NEW LEAFHOPPER TAXA (HOMOPTERA, CICADELLIDAE: DELTOCEPHALINAE) FROM PARAGUAY

by

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INTRODUCTION

Linnavuori (1959) revised the Neotropical Deltocephalinae and some related subfamilies. He listed 106 genera. DeLong and other authors described 26 new Neotropical genera from 1935 to 1959 that were not included in Linnavuori's revision. Subsequently, 44 new Neotropical genera have been described by Linnavuori, DeLong, Kramer, Harlan, Kolbe, Capriles, and Thambimuttu in numerous papers scattered through the literature.

During the summer of 1975, H. D. Blocker, R. J. Elzinga and T. A. Granovsky of Kansas State University collected many Deltocephalinae in Paraguay. This material forms the basis of this study of Paraguayan taxa. A total of 31 genera, 72 species and 8 subspecies of leafhoppers were identified; of these, 23 previously named species are new records for Paraguay. Two new genera, 34 new species and 4 new subspecies are described and illustrated using characters of the male external genitalia and female abdominal sternum VII when they could be matched with a male. Other characters were also used when diagnostic. Little is known about the biology of these new taxa. Diagnoses were accomplished through the comparison of illustrations published by Linnavuori (1959) and supplemented by all other literature describing Neotropical Deltocephalinae. All specimens used in this study are in the collection of the United States National Museum (USNM) and Kansas State University (KSU). These symbols will be used hereafter to designate the location of type material.

TECHNIQUES

Techniques used in this study of male genitalia have been adequately described by many authors including Young (1977) and will not be repeated here. I used macerated female abdomens to illustrate the abdominal sternum VII. At Kansas State University, we use polyethylene microvials with silicone stoppers (from Arthropod Specialties Co., Sacramento, California) for storing male and female genitalia because no reaction with glycerine has been noted as described by Young who used glass vials and cork stoppers. These had to be replaced when glycerine came in contact with the cork and became discolored. Illustrations were drawn free hand. Unless otherwise stated in the caption, they were drawn from the following aspect:

Head - dorsal view

Aedeagus - lateral view

Connective - dorsal view

Style - dorsal view

Valve and Plates - ventral view

Pygofers - lateral view

Female Abdominal Sternum VII - ventral view

Measurements are based on all specimens available if there were 10 or fewer in the series. If over ten specimens were available, measurements were based on 10 specimens of each sex. An attempt was made to measure the largest and smallest individual in each series so that a range of variance was established. No attempt was made to establish a mean.

Bibliographic references used for all citations prior to 1959 are coded according to Metcalf's "General Catalogue of the Homoptera," Fascicle VI (see literature cited), and "Cicadelloidea: Bibliography of the Cicadelloidea (Homoptera: Auchenoryncha)" published in March, 1964 by the Agricultural Research Service, U. S. Department of Agriculture. In the terminal bibliography I include only those references not in Metcalf's catalogue. Unless otherwise stated, all new names proposed for various taxa are to be considered as arbitrary combinations of letters.

I follow the generic and tribal classification of Linnavuori (1959) except that I do not include Hecalini in the subfamily Deltocephalinae and I have raised Mendozellus and Planicephalus to the category of genus following Kramer (1971).

TAXA OF DELTOCEPHALINAE IDENTIFIED FROM PARAGUAY

Tribe Deltocephalini

Agudus blockeri, new species. Paraguay: Central and Misiones.

A. forficatus, new species. Paraguay: Central and Cordillera.

A. sexmaculatus Linnavuori, 1959:86. Paraguay: Alto Parana, Caaguazu, Central, and Cordillera; also reported from Argentina. A new record for Paraguay.

A. typicus Oman, 1936b:372. Paraguay: Presidente Hayes; also reported from Argentina and Brazil. A new record for Paraguay.

A. lepidus, new species. Paraguay: Cordillera.

A. cyrtobrachium, new species. Paraguay: Cordillera.

Amplicephalus chacus, new species. Paraguay: Presidente Hayes.

A. marginellanus (Metcalf), 1954c:45. Paraguay: Amambay, Alto Parana, Caaguazu, Central, Cordillera; Brazil: Foz de Iguacu; also reported from Argentina, Bolivia, other areas of Brazil, and Cuba. Linnavuori (1959) discusses a variety of this species with dark coloration; the specimens observed from Paraguay resemble this dark variety.

A. luridus Linnavuori and DeLong, in press. Paraguay: Presidente Hayes; also reported from Brazil. A new record for Paraguay.

A. parquis, new species. Paraguay: Caaguazu.

A. tubupennis, new species. Paraguay: Amambay.

A. eusebius, new species. Paraguay: Amambay.

Fusanus chacoensis (Linnavuori) 1955b:122. Paraguay: Presidente Hayes; also reported from Argentina and Paraguay: Chaco.

F. acristylus, new species. Paraguay: Presidente Hayes.

Graminella striatella Linnavuori, 1959:122. Paraguay: Amambay, Alto Parana, Boqueron, Caaguazu, Central and Cordillera; also reported from Argentina, Brazil, Colombia, Costa Rica, Panama and the West Indies. This species is widely distributed and abundant in Paraguay.

G. stelliger bipunctella Linnavuori, 1959:123. Paraguay: Alto Parana; also reported from Panama. A new record for Paraguay.

Haldorus parallelocornis inaequalis Linnavuori and DeLong, in press. Paraguay: Central; also reported from Brazil. A new record for Paraguay.

H. parallelocornis maculatus, new subspecies. Paraguay: Alto Parana.

H. scissis, new species. Paraguay: Caaguazu and Central.

H. macilentus Linnavuori, 1959:147. Paraguay: Alto Parana, also reported from: Panama. A new record for Paraguay. Linnavuori described this species from a single male from Panama. Only one male specimen is reported from Paraguay.

