1.09–*1.20*–1.28, female 1,09–*1.26*–1.42; ocular index, male 1.23–*1.31*–1.37, female 1.27–*1.39*–1.54. Other ratios and structures also identical with those of *T. serrata*.

Male right clasper Fig. 49, uniserrate ventrally; left clasper Fig. 48; left posterior lobe of abdomen dorsally Fig. 50.

For comparative notes see under *T. serrata*.

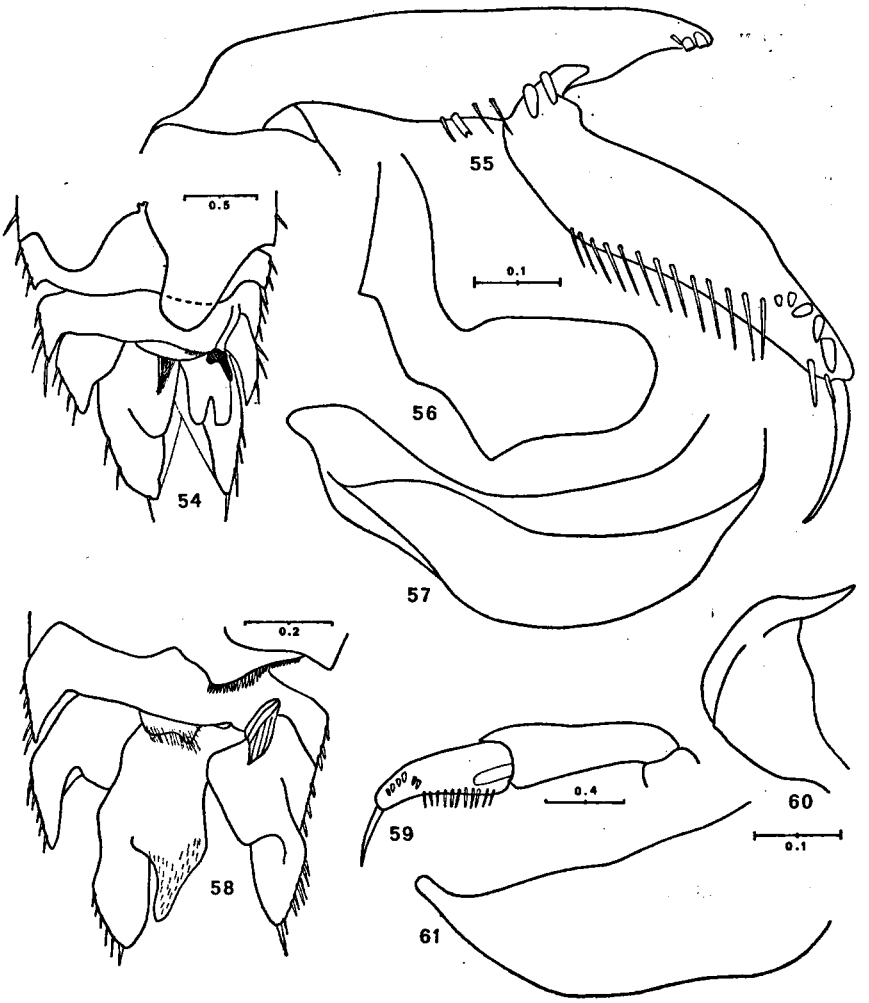


Fig. 54–57. *Heterocorixa anduzei*, male, from Brazil, Amazonas: 54, left dorsum of abdomen; 55, anterior tibia and pala; 56, right clasper; 57, left clasper.
Fig. 58–61. *Heterocorixa boliviensis*, male, from Suriname: 58, dorsum of abdomen; 59, fore tibia and pala; 60, right clasper; 61, left clasper.

Tenagobia spinifera n.sp.

VENEZUELA: Nagua Nagua, 21.XII.1891, 2 ♂, 2 ♀; Lago de Valencia, 29.XII.1891, 1 ♂, 2 ♀ macropterous (Meinert, K.).

Length, male 3.40–*3.41*–3.42, female 3.30–*3.58*–3.71 mm; width of head male 1.29–*1.31*–1.29, female 1.31–*1.40*–1.46 mm.

Colour, yellowish to light brownish with darker eyes. Hemielytra with very faint alternating lighter and darker bands, pattern of hyaline stripes as usual in *signata*-group, no dark lateral maculations on corium.

Hind margin of head with median tubercle. Caudolateral angles of interocular space rather sharply produced laterally. Ratio of synthlipsis: width of an eye, male 1.26–*1.29*–1.31, female 1.26–*1.50*–1.69; ocular index 1.31–*1.41*–1.55, female 1.66–*1.76*–1.89. Prothorax without moustachelike bristles on lateral margins. Pronotum 4.8–*5.3*–6.1 times wider than long, 1.9–*2.1*–2.4 times as wide as synthlipsis and 1.4–*1.5*–1.6 times wider than base of scutellum. Posterior margin of pronotum not or hardly truncated anterior to base of hemielytra. Scutellum 1.2–1.3 as wide at base as its median length, and 2.4–*2.8*–3.3 times the length of pronotum. Hemielytra with numerous peg-like setae, which are smaller than those of *T.serrata* and *T. signata*, on the apical 2/3; membranal sutures indistinct.

Male right clasper Fig. 52, left clasper Fig. 51; left apical lobe of abdomen dorsally Fig. 53.

This species belongs to the *signata*-group of DEAY. It differs from other species of the group by its larger size, greater extension of the peg-like setae on the hemielytra and the male sexual characters.

Holotype male, allotype female, 2 female paratypes from Venezuela, Nagua Nagua; 1 male and 1 female paratype from Lago de Valencia in the Zoological Museum at Copenhagen; 1 male paratype from Nagua Nagua and 1 female paratype from Lago de Valencia in collection of author.

HETEROCORIXINAE Hungerford, 1948

Heterocorixa White, 1879

Heterocorixa anduzei Hungerford, 1948

Heterocorixa anduzei HUNGERFORD, 1948, p. 118–119, pl. 19 fig. 8.