H. drepanus, new species. Paraguay: Central.

H. cratus, new species. Paraguay: Central and Cordillera.

H. furcatus Caldwell, 1952a:57. Paraguay: Alto Parana and Central; also reported from Brazil, Puerto Rico and the West Indies. The processes of the aedeagus are reportedly variant in this species. Specimens from Puerto Rico have aedeagal processes that are acute apically while those reported from Brazil have processes that are flattened and broad apically. Both types were observed from Paraguay.

H. schizus, new species. Paraguay: Amambay and Central.

Limpica forcata, new genus and species. Paraguay: Central.

Loreta ornaticeps Linnavuori, 1959:133. Paraguay: Alto Parana and Central; also reported from Argentina and Venezuela. A new record for Paraguay.

Mendozellus asunctia, new species. Paraguay: Central.

M. isis (Linnavuori), 1959:119. Paraguay: Boqueron; also reported from Argentina. A new record for Paraguay.

Neodeltocephalus asper Linnavuori, 1959:132. Paraguay: Alto Parana and Central; also reported from Argentina. A new record for Paraguay.

Planicephalus flavicosta (Stal), 1862e:53. Paraguay: Alto Parana, Amambay, Boqueron, Caaguazu, Central and Cordillera; also reported from Argentina, Bolivia, Brazil, Bahama, Colombia, Costa Rica, Cuba, Ecuador, Guatemala, Haiti, Jamaica, Panama, Puerto Rico and North

America. This species is widely distributed in Nearctic and Neotropical regions.

P. serratus, new species. Paraguay: Alto Parana and Central.

Unerus colonoides Linnavuori, 1959:129. Paraguay: Alto Parana and Caaguazu; also reported from Bolivia and Brazil. A new record for Paraguay.

U. colonus (Uhler), 1895a:80. Paraguay: Amambay, Alto Parana, Boqueron, Central and Cordillera; also reported from Argentina, Bolivia, Brazil, Colombia, Grenada, Panama, Peru, Surinam and the West Indies. This species is widely distributed in Central and South America.

Tribe Euscelini

Antoniellus irrorellus Linnavuori, 1959:205. Paraguay: Boqueron; also reported from Argentina. A new record for Paraguay. Linnavuori described this species from a single male from Argentina. Only one male is reported from Paraguay.

Aplanatus pallibandus, new genus and new species. Paraguay: Itapua.

Atanus curvilinea (Linnavuori), 1955a:110. Paraguay: Amambay; also reported from Argentina and Brazil. A new record for Paraguay.

A. coronatus (Berg), 1879d:261. Paraguay: Caaguazu and Central; also reported from Argentina, Brazil and Bolivia.

A. luqueatus luqueatus, new species. Paraguay: Central.

A. luqueatus equalis, new subspecies. Paraguay: Alto Parana.

A. gracilus, new species. Paraguay: Cordillera.

A. loriatus, new species. Paraguay: Central.

Bahita armata Linnavuori, 1959:169. Paraguay: Amambay and Caaguazu; also reported from Argentina. A new record for Paraguay. The female is recorded for the first time.

B. cirrofasciata, new species. Paraguay: Boqueron.

B. quimilica Linnavuori, 1959:171. Paraguay: Boqueron; also reported from Argentina. A new record for Paraguay.

Chlorotettix polymaculatus, new species. Paraguay: Caaguazu, Central, Cordillera and Itapua.

C. fuscifascicatus, new species. Paraguay: Central and Itapua.

C. nimbuliferus (Berg), 1884a:28. Paraguay: Alto Parana, Central, Cordillera and Guaira; also reported from Argentina and Brazil. A new record for Paraguay.

C. longibrachium, new species. Paraguay: Central.

C. protensus Linnavuori, 1959:255. Paraguay: Paraguari; also reported from Argentina. A new record for Paraguay. Linnavuori described this species from a single male from Argentina. Only one male specimen is reported from Paraguay.

C. fraterculus (Berg), 1879d:262. Paraguay: Boqueron, Central and Cordillera; also reported from Argentina, Brazil, Panama, Puerto Rico, Surinam, Trinidad, Venezuela and Virgin Islands.

C. forcipata Linnavuori and DeLong, in press. Paraguay: Amambay.

C. fulvicus, new species. Paraguay: Boqueron.

C. minimus Baker, 1898g:220. Paraguay: Alto Parana and Amambay; also reported from Argentina, Bolivia, British Guayana, Colombia, Costa Rica, Cuba, Ecuador, Haiti, Jamaica, Panama, Puerto Rico, Trinidad, Vieques Island and Virgin Islands. A new record for Paraguay.

C. latocinctus paraguayensis, new subspecies. Paraguay: Caaguazu.

Copididonus hyalinipennis (Stal), 1859b:52. Paraguay: Alto Parana, Amambay, Caaguazu, Central and Itapua; also reported from Argentina, Brazil, Colombia and Venezuela.

Exitianus obscurinervis (Stal), 1859b:293. Paraguay: Alto Parana, Boqueron, Central, Cordillera and Itapua; also reported from Argentina, Brazil, Chile, Haarup, Peru and Uruguay. A very common species, especially in Argentina (Linnavuori:1959).

Faltala furcipennis, new species. Paraguay: Itapua.

Menosoma longita, new species. Paraguay: Central.

M. inprica, new species. Paraguay: Boqueron.

M. taeniata Linnavuori, 1955a:112. Paraguay: Alto Parana and Cordillera; also reported from Argentina and Brazil.

Mesadorus undatus Linnavuori, 1955b:120. Paraguay: Central; also reported from Brazil. A new record for Paraguay. Linnavuori described this species from a single male from Brazil. Only one male specimen is reported from Paraguay.

Neophlepsius phlorus, new species. Paraguay: Itapua.

Osbornellus infuscatus Linnavuori, 1955a:102. Paraguay: Amambay and Central; also reported from Argentina and Brazil.

Paratanus brevicapitus, new species. Paraguay: Boqueron.

P. inermis paraguayensis, new subspecies. Paraguay: Boqueron.

Stirellus torresi Linnavuori, 1959:325. Paraguay: Caaguazu, Central, Cordillera and Itapua; also reported from Argentina. A new record for Paraguay.

S. picinus cuneatus (Uhler), 1895a:79. Paraguay: Amambay, Alto Parana, Boqueron, Caaguazu, Central, Cordillera and Presidente Hayes;

also reported from British Guiana, Brazil, Cuba, Surinam, Trinidad and Tobago Island. This subspecies is widely distributed and abundant in Paraguay and the coloration is variant.

Tropicanus bicornis Linnavuori, 1959:203. Paraguay: Cordillera; also reported from Argentina. A new record for Paraguay. Linnavuori described this species from a single male from Argentina. Only one male specimen is reported from Paraguay. The Paraguayan specimen has three processes on the apex of aedeagus instead of two on the specimen from Argentina.

Tubulanus rhopalus, new species. Paraguay: Caaguazu, Central, Cordillera and Brazil: near Ponta Pora.

T. trifurcatus, new species. Paraguay: Caaguazu.

Tribe Acinopterini

Acinopterus gentilis Linnavuori, 1959:60. Paraguay: Boqueron; also reported from Argentina. A new record for Paraguay.

Tribe Scaphytopiini

Scaphytopius (Cloanthanus) paraguayensis, new species. Paraguay: Central.

S. (Cloanthanus) margineliatus (Stal), 1859b:294. Paraguay: Alto Parana; also reported from Argentina, Brazil and British Guiana. A new record for Paraguay.

Tribe Macrostelini

Balclutha composa Blocker and Nixon, 1978:513. Paraguay: Alto Parana.

B. obunca Blocker, 1967:25. Paraguay: Amambay, Alto Parana, Central and Brazil: Foz de Iguacu; also reported from other areas of Brazil.

B. floridana (DeLong and Davidson), 1933a:56. Paraguay: Alto Parana, Boqueron and Central; also reported from Brazil, Cuba, Dominica, Ecuador, Guatemala, Honduras, Jamaica, Mexico, Panama, Peru, Puerto Rico and the Southeastern United States.

B. hebe (Kirkaldy), 1906c:343. Paraguay: Alto Parana and Central; also reported from Brazil, Bolivia, Colombia, Costa Rica, Cuba, Dominica, Ecuador, Guatemala, Haiti, Honduras, Panama, Peru and the Southeastern United States.

B. incisa (Matsumura), 1902a:360. Paraguay: Amambay, Alto Parana, Central and Chaco; also reported from Argentina, Barbados, Brazil, Colombia, Ecuador, Guatemala, Mexico, Panama, Peru, Puerto Rico, Trinidad Island and the United States.

B. quajanae (DeLong), 1923c:267. Paraguay: Amambay, Chaco and Central; also reported from Brazil, Cuba, Guiana, Honduras, Jamaica, Mexico, Panama, Puerto Rico and the Southeastern United States.

KEY TO TRIBES IDENTIFIED FROM PARAGUAY

1. Gena expanded dorsally, visible from above.....Scaphytopiini
   Gena not expanded, not visible dorsally.....2
2. Forewings acuminate apically, connective small, triangular...
   .....Acinopterini
   Forewings rounded apically, connective linear or Y-shaped.....3

3. Outer anteapical cell absent, body slender.....Macrostelini

   Not as above 4

4. Connective linear.....Deltocephalini

   Connective Y-shaped..... Euscelini

KEY TO GENERA OF DELTOCEPHALINI FROM PARAGUAY

1. Connective articulated with aedeagus, vertex and pygofers elongate..... Agudus

   Connective fused with aedeagus, vertex and pygofers not elongate.....2

2. Shaft of aedeagus usually with elongate process or processes, or shaft strongly flattened.....3

   Shaft of aedeagus without elongate processes, sometimes with anteapical teeth.....4

3. Shaft of aedeagus strongly flattened, band-like; body dark colored.....Loreta

   Shaft of aedeagus not band-like; body lighter in color, crown and pronotum usually with longitudinal bands.....Haldorus

4. Pygofers incised nearly to base dorsally.....5

   Pygofers incised less than half distance to base dorsally.....6

5. Aedeagus symmetrical.....Deltocephalus

   Aedeagus asymmetrical.....Neodeltocephalus

6. Gonopore excavated nearly to base of shaft ventrally.....Limpica

   Gonopore not as above.....7

7. Socle well developed, ventral surface of aedeagus with a median and two lateral longitudinal keels.....Fusanus
   Aedeagus not as above.....8
8. Shaft of aedeagus slender, elongate, rounded in cross section.....Unerus
   Shaft of aedeagus flattened dorsoventrally.....9
9. Forewings with 2 closed anteapical cells; styles with preapical lobes acutely produced..... Graminella
   Forewings with 3 closed anteapical cells; styles with preapical lobes finger-shaped.....10
10. Shaft of aedeagus with anteapical, triangular processes, gonopore apical..... Mendozellus
    Shaft of aedeagus without anteapical processes, gonopore apical or subapical, usually excavated.....Amplicephalus

KEY TO GENERA OF EUSCELINI FROM PARAGUAY

1. Forewings not exceeding abdominal segment III.....Faltala
   Forewings reaching pygofers or longer.....2
2. Forewings with numerous minute brown irrorations, at least in brachial, discal or anteapical cells.....3
   Forewings without such pigments, but usually with spots or tinted areas of various shapes.....7
3. Shaft of aedeagus arising from dorsal part of socle, aedeagus with pair of basal, elongate processes.....Mesadorus
   Shaft of aedeagus arising from ventral part of socle or socle absent..... 4