VENEZUELA; BRASIL!, Amazonas.

BRASIL: Amazonas, Upper Rio Negro, Rio Marauia, small pool at margins of mountain-rivulet, *A500–5*, 26.I.1963, 2 ♂, 2 ♀ (E. J. Fittkau, A.).

Length, male 4.90–4.94, female 5.10–5.30 mm; width of head, male 1.56–1.58, female 1.63–1.65 mm.

Colour brown, head yellowish other than eyes and posterior margin which are dark brown. Pronotum with indistinct and hemielytra with distinct yellowish spots. Posterior half of pronotum black; entire embolar groove dark brown to black.

Median length of head 0.60–0.70, median length of pronotum 0.60–0.65 mm. Synthlipsis, male 0.31–0.34, female 0.38–0.40; greatest length of postocular area 0.23–0.27; width of an eye along posterior margin 0.73–0.74; length of hypocular suture 0.3–0.4 mm. Ocular index, male 0.49–0.56, female 0.60–0.64. Latero-posterior margin of head projecting distinctly caudad, dorsally of hypocular suture (Fig. 88). Pronotal disk rugulose, with about ten distinct and quite regular transverse grooves. Hemielytra smooth and shining, with white hairs and more numerous, thicker black hairs. Length of pruinose area of embolar groove apically of nodal furrow 0.65–0.70; length of pruinose area along claval suture 0.70–0.73 mm. Metasternal xiphus long, reaching the tips of the coxal projections. Length of tarsus of middle leg 0.60–0.65 and claws 0.32–0.38 mm.

Male, pala and characteristically produced fore tibia Fig. 55; dorsum of abdomen Fig. 54; genital claspers Fig. 56–57.

Females can be distinguished from other *Heterocorixa* of about the same size by the colour of the embolar groove, and the latero-posterior margin of the head. The male is easily recognised by the produced fore-tibia.

Heterocorixa boliviensis Hungerford, 1928

Heterocorixa boliviensis HUNGERFORD, 1928, p. 100–101, pl. 3 fig. 5–7 (Bolivia).
Heterocorixa boliviensis; HUNGERFORD 1948, p. 121–123, pl. 18 fig. 5 (Bolivia, Ecuador, Perú, Brasil).

ECUADOR; PERÚ; BOLIVIA; BRASIL, Amazonas, Pará; SURINAME! Suriname.

SURINAME: Road to Affobakka, km 67, pool in forest, 14.IX.1963, 1 ♂ (Geijskes, L.).

Male, length 4.9 mm; width of head 1.4 mm.

Colour, brown mottled with yellowish, head except eyes yellow. Embolium dark brown to blackish at apex.

Median length of head the same as the pronotum, 0.58 mm. Synthlipsis 0.27; greatest length of postocular area 0.12; width of an eye along posterior margin 0.65; length of hypocular suture 0.21 mm. Ocular index 0.47. Posterior part of vertex between eyes with a low, blunt but rather distinct carina. Latero-posterior margin of head dorsally of hypocular suture (Fig. 82) very faintly sinuate. Pronotum rugulose, with about 7 quite distinct and regular transverse grooves. Hemielytra smooth, shining, with few white and apparently no black hairs. Length of apical part of pruinose area of embolar groove 0.70, length of pruinose area along claval suture 0.60 mm. Metasternal xiphus long but not reaching the tips of the coxal processes. Length of tarsus of middle leg 0.60, and claws 0.42 mm.

Male, fore tibia with an apical pad Fig. 59; dorsum of abdomen Fig. 58; genital claspers Fig. 60–61.

For comparative notes, see Key (p. 62).

Heterocorixa chapadiensis Hungerford, 1928

Heterocorixa hesperia var. *chapadiensis* HUNGERFORD, 1928, p. 102, pl. 3 fig. 1–3 (Mato Grosso).
Heterocorixa chapadiensis; HUNGERFORD 1948, p. 123–124, pl. 18 fig. 2 (Pará).

BRASIL, Amazonas!, Pará, Mato Grosso.

BRASIL: Amazonas, Upper Rio Negro, Rio Marauia, Missão S. Antonio, small pool in dry bed of rivulet, depth 20 cm, *A. 474*, 10.I.1963, 4 ♀ (E. J. Fittkau, A.).

Female, length 5.2–5.6 mm; width of head 1.5–1.6 mm.

Colour, brown with yellowish mottling. Pronotal pattern somewhat less distinct than that of hemielytra. Head, except eyes, yellowish, apical part of pruinose area of embolium lighter than basal part.

Median length of head 0.5–0.7, median length of pronotum 0.7–0.8 mm. Synthlipsis 0.35; greatest length of postocular area 0.16–0.19; width of an eye along posterior margin 0.66–0.73; length of hypocular suture 0.28–0.32 mm. Ocular index 0.55–0.60. Vertex caudally between eyes with a short, blunt, but distinct carina. Latero-posterior margin of head dorsally of hypocular suture (Fig. 83) slightly convex, not sinuate. Pronotum rugulose, with transverse grooves which are more regular and somewhat more distinct than in *H. boliviensis*. Hemielytra smooth, shining, with some white hairs and sparse black hairs. Length of apical part of pruinose area of embolar groove 0.80–0.95, length of pruinose area along claval suture 0.60–0.70 mm. Metasternal xiphus long but not reaching the tips of the coxal processes. Length of tarsus of middle leg 0.55–0.64 and claws 0.39–0.42 mm.

For comparative notes, see Key (p. 62).

Heterocorixa genupes n.sp.

BRASIL: Amazonas, Manaus, Rio Cuieuras, Igarapé Agua Encarnada, *A. 551–5*, 27.VIII. 1965, 7 ♂, 9 ♀ (E. J. Fittkau, A.).

Length, male 4.3–4.5, female 4.3–4.8 mm; width of head, male 1.35–1.37, female 1.38–1.50 mm.

Colour, brown mottled with yellowish; pronotal pattern indistinct. Head except eyes yellowish, sometimes infuscated to partly dark

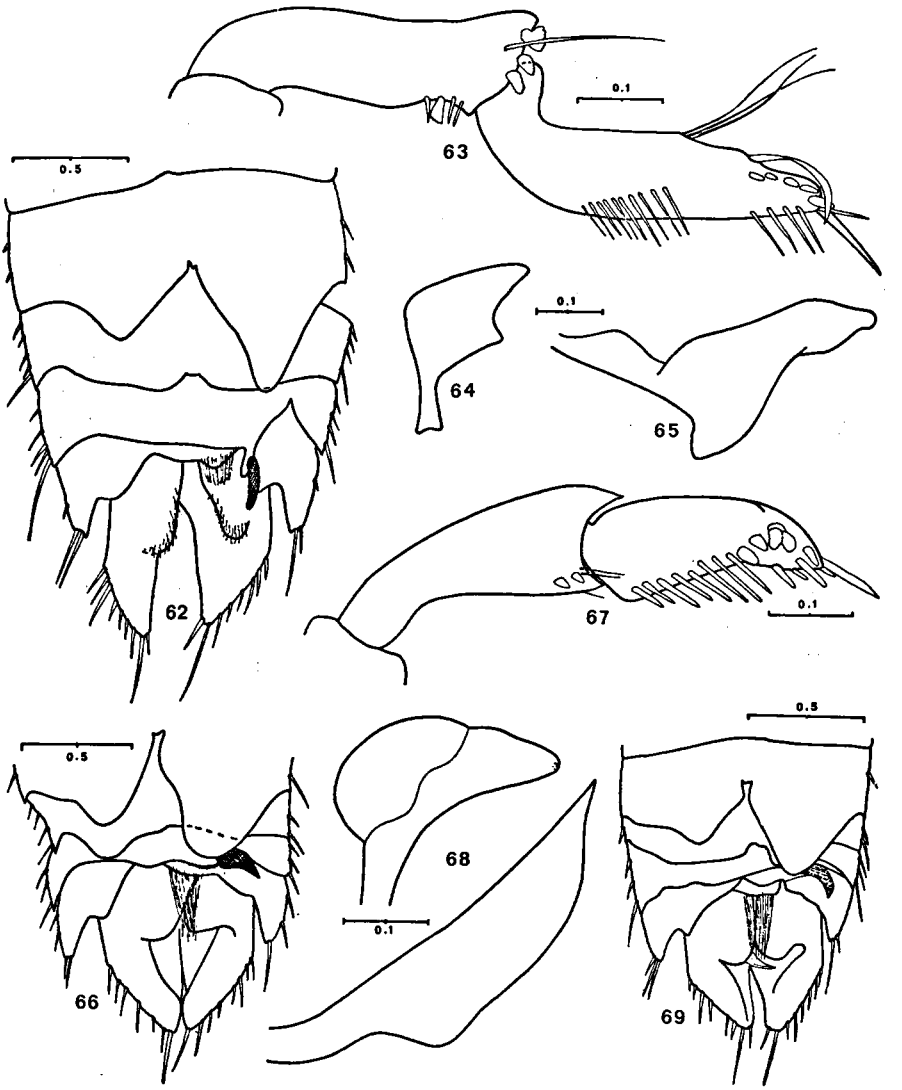


Fig. 62–65. *Heterocorixa genupes*, male paratype, from Brasil, Amazonas: 62, dorsum of abdomen; 63, fore tibia and pala; 64, right clasper; 65, left clasper.

Fig. 66–68. *Heterocorixa hungerfordi*, male holotype, from Brasil, Amazonas: 66, dorsum of abdomen; 67, fore tibia and pala; 68, right and left clasper.

Fig. 69. *Heterocorixa minuta*, male holotype from Brasil, Amazonas: dorsum of abdomen.

brown. A broad black transverse band in the middle of hemielytra in males, in females often smaller black spots. Pruinose area of embolium dark brown to blackish.

Median length of head 0.50–0.72, median length of pronotum 0.48–0.55 mm. Synthlipsis, male 0.23–0.28, female 0.27–0.30; greatest length of postocular area 0.23–0.26; width of an eye along posterior margin 0.58–0.69; length of hypocular suture 0.27–0.38 mm. Ocular index, male 0.41–0.51, female 0.46–0.54. Vertex between eyes with a broad indistinct carina, in females sometimes nearly indistinguishable. Latero-posterior margin of head dorsally of hypocular suture (Fig. 81) slightly sinuate. Pronotum rugulose, with distinct quite regular transverse grooves. Hemielytra smooth, shining, with white and thicker black hairs in about equal numbers. Length of apical part of pruinose area of embolar groove 0.62–0.70; length of pruinose area along claval suture 0.65–0.71 mm. Meso-epimeron broader than prothoracic lobe except for part apically of hair tuft. Metasternal xiphus long, just reaching the tips of the coxal processes. Length of tarsus of middle leg 0.50–0.61, and claws 0.35–0.40 mm.

Male, pala and fore tibia very characteristic Fig. 63; dorsum of abdomen Fig. 62; genital claspers Fig. 64–65.

For comparative notes, see Key (p. 62).

Holotype male, allotype female, 4 male and 6 female paratypes in collection of INPA, Manaus; 1 male, 1 female paratype in collection of Zoölogisch Museum, Utrecht; 1 male, 1 female paratype in collection of author.

Heterocorixa hungerfordi n.sp.

SURINAME: Marowijne, Nassaugebergte, Lijn km 0.7, 16.II.1949, 1 ♀ (Suriname Exp. 1948/49, L.; until males are found in this region the identification remains doubtful).

BRASIL: Amazonas, upper Rio Negro, Rio Marauia, Missão S. Antonio, small pool in dry bed of rivulet, *A. 474*. 10.I.1963, 1 ♂, 8 ♀ (E. J. Fittkau, A.); upper Rio Negro, mouth of Rio Naupés, at Icana Caatinga do Ticundari, *S. 334*, 17.XII.1959, 2 ♂, 1 ♀ (H. Sioli, A.).