4. Aedeagus asymmetrical, shaft with apical processes.....*Tropicanus*

   Aedeagus symmetrical.....5

5. Spinulation of fore tibia 4+4, apophysis of styles claw-like, body small, elongate.....*Antoniellus*

   Spinulation of fore tibia 1+4 or 3+4.....5

6. Anterior margin of vertex elevated, aedeagus usually with apical processes.....*Bahita*

   Anterior margin of vertex not elevated, aedeagus with basal processes.....*Neophlepsius*

7. Aedeagus with a ventral, acuminate process, lying in the midline below shaft.....*Menosoma*

   Aedeagus without such a ventral process.....8

8. Entire vertex covered with minute scales.....9

   Only anterior margin of vertex covered with minute scales.....11

9. Vertex subconical, ovipositor greatly exceeding pygofers.....*Stirellus*

   Vertex broad or parallel-margined, ovipositor not or slightly exceeding pygofers.....10

10. Body wedge-shaped, aedeagus with pair of basal ventral processes, anal tube sclerotized dorsally.....*Paratanus*

    Body robust or elongate, aedeagus usually with apical processes, anal tube not sclerotized dorsally.....*Chlorotettix*

11. Apex of genital plates with finger-shaped lobe, lateral margin strongly sinuate, aedeagus with basal processes.....*Aplanatus*

    Not as above.....12

12. Pygofers with 2-3 black, spatulate macrosetae, appendix of forewings extending around the apex.....*Exitianus*

    Pygofers with more than 3 macrosetae, appendix not extending around the apex of forewings.....13

13. Clavus of forewings without milky spots along commissure; apophysis of styles slender and falcate, plates with white, elongate, flexible microsetae.....*Copididonus*

    Clavus of forewings with milky spots along commissure; apophysis of styles not elongate.....14

14. Aedeagus with apical processes.....*Atanus*

    Aedeagus simple or with basal processes.....*Tubulanus*

DESCRIPTIONS OF NEW TAXA

Agudus blockeri, new species

(fig. 1a-f)

Length of male 5.0-5.2 mm, head width 1.2-1.3 mm, pronotal width 1.0-1.1 mm; female unknown.

Head wider than pronotum; vertex produced medially (fig. 1a), approximately 1 1/2 times as long as width between eyes; anteclypeus narrower apically, not exceeding gena; pronotum 3/5 length of vertex with anterior margin smoothly convex; forewings exceeding apex of abdomen, with apical margin obliquely truncate, appendix small, 2 to 3 crossveins between 2A and claval commissure.

Color tawny; face darker with pale lateral stripes; vertex (fig. 1a) with 2 red broad longitudinal bands extending to apex of scutellum; pronotum

with red band at each lateral margin; scutellum with medial red band; forewings with veins white, bordered with light brown.

Pygofers (fig. 1b) with numerous macrosetae, caudal margin angulate, ventral margin with a sharp process extending caudad; valve (fig. 1c) short, posterior margin rounded; plates short, triangular, with macrosetae on lateral margin of proximal 2/3; connective (fig. 1d) expanded apically; styles with apophysis stout, strongly curved laterad, preapical lobe produced; aedeagus (fig. 1e-f) with large gonopore, shaft with pair of elongate apical processes curved dorsad, each process with a small basal tooth.

Holotype, male, Paraguay, between San Patricio y San Ramone, sweeping, 7 June 1975 (Elzinga and Granovsky). Three male paratypes, also from Paraguay; described from these four specimens. Holotype and paratype in KSU, paratypes in USNM.

A. blockeri resembles superbus but can be distinguished by the process on the ventral margin of the pygofers and the shape of the aedeagus of blockeri. This species is named for my adviser, Dr. H. D. Blocker, with thanks for his assistance and direction during this study.

Agudus forficatus, new species

(fig. 2a-e)

Length of male 5.1-5.5 mm; head width 1.3 mm; pronotal width 1.1 mm; female unknown.

Similar to A. blockeri in external appearance and coloration except for the longer vertex and lighter color of forficatus.

Pygofers (fig. 2a) with rounded lobe on ventral margin bearing a small curved process; styles (fig. 2b) with ventral arm longer than blockeri; aedeagus (fig. 2c-e) with shaft short, straight, with pair of elongate apical processes gradually curved dorsad.

Holotype, male, Paraguay, 2 km W Eusebio Ayala, 10 June 1975 (Blocker, Granovsky and Elzinga). Two male paratypes, one with the same data and one from Paraguay, NW Asuncion, 2 km E Limpio, sweeping 17 June 1977 (Granovsky, Blocker and Elzinga), holotype and paratype in KSU, paratype in USNM.

A. forficatus is closely related to blockeri but can be distinguished by the shorter shaft of the aedeagus and the smaller process on the ventral margin of the pygofers in forficatus.

Agudus lepidus, new species

(fig. 3a-f)

Length of male 6.2 mm, female 6.3 mm (7.5 mm including pygofers); head width of male and female 1.3 mm; pronotal width 1.2 mm.

Body slender; head wider than pronotum; vertex (fig. 3a) produced medially, approximately 2 1/2 times as long as width between eyes, face elongate, slightly concave in lateral view; ocelii small, located at a distance approximately 3 times their diameter from eyes; anteclypeus narrower apically, not exceeding gena; pronotum approximately 1/3 to 1/2 as long as vertex; forewings acuminate apically, appendix small, claval region with 3 to 4 crossveins; pygofers elongate, exceeding elytra.