Length, male 4.8, female 3.8–4.1 mm; width of head, male 1.3, female 1.3–1.4 mm.

Colour, brown mottled with yellowish. Head except eyes yellow. Yellowish pattern on apical half of hemielytra only faintly developed Basal part of pruinose area of embolium and the apical zone of the pruinose area smoky black. In some specimens a black or dark brown linear stripe on the membrane of left hemielytron.

Median length of head 0.65–0.68, median length of pronotum 0.35–0.40 mm. Synthlipsis, male 0.35, female 0.35–0.38; greatest length of postocular area 0.21–0.24; width of an eye along posterior margin 0.59–0.69; length of hypocular suture 0.23–0.30 mm. Ocular index, male 0.73, female 0.66–0.83. Vertex between eyes with a low, blunt, indistinct carina. Latero-posterior margin of head dorsally of hypocular suture (Fig. 85) sinuate. Pronotum slightly rugulose, no transverse grooves. Hemielytra smooth and shining, with scattered white hairs and apparently no or very few black hairs. Length of apical part of pruinose area of embolar groove 0.50–0.60, length of pruinose area along claval suture 0.51–0.53 mm. Metasternal xiphus long, just reaching the level of the coxal processes. Length of tarsus of middle leg 0.47–0.54, and of claws 0.28–0.42 mm.

Male, fore tibia prolonged but clearly less so than in *H. anduzei*, Fig. 67; dorsum of abdomen Fig. 66; genital claspers Fig. 68.

For comparative notes, see Key (p. 62).

Holotype male, allotype female, 5 female paratypes from *A. 474*; 1 male and 1 female paratype from *S. 334* in collection of INPA at Manaus; 1 female paratype from *A. 474* in collection of Zoölogisch Museum at Utrecht; 1 male paratype from *S. 334* and 2 female paratypes from *A. 474* in collection of author.

Heterocorixa longixiphus n.sp.

SURINAME: Sectie 0, small pool in dry creek, 23.III.1959, 1 ♀ (D. C. Geijskes L.).

Female, length 4.05 mm; width of head 0.15 mm.

Colour, brown mottled with yellowish. Head except eyes yellow,

pronotum uniform brown. Yellowish markings on hemielytra much more expanded than brown markings on basal half, apical part nearly uniform brown.

Median length of head 0.75, median length of pronotum 0.38 mm. Synthlipsis 0.38; greatest length of postocular area 0.27; width of an eye along posterior margin 0.54; length of hypocular suture 0.38 mm. Ocular index 0.68, Vertex between eyes without carina. Latero-posterior margin of head dorsally of hypocular suture (Fig. 86), slightly sinuate. Pronotum only faintly rugulose, shining, no transverse grooves. Hemielytra smooth, shining, with many white hairs, especially on corium, no black hairs. Length of apical part of pruinose area of embolar groove 0.58, length of pruinose area along claval suture 0.54 mm. Metasternal xiphus long, rather stout, surpassing the level of the tips of the coxal processes by 0.12 mm.

Length of tarsus of middle leg 0.51, and claws 0.48 mm.

For comparative notes, see Key (p. 62).

Holotype female in the Leiden Museum.

Heterocorixa minuta n.sp.

BRASIL: Amazonas, Manaus, Rio Cuieuras, Igarapé Agua Encarnada, *A. 551–1*, 27.VII.1965, 1 ♂, 2 ♀ (E. J. Fittkau, A.).

Length, male 3.15, female 3.01–3.20 mm; width of head, male 1.15, female 1.12–1.20 mm.

Colour, brown mottled with yellowish, pronotum uniform brown. Head except darker eyes yellowish. Apex and base of pruinose area of embolar groove dark brown or black; apical part of hemielytra darker brown.

Median length of head 0.55–0.60, median length of pronotum 0.30–0.32 mm. Synthlipsis, male 0.31, female 0.30–0.35; greatest length of postocular area 0.20–0.21; width of an eye along posterior margin 0.40–0.46; length of hypocular suture 0.23–0.28 mm. Synthlipsis male 0.74, female 0.73–0.81. Vertex between eyes with a broad flat indication of a carina. Latero-posterior margin of head

dorsally of hypocular suture (Fig. 89) produced caudad in its lower part. Pronotum only faintly rugulose, shining, without transverse grooves. Hemielytra smooth and shining, with many white and distinctly fewer black hairs. Length of apical part of pruinose area of embolar groove 0.38–0.42, length of pruinose area along claval suture 0.41–0.50 mm. Metasternal xiphus long but not reaching the tips of the coxal processes.

Length of tarsus of middle leg 0.39–0.40, and claws 0.33–0.38 mm.

Male, dosum of abdomen Fig. 69.

This species can be separated from all other known species of *Heterocorixa* by its small size.

Holotype male and allotype female in collection of INPA at Manaus; paratype female in collection of author.

Heterocorixa similis n.sp.

BRASIL: Amazonas, Manaus, Reserva Duke, Igarapé Barro Branco, *A. 584*, 6.XI.1965, 5 ♂, 9 ♀ (E. J. Fittkau, A.).

Length, male 3.7–4.1, female 3.9–4.1 mm; width of head, male 1.28–1.32, female 1.30–1.37 mm.

Colour, brown mottled with yellowish. Head, except dark eyes, yellow. Pronotum unicoloured brown. Basal part of hemielytra predominantly yellowish, apical part nearly devoid of yellowish markings. Pruinose area of embolium, basal part dark brown, apical part yellowish.