Color tawny; face brown with white lateral stripes; vertex with pair of light, longitudinal bands posteriorly and a central longitudinal band anteriorly; forewings with veins white, bordered with light brown.

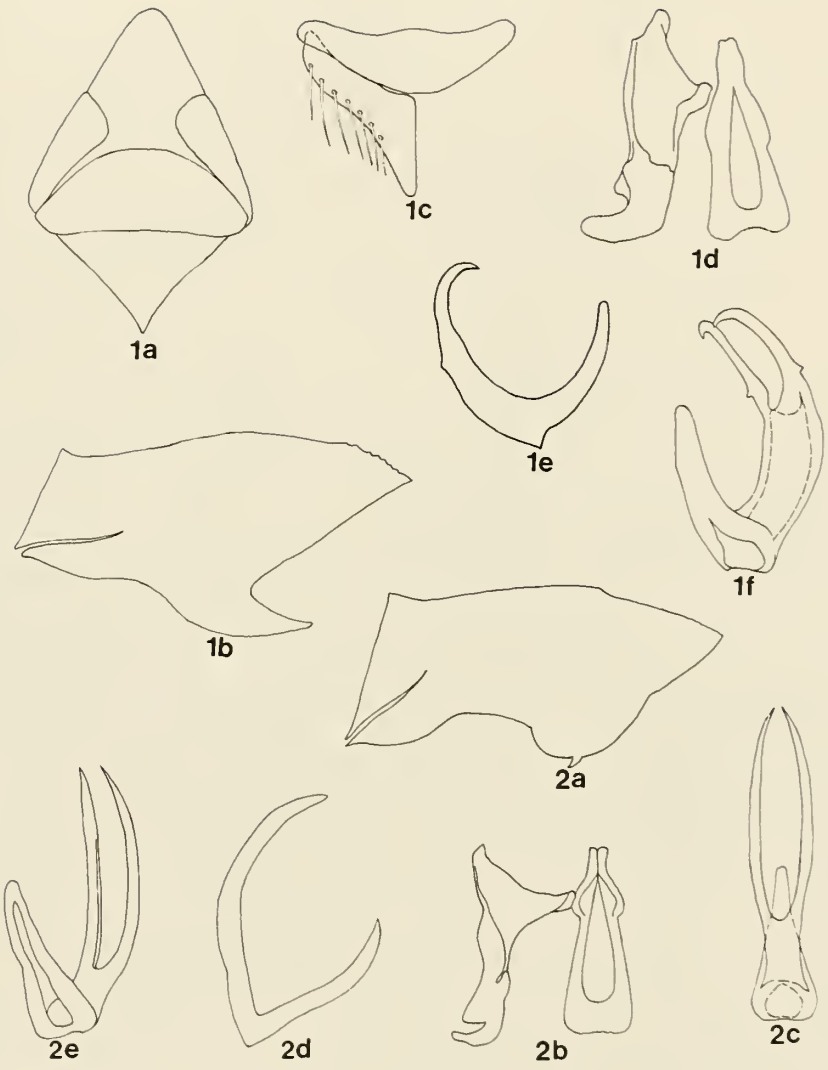
EXPLANATION OF PLATE I

Fig. 1. *Agudus blockeri*.

1a, head; 1b, pygofer; 1c, valve and plate; 1d, connective and styles; 1e, aedeagus; 1f, aedeagus, dorsolateral view.

Fig. 2. *Agudus forficatus*.

2a, pygofer; 2b, connective and styles; 2c, aedeagus, ventral view; 2d, aedeagus; 2e, aedeagus, dorsolateral view.


1a
1c
1d
1e
1f
1b
2a
2e
2d
2b
2c

Male pygofers (fig. 3b) elongate, slender, incised dorsally, tapered caudally, with ventral margin heavily setose forming a black band; valve (fig. 3c) rounded on posterior margin; plates elongate, with lateral margin slightly concave, macrosetae on lateral margin of proximal 2/3; connective (fig. 3d) broad, flat; styles with ventral arms short, base elongate, slender, preapical lobe obscure, apophysis expanded apically, curved laterad; aedeagus (fig. 3e-f) tubular, stout, curved dorsad, shaft with pair acute apical processes, gonopore large, apical, on ventral surface.

Holotype, male, Paraguay, 2 km W Eusebio Ayala, 10 June 1975 (Blocker, Granovsky and Elzinga). Paratypes, a male and a female, same data; described from these three specimens. Holotype and female paratype in KSU, male paratype in USNM.

A. lepidus resembles sexmaculatus but can be distinguished by the elongate vertex and heavily setose ventral margin of the pygofers in lepidus.

Agudus cyrtobrachium, new species

(fig. 4a-e)

Length 4.0-4.2 mm; head width 1.1 mm; pronotum width 1.0 mm, female unknown.

Resembles sexmaculatus in external appearance but shorter; head wider than pronotum; vertex with one longitudinal pale stripe on frontal region and pair stripes on discal region, pronotum greyish yellow with six longitudinal white stripes; elytra with a pale green band along costal margin.

Pygofers (fig. 4a) with side lobes narrowly triangular, numerous macrosetae, ventral margin with stout process directed cephaloventrad; valve (fig. 4b) short, ovate; plates elongate, triangular, with 4 to 5 macrosetae on lateral margin of basal 1/4; styles (fig. 4c) with preapical lobe distinct, apophyses elongate, stout, and strongly curved laterad, aedeagus slightly curved dorsad, shaft with pair of terminal crescent-like processes; gonopore subapical on dorsal surface between appendages.

Holotype, male, Paraguay, 2 km W Eusebio Ayala, 10 June 1975 (Blocker, Granovsky and Elzinga). Two male paratypes, same data; described from these three specimens. Holotype and paratype in KSU, paratype in USNM.