Median length of head 0.52–0.72, median length of pronotum 0.34–0.40 mm. Synthlipsis, male 0.32–0.35, female 0.35–0.37; greatest length of postocular area 0.20–0.27; width of an eye along posterior margin 0.49–0.60; length of hypocular suture 0.27–0.39 mm. Ocular index, male 0.64–0.73, female 0.69–0.77. Vertex between eyes with a low broad carina, in females sometimes indistinct. Latero-posterior margin of head dorsally of hypocular suture sinuate (Fig. 87). Pronotum only faintly rugulose, shining, no transverse grooves. Hemielytra smooth, shining, with white

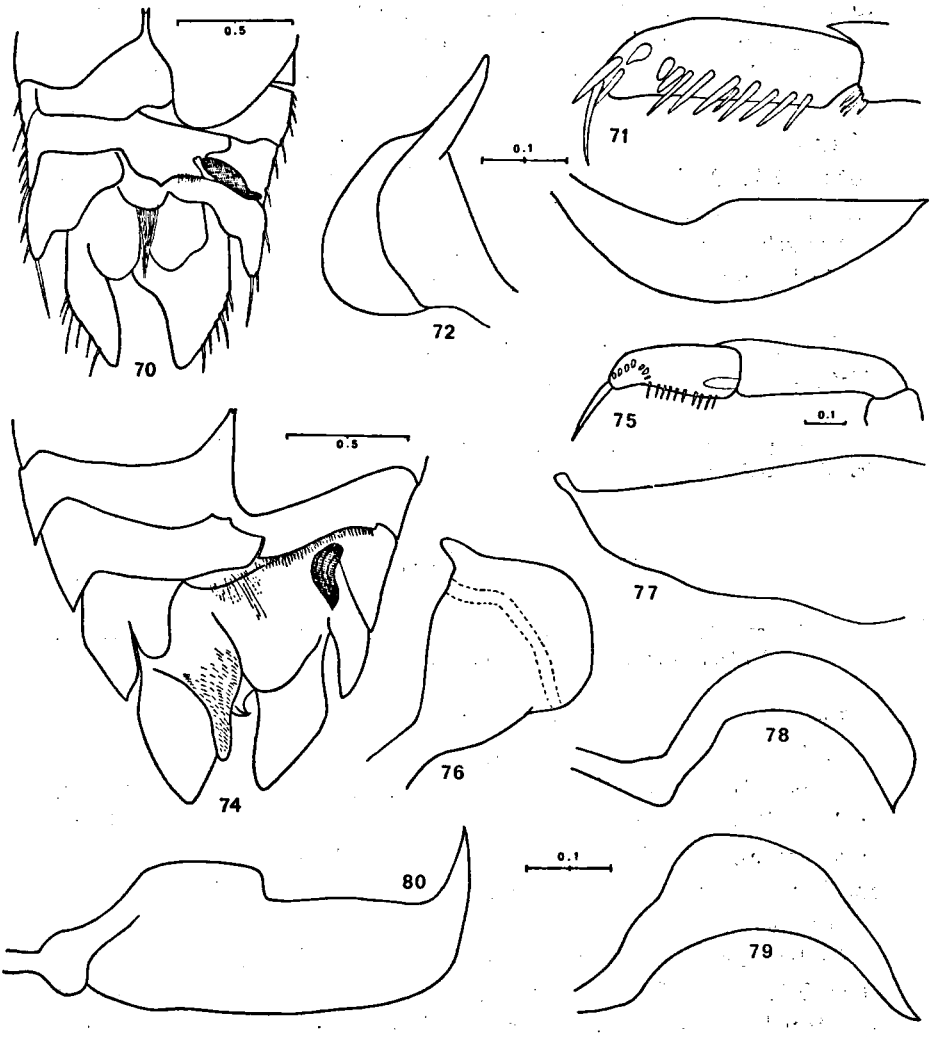


Fig. 70–73. *Heterocorixa similis*, male paratype, from Brasil, Amazonas: 70, dorsum of abdomen; 71, pala; 72, right clasper; 73, left clasper.

Fig. 74–77. *Heterocorixa surinamensis*, male holotype, from Suriname: 74, dorsum of abdomen; 75, fore tibia and pala; 76, right clasper; 77, left clasper.

Fig. 78. *Heterocorixa woytkowskii*, male, redrawn after HUNGERFORD 1948: right clasper.

Fig. 79. *Heterocorixa nigra*, male, redrawn after HUNGERFORD 1948: right clasper.

Fig. 80. *Heterocorixa chapadiensis*, male, redrawn after HUNGERFORD 1948: left clasper.

hairs and an occasional thicker black hair. Length of apical part of pruinose area of embolar groove 0.52–0.63, length of pruinose area along claval suture 0.48–0.57 mm. Metasternal xiphus long, reaching the level of the tips of the coxal processes. Middle leg, length of tarsus 0.47–0.53, length of claws 0.45–0.50 mm.

Male, pala Fig. 71; dorsum of abdomen Fig. 70; genital claspers Fig. 72–73.

For comparative notes, see Key (p. 62).

Holotype male, allotype female, 2 male and 6 female paratypes in collection of INPA, at Manaus; 1 male and 1 female paratype in collection of the Zoölogisch Museum at Utrecht; 1 male and 1 female paratype in collection of author.

Heterocorixa surinamensis n.sp.

SURINAME: Carolinakreek at Zanderij, 24.IV.1962, 1 ♂, 1 ♀ (P. H. van Doesburg, jr., L.).

Length, male 4.9, female 5.3 mm; width of head, male 1.42, female 1.53 mm.

Colour brown mottled with yellow, pattern on pronotum nearly as distinct as on hemielytra. Head except eyes yellowish. Part of embolium apical to pruinose area darker, pruinose area in female specimen dark brown to blackish.

Median length of head 0.72–0.80, median length of pronotum 0.60–0.70 mm. Synthlipsis, male 0.27, female 0.33; greatest length of postocular area 0.15–0.17; width of an eye along posterior margin 0.59–0.69; length of hypocular suture 0.19–0.26 mm. Ocular index, male 0.47, female 0.55. Vertex between eyes with only a faint indication of a carina. Latero-posterior margin of head dorsally of hypocular suture (Fig. 84) very faintly sinuate. Pronotum rugulose, transverse grooves indistinct and irregular. Hemielytra smooth, shining, specimens at hand with few white and apparently no black hairs. Length of apical part of pruinose area of embolar groove 0.71–0.85, length of pruinose area along claval suture 0.55–0.68 mm. Metasternal xiphus reaching about halfway along the coxae in-

cluding coxal processes. Length of tarsus of middle leg 0.58–0.62, and claws 0.40–0.41 mm.