A. cyrtobrachium resembles sexmaculatus but can be easily distinguished by the crescent-like processes on the aedeagus of cyrtobrachium.

Amplicephalus chacus, new species

(fig. 5a-g)

Length of male 2.4-2.5 mm, of female 2.5-2.8 mm; head width of male 0.7 mm, of female 0.7-0.8 mm; pronotal width of male 0.7 mm, of female 0.7-0.8 mm.

Body small; head as wide as pronotum, vertex bluntly produced, approximately 1 1/2 times as long as width between eyes; face broad, anteclypeus slightly narrower apically, not exceeding gena; postclypeus narrow, postclypeal sulci parallel above antennal pits; ocelli small, located at a distance approximately their diameter from eyes; vertex as long as pronotum; forewings slightly shorter than abdomen, appendix and apical cells small.

EXPLANATION OF PLATE II

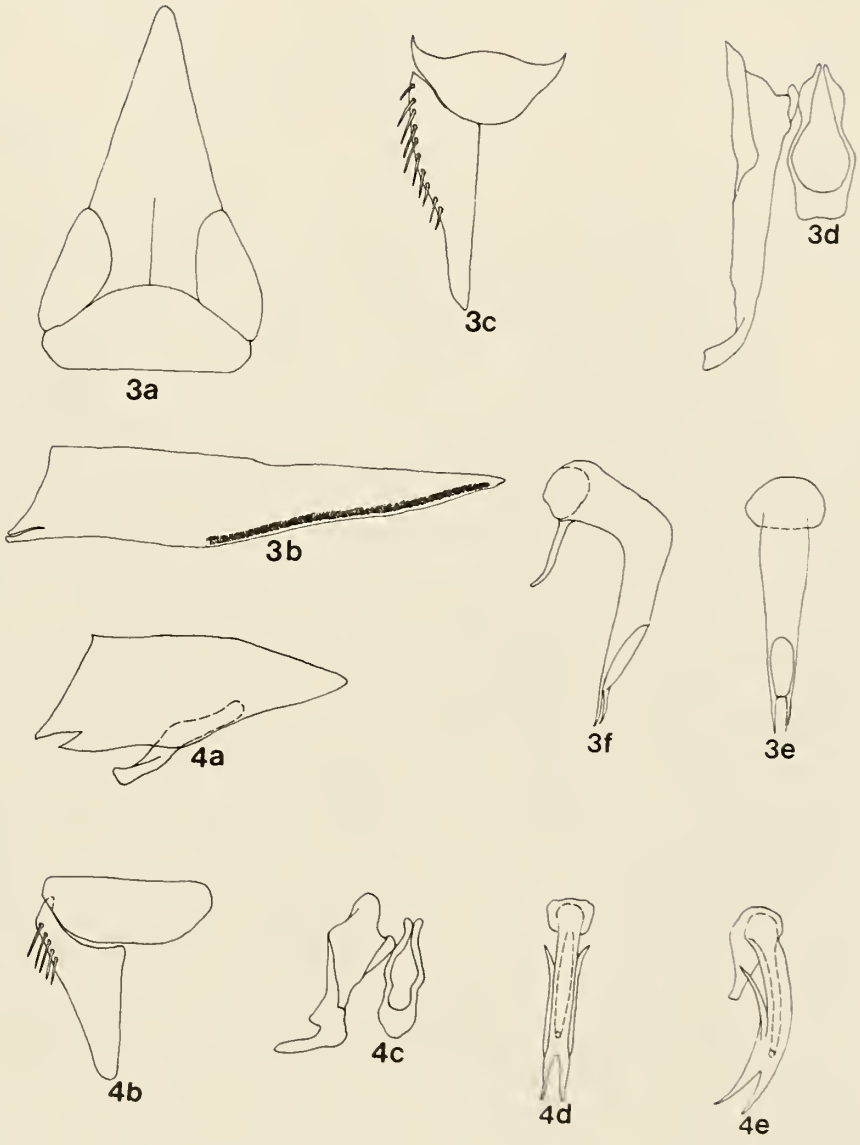
Fig. 3. Agudus lepidus.

3a, head; 3b, pygofer; 3c, valve and plate; 3d, connective and styles; 3e, aedeagus, ventral view; 3f, aedeagus.

Fig. 4. Agudus cyrtobrachium.

4a, pygofer; 4b, valve and plate; 4c, connective and styles; 4d, aedeagus, ventral view; 4e, aedeagus, ventrolateral view.

PLATE II



Color from yellow to light brown; anteclypeus and gena indistinctively embrowned; postclypeus with brown lateral stripes; vertex yellowish, anterior margin with 4 spots, disc with 2 irregular bands; pronotum with 6 longitudinal bands, the medial pair extending to scutellum; forewings with veins white and broad, cells brownish, venter tinged with brown; legs with brown rings.

Male pygofers (fig. 5a) triangular caudally, with macrosetae elongate; valve (fig. 5b) short, diamond-shaped; plates short, triangular with 4 elongate marginal macrosetae; styles (fig. 5d) with ventral arms elongate, preapical lobe a right angle, apophysis short, stout; connective (fig. 5e-g) fused with aedeagus, aedeagus with socle distinct, shaft with apex curved cephalodorsad, gonopore large, apical, extending from ventrad to dorsad; female sternum VII (fig. 5c) with posterior margin truncate.

Holotype, male, Paraguay, Chaco Expt. Sta. Cattle Res. Sta. 295 km NW Asuncion on Trans-Chaco Hwy, 20 June 1975 (Blocker, Elzinga and Granovsky). Paratype, 1 male and 7 females all same data. Holotype and female paratypes in KSU. Male and female paratypes in USNM.

A. chacus resembles simpliciusculus but can be easily distinguished by the curved shaft and large gonopore of the aedeagus in chacus.