Male, fore-tibia with an apical pad Fig. 75; dorsum of abdomen Fig. 74; genital claspers Fig. 76–77.

For comparative notes, see Key.

Holotype male and allotype female from Zanderij in the Leiden Museum.

As the number of species of *Heterocorixa* – characterized by middle leg with claws equal to or shorter than tarsus (with exception of *H. williamsi* Hungf.); hemielytra lacking spines on corium; metasternal xiphus long; male with the median lobe of the seventh abdominal tergite not produced into a pointed triangle (HUNGERFORD 1948: 105; key, no 1, second caption) – is now doubled, a Key for this group is given.

KEY TO SPECIES OF *Heterocorixa*
with "claws of middle leg shorter than tarsus"

1a. Body length 3.2 mm or less, latero-posterior margin of head dorsally of hypocular suture excavate (Fig. 89). . . . . *H. minuta* n. sp.
1b. Body length over 3.5 mm 2

2a. Metasternal xiphus reaching or surpassing the level of the tips of the metacoxal projections. 3
2b. Metasternal xiphus not reaching the level of the tips of the coxal projections. 7

3a. Pronotum distinctly rugulose with transverse grooves. . 4
3b. Pronotum faintly either shining or rugulose, no transverse grooves. 5

4a. Latero-posterior margin of head dorsally of hypocular suture only faintly sinuate (Fig. 81). Length 4.8 mm or less . . . . . *H. genupes* n. sp.

4b. Latero-posterior margin of head with lower part distinctly projecting backwards (Fig. 88). Length 4.9 mm or more. . . . . *H. anduzei* Hungf.

5a. Metasternal xiphus distinctly surpassing the level of the tips of the coxal projections. Latero-posterior margin of head less sinuate than in the alternative species (Fig. 86) . . . . . *H. longixiphus* n. sp.

5b. Metasternal xiphus not surpassing the level of the tips of the coxal projections. Latero-posterior margin of head more strongly sinuate than in *H. longixiphus* (Fig. 85, 87) . . 6

6a. Male right genital clasper with a blunt tip (Fig. 68). . . . . *H. hungerfordi* n. sp.

6b. Male right genital clasper with a longer, sharper tip (Fig. 72) . . . . . *H. similis* n. sp.

7a. General facies black 8

7b. General facies not black. 9

8a. Metasternal xiphus subequal to inner line of hind coxae; distal end of pruinose area of embolar groove truncate; male front tibia not carinate; right clasper slender, broadest at distal portion (Fig. 78) . . . . . *H. woytkowskii* Hungf.

8b. Metasternal xiphus longer than inner line of hind coxae; distal end of pruinose area obliquely rounded; male front tibia carinate; right clasper narrowed in distal portion (Fig. 79) . . . . . *H. nigra* Hungf.

9a. Claws of middle leg longer than tarsus, head broadly rounded, colour light, prestrigilar teeth longest on the right. . . . . *H. williamsi* Hungf.

9b. Claws of middle leg equal to or shorter than the tarsus, head not broadly rounded, prestrigilar teeth longest on the left. 10

10a. Pronotum with rather regular and distinct transverse grooves 11

10b. Transverse grooves of pronotum irregular and quite indistinct. Male abdomen, dorsal flap of left apical lobe with spines and a fingerlike projection at apex (Fig. 74) *H. surinamensis* n. sp.

11a. Latero-posterior margin of head slightly sinuate. Male abdomen, dorsal flap of left apical lobe with spines but without distinct fingerlike projection (Fig. 58). Male left clasper not strongly hooked apically (Fig. 61). . . *H. boliviensis* Hungf.

11b. Latero-posterior margin of head slightly convex, not sinuate (Fig. 83). Male abdomen, left apical lobe unknown. Left genital clasper strongly hooked apically (Fig. 80) . . . . . *H. chapadiensis* Hungf.

CORIXINAE Enderlein, 1912

Ectemnostegella Lundblad, 1928

Ectemnostegella tumidacephala Hungerford, 1948

Ectemnostegella tumidacephala HUNGERFORD, 1948, p. 210–211, pl. 34, fig. 2 (Perú).

PERÚ, Huanuco; CHILE!

CHILE: Renaca, 15.XII.1951, 1 ♀ (Mellentin-Poulsen, K.).

Female, length 6.1 mm; width of head across eyes 2.0, across pronotum 1.8 mm.

Colour, general facies brown. Pronotum crossed by about 8 very irregular pale lines. Pattern of hemielytra rather irregular. Dorsum of head, ventral parts of head and thorax light brownish, venter of abdomen darker.

Brachypterous, head distinctly longer than pronotum (1.1 and 0.65 mm respectively). Postocular space broad, about 0.18 mm at inner edges of eyes. Interocular space twice the width of an eye (1.0 : 0.5) and equal to the length of the claval pruinose area. Vertex produced, eyes somewhat protuberant. Pronotum without median carina. Pronotum and hemielytra shining and faintly rugulose. Nodal furrow distinct, basal part of pruinose area of embolium

clearly longer than apical part (1.5 : 1.0), which is equal in length to the pruinose area along claval suture. Pruinose area of claval suture distinctly longer than the posterior width of an eye. Lateral lobe of pronotum broadest at base and gradually tapering towards apex. Osteole near the tip of the narrow meso-epimeron. Metasternal xiphus about as broad as long.

Although differing in several respects from the description of the single specimen known, which is a macropterous male (HUNGERFORD 1948); this female is thought to belong to this species as the head is wider than the pronotum, the vertex is produced and the eyes are rather protuberant.

The specimen is in the collection of the Zoölogical Museum at Copenhagen.

Trichocorixa Kirkaldy, 1908

Trichocorixa orinocensis Sailer, 1948

Trichocorixa orinocensis SAILER in HUNGERFORD 1948, p. 339–341, fig. 33–36, 162, 184, 209 (Colombia, Venezuela, Trinidad, Suriname, Brasil).
Trichocorixa orinocensis; NIESER 1969, p. 149–152, fig. 72–76, 92, 95, 97–98 (Curaçao, Bonaire, Aruba, Blanquilla).

COLOMBIA, Atlántico; VENEZUELA, Falcón; SURINAME, Nickerie, Suriname!, Commewijne; BRASIL, Paraíba, Pará. – Lesser Antilles, Leeward Group: BLANQUILLA, BONAIRE, CURAÇAO, ARUBA.

SURINAME: Suriname, Paramaribo, at light, 18.X.1957, 1 ♂, 1 ♀; same, 22.X.1957, 1 ♀; same, 5.IX.1958, 2 ♀; same, 9.IX.1958, 1 ♂, 4 ♀; same, 11.IX.1958, 1 ♀; same, 12.IX.1958, 1 ♀; same, 15.IX.1958, 3 ♀; same, 17.IX. 1958, 1 ♀; same, 18.IX.1958, 1 ♂; same, 27.X.1958, 2 ♀; same, 28.I.1959, 1 ♂; Galibi, 29.VII.1959, 2 ♂, 11 ♀ (all Van Doesburg, L.); Republiek, 5.IX.1948, 3 ♀ (Suriname Exp., L.); Commewijne, Plantage Berlijn, at light *P. 1119*, 29/30.VIII.1961, 3 ♂; same, *P. 1127*, 6.IX.1961, 5 ♂, 3 ♀ (Van Doesburg, L.). BRASIL: Pará, Zona Bragantina, near Quatipuru, Igarapé Cavallo, pool with silt-bottom, depth 20 cm, *A. 512–1c*, 1 ♀; same, between grasses, depth 10 cm, *A. 512–1d*, 3 ♂ (E. J. Fittkau, A.).

The male can be recognized by the truncate left posterior lobe of abdomen and the characteristic right genital clasper (Fig. 90–91).

For more extensive discussion of this species the reader is referred to SAILER 1948 or NIESER 1969.

Trichocorixa reticulata (Guérin-Méneville, 1857)

Trichocorixa reticulata GUÉRIN-MÉNEVILLE, 1857, p. 432 (Cuba).
Trichocorixa reticulata; SAILER in HUNGERFORD 1948, p. 343–348, fig. 44–57, 94, 134–150, 172–178, 196–199, 209 (China, Hawaii, North, Central and South America).
Trichocorixa reticulata; NIESER 1969. p. 153–156, fig. 77–86, 93, 99–100 (Lesser Antilles).

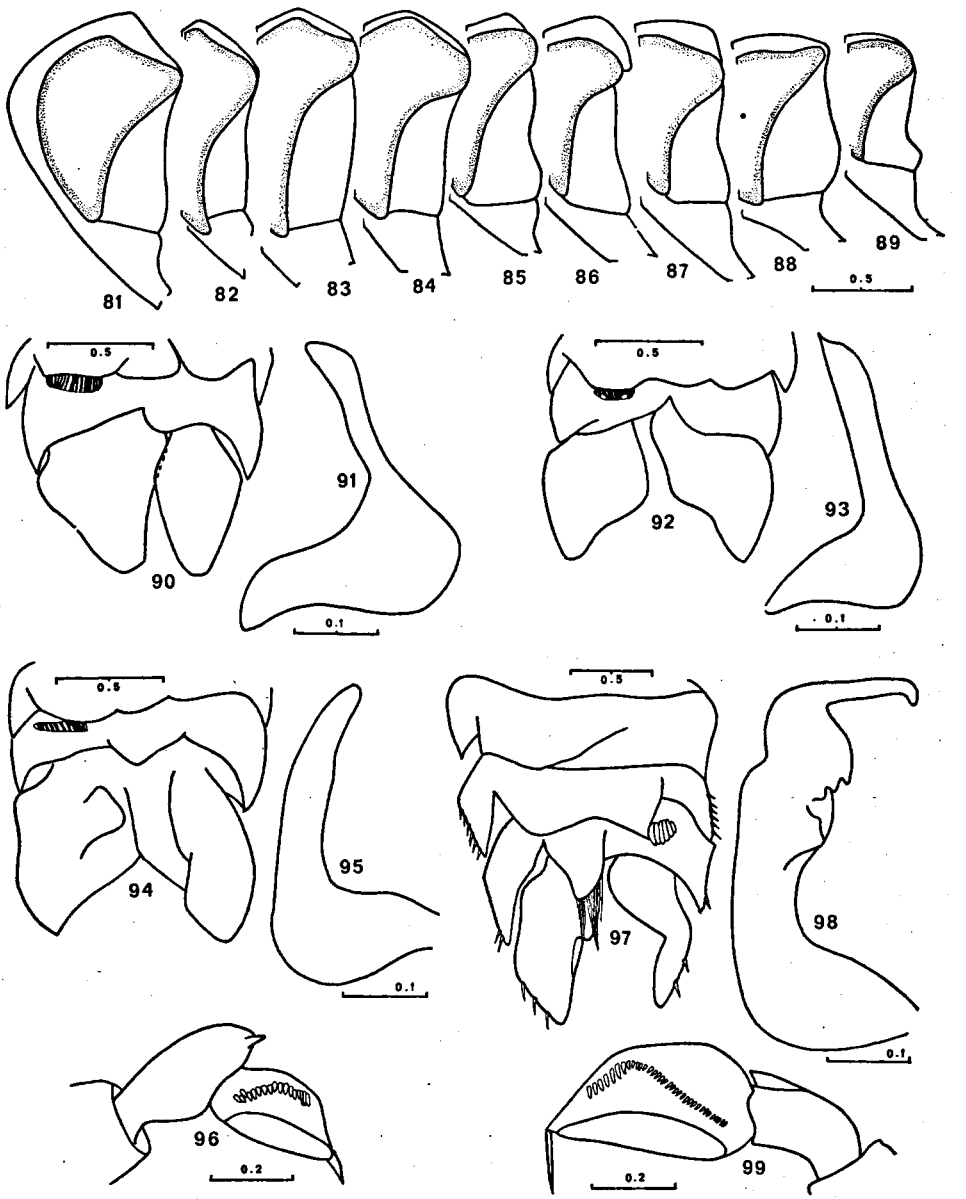
CHINA, Shanghai; HAWAIIAN ISLANDS; U.S.A., Nevada, Kansas, Florida, Texas, New Mexico, California; MÉXICO, Baja California, Sinaloa, Islas Tres Marias, Tamaulipas, Oaxaca, Chiapas; COLOMBIA; ECUADOR; GALÁPAGOS ISLANDS; PERÚ, Lima; VENEZUELA; SURINAME, Suriname, Nickerie. LESSER ANTILLES; GREATER ANTILLES; BAHAMAS, Bimini.