Amplicephalus tubupennis, new species

(fig. 6a-f)

Length of male 3.1 mm; head width 0.8 mm; pronotal width 0.8 mm; female unknown.

Body small, slender; head as wide as pronotum, vertex bluntly produced medially, approximately as long as width between eyes; ocelli near eyes;

EXPLANATION OF PLATE III

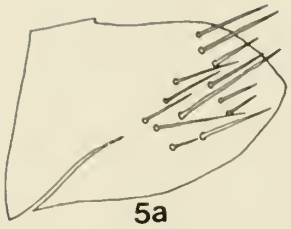
Fig. 5. *Amplicephalus chacus*.

5a, pygofer; 5b, valve and plate; 5c, female abdominal sternum VII; 5d, styles; 5e, connective and aedeagus, dorsal view; 5f, connective and aedeagus; 5g, connective and aedeagus, ventrolateral view.

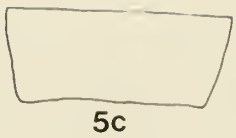
Fig. 6. *Amplicephalus tubupennis*.

6a, pygofer; 6b, valve and plate; 6c, styles, 6d, connective and aedeagus, dorsal view; 6e, connective and aedeagus; 6f, apex of aedeagus, ventral view.

PLATE III


5a


5b

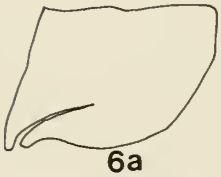

5c

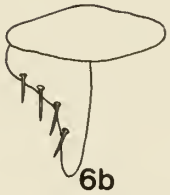

5d


5e


5f


5g


6a


6b


6c


6d


6e


6f

anteclypeus parallel-margined, not exceeding gena; postclypeus narrow; postclypeal sulci parallel above antennal pits; forewings extending beyond the apex of abdomen, central anteapical cell subdivided.

Color from pale-yellowish to brown; postclypeus with brown lateral stripes, anteclypeus and lora bordered with brown; vertex with 4 spots along anterior margin, disc with light brown tint; pronotum with 4 longitudinal bands; forewings with veins white and broad, with brown margins; venter dark, legs brown, tibia with brown rings.

Pygofers (fig. 6a) truncate caudally, with numerous elongate macrosetae, valve (fig. 6b) triangular; plates slender, lateral margin concave; styles (fig. 6c) with preapical lobe produced, apophysis acute apically, curved laterad; connective fused with aedeagus; aedeagus (fig. 6d-e) tubular, shaft curved dorsad, with central part expanded in dorsal view, apex (fig. 6f) notched dorsally, with two small lobes ventrally, gonopore large, apical.

Holotype, male, Paraguay, Fortuna Ranch, nr Pedro Juan Caballero, 21 June 1975, at light (Blocker, Elzinga and Granovsky), one male paratype, same data, described from these two specimen. Holotype in KSU, paratype in USNM.

A. tubupennis resembles simpliciusculus but can be distinguished by the curved shaft and the peculiar gonopore of the aedeagus in tubupennis.

Amplicephalus eusebius, new species

(fig. 7a-f)

Length of male 3.2 mm; head width 0.8 mm; pronotal width 0.8 mm; female unknown.

Body small, slender; resembles tubupennis but with color lighter.

Pygofers (fig. 7a) with caudal margin triangular, ventro-caudal margin convex; valve (fig. 7b) triangular; plates slender, lateral margin concave; styles (fig. 7c) with preapical lobe produced, apophysis acute, curved laterad; connective fused with aedeagus, aedeagus (fig. 7d-e) with shaft tubular, curved dorsad, apex truncate in lateral view, with a small notch dorsally; gonopore large, apical.

Holotype, male, Paraguay, 2 km W Eusebio Ayala, 10 June 1975 (Blocker, Elzinga and Granovsky), described from this single specimen. Holotype in KSU.

A. eusebius resembles tubupennis but can be distinguished by the apex of the aedeagus which is truncate in eusebius.

Amplicephalus parquis, new species

(fig. 8a-e)

Length of male 3.8 mm; head width 1.1 mm; pronotal width 1.1 mm; female unknown.

Head as wide as pronotum, vertex produced, approximately 3/4 as long as width between eyes; ocelli near eyes; face broad; anteclypeus parallel-margined, not exceeding gena; postclypeus narrow; postclypeal sulci parallel above antennal pits; prothorax about 1 1/4 times length of vertex; forewings with central anteapical cell subdivided, exceeding apex of abdomen.

Color pale yellow to pale brown; anteclypeus with medial stripe; lora with lateral margins brown; postclypeus with lateral stripes; crown with 4 dark spots along anterior margin, disc tinged with brown; pronotum with 4 obscure, longitudinal bands; forewings subhyaline; venter brown; legs with brown rings.

Pygofers (fig. 8a) with caudal margin acutely triangular, caudoventral margin obliquely truncate; valve with anterior margin convex; plates (fig. 8b) short, lateral margin sinuate; styles (fig. 8c) with ventral arm broad, preapical lobe acute, apophysis straight; connective fused with aedeagus, aedeagus (fig. 8d-e) with shaft flattened, tapered apically, apex with a pair of slender, crossed processes; gonopore located at the base of processes.

Holotype, male, Paraguay, Parque Nacional Ouiyaque, between Caaguazu y Col Oviedo 159.5 km E Asuncion, 16 June 1975 (Blocker, Elzinga and Granovsky); described from this single specimen. Holotype in KSU.

A. parquis resembles ornatus but can be easily distinguished by the crossed processes of the aedeagus and the sharply triangular pygofers in parquis.

Amplicephalus pedriatus, new species

(fig. 9a-f)

Length of male 2.9 mm; head width 0.7 mm; pronotal width 0.7 mm; female unknown.