SURINAME: Paramaribo, at light, 15.I.1958, 1 ♀; same, 28.I.1959, 1 ♂, 1 ♀; Paramaribo, Cultuurtuin, at light, *P. 2158*, 14.III.1963, 1 ♂, 1 ♀ (Van Doesburg, L.).

The males can be separated from the other species of *Trichocorixa* known to occur in South America by the convex lateral margin of the left posterior lobe of the abdomen. The right genital clasper is also distinctive (Fig. 92–93).

For more extensive discussion of this species the reader is referred to SAILER 1948 or NIESER 1969.

Fig. 81–89. Posterior part of head of *Heterocorixa* in lateral view: 81, *H. genupes*; 82, *H. boliviensis*; 83, *H. chapadiensis*; 84, *H. surinamensis*; 85, *H. hungerfordi*; 86, *H. longixiphus*; 87, *H. similis*; 88, *H. anduzei*; 89, *H. minuta*.
Fig. 90–91. *Trichocorixa orinocoensis*, male: 90, dorsum of abdomen (Blanquilla); 91, right clasper (Aruba).
Fig. 92–93. *Trichocorixa reticulata*, male, from St. Martin: 92, dorsum of abdomen; 93, right clasper.
Fig. 94–96. *Trichocorixa verticalis*, male, from St. Croix: 94, dorsum of abdomen; 95, right clasper; 96, fore tibia and pala.
Fig. 97–99. *Sigara chrostowskii*, male, from Argentina; 97, dorsum of abdomen; 98, right genital clasper; 99, fore tibia and pala.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Trichocorixa verticalis verticalis (Fieber, 1851)

Trichocorixa verticalis FIEBER, 1851, p. 24 (Pennsylvania).
Trichocorixa verticalis verticalis; SAILER 1948, p. 358–361, fig. 64–67, 86, 95–98, 106–111, 165–166, 179, 200, 204, 210 (U.S.A., México, Antilles).
Trichocorixa verticalis verticalis; NIESER 1969, p. 156–159, fig. 87–91, 94, 101–102 (Lesser Antilles).

CANADA, Ontario; U.S.A., Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Virginia, North Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, New Mexico; MÉXICO, Tamaulipas, Sinaloa, Jalisco, Michoacán, Hidalgo, Campeche, Yucatán; BRITISH HONDURAS; SURINAME!, Suriname, Commewijne; BERMUDA; BAHAMAS, Bimini; GREATER ANTILLES; LESSER ANTILLES.

SURINAME: Paramaribo, at light, 9.IX.1958, 1 ♂; Commewijne, Plantage Berlijn, *P. 1127*, at light, 6.IX.1961, 1 ♂ (Van Doesburg, L.).

The males of this species can be separated from other species of *Trichocorixa* known to occur in South America by the left apical lobe of the abdomen, which is apically rounded and has a sinuate outer margin, the pala, which is shorter than the total length of the fore tibia and the right genital clasper (Fig. 94–96).

For a more extensive discussion of this species the reader is referred to SAILER 1948 or NIESER 1969.

Sigara Fabricius, 1775

Sigara chrostowskii Jaczewski, 1927

Sigara chrostowskii JACZEWSKI, 1927, p. 42–46, fig. 1–9, pl. 2 fig. 1 (Brasil).
Sigara chrostowskii; HUNGERFORD 1948, p. 792–793, pl. 106 fig. 2 (Brasil, Paraguay, Argentina).
Sigara chrostowskii; KLEEREKOPER 1955, p. 560 (Rio Grande do Sul).
Sigara chrostowskii; BACHMANN 1961, p. 24 (Argentina).

BRASIL, São Paulo, Paraná, Santa Catarina, Rio Grande do Sul; PARAGUAY, Concepción, Guairá, Neembucú; ARGENTINA, Entre Ríos, Buenos Aires.

ARGENTINA: Buenos Aires, La Plata, 12.VII.1924, 26 ♂, 35 ♀ (J. H. Jurriaanse, L.).

Length males $\bar{x} = 5.20$ s = 0.13, females $\bar{x} = 5.53$ s = 0.175; width of head across eyes males $\bar{x} = 1.62$ s = 0.036, females $\bar{x} = 1.83$ s = 0.075 (measurements in mm and based on 10 specimens of each sex).

Colour brownish, pronotum with 7–8 yellowish bands. Corium with a generally rather distinct linear brown line along outer margin and a less distinct one along inner margin. Head, ratio width of an eye along posterior margin: synthlipsis 1.1–*1.3*–1.4 in males, 1.1–*1.3*–1.6 in females. Ocular index, males $\bar{x} = 1.12$ s = 0.043, females $\bar{x} = 1.09$ s = 0.047. Width of genae at level of hypocular suture less than the diameter of the middle femur. Pronotum, ratio median length of pronotum: median length of head, males 1.0–*1.1*–1.3, females 1.1–*1.3*–1.4; width of pronotum: its median length, males 1.7–*1.9*–2.0, females 1.8–*2.0*–2.1.

Male, pala Fig. 99, dorsum of abdomen Fig. 97, right genital clasper Fig. 98.

The male pala in this series is somewhat like that of *S. brachypala* Hungerford but the abdominal dorsum is like *S. chrostowskii*.

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