Body small, slender; head as wide as pronotum; vertex produced, approximately 1 1/4 times as long as width between eyes; disc slightly concave in lateral view; ocelli small, located at a distance approximately 2 times their diameter from eyes; anteclypeus parallel-margined, not exceeding gena; postclypeus narrow; postclypeal sulci slightly divergent above antennal pits; prothorax 3/4 as long as vertex; forewings exceeding apex of abdomen, with appendix produced, central apical cell subdivided.

Color pale yellow; anteclypeus and lora with faint brown border; postclypeus with brown lateral stripes; vertex with 6 spots along anterior margin, disc with 2 longitudinal, pale orange bands; pronotum with 4 pale orange bands; forewings subhyaline, with veins white and broad, venter brown; legs with brown rings.

Pygofers (fig. 9a) quadrate, caudal margin truncate; valve (fig. 9b) ovate; plates short, triangular, lateral margin slightly concave; styles (fig. 9c) with preapical lobe acutely produced, apophysis acute, curved laterad, inner median margin with tooth-like process; connective fused with aedeagus; aedeagus (fig. 9d-f) tubular, shaft with apex curved dorsad, apex notched in dorsal view, gonopore large, apical on dorsal surface.

Holotype, male, Paraguay, Fortuna Ranch nr. Pedro Juan Caballero, 23 June 1975 (Granovsky, Blocker and Elzinga); described from this single specimen. Holotype in KSU.

A. pedriatus resembles simpliciusculus but can be distinguished by the curved apex of aedeagus in pedriatus.

Fusanus acristylus, new species

(fig. 10a-e)

Length of male 3.4-3.6 mm; head width 0.9 mm; pronotal width 0.8 mm; female unknown.

Body slender; head slightly wider than pronotum; vertex bluntly produced medially, approximately as long as width between eyes; face broad, anteclypeus parallel-margined, not exceeding gena; postclypeus narrow; postclypeal sulci parallel above antennal pits; ocelli large, near eyes; pronotum about 1 1/3 times the length of vertex.

EXPLANATION OF PLATE IV

Fig. 7. *Amplicephalus eusebius*.

7a, pygofer; 7b, valve and plate; 7c, styles; 7d, connective and aedeagus; 7e, connective and aedeagus, dorsal view; 7f, apex of aedeagus, ventral view.

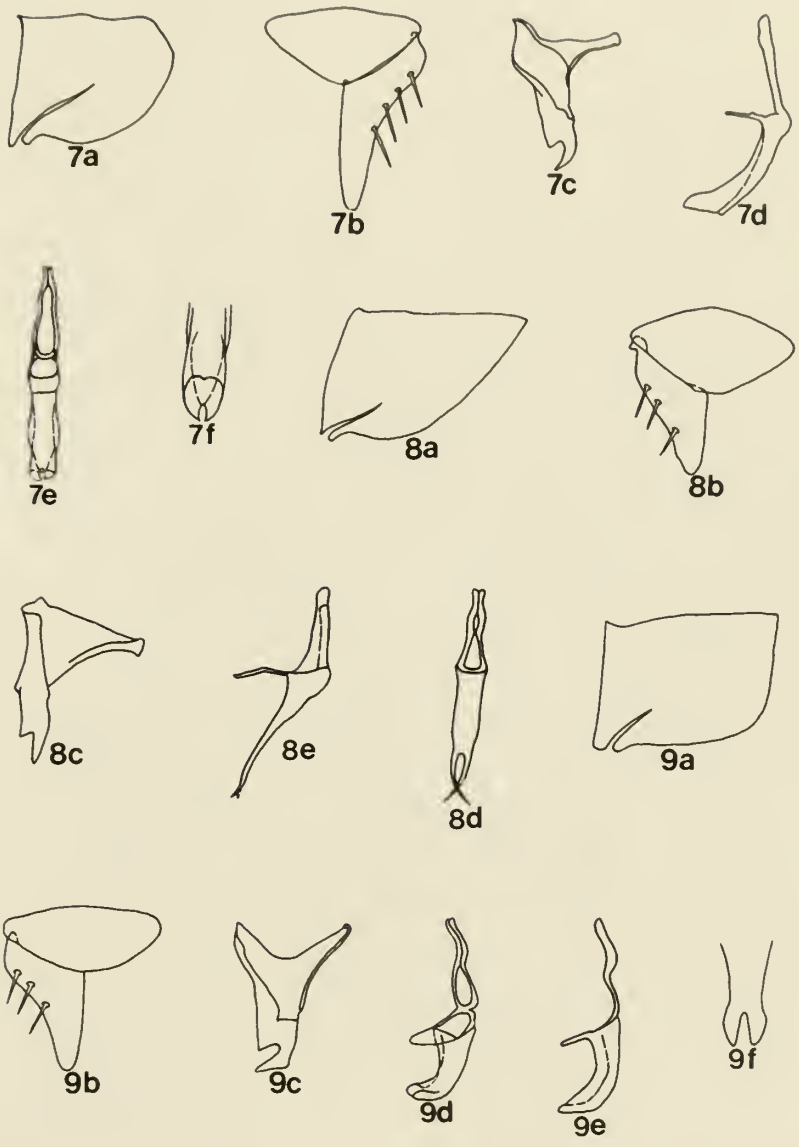
Fig. 8. *Amplicephalus parquis*.

8a, pygofer; 8b, valve and plate; 8c, styles; 8d, connective and aedeagus, dorsal view; 8e, connective and aedeagus.

Fig. 9. *Amplicephalus pedriatus*.

9a, pygofer; 9b, valve and plate; 9c, styles; 9d, connective and aedeagus, dorsolateral view; 9e, connective and aedeagus; 9f, apex of aedeagus, ventral view.

PLATE IV



Color white or pale green; face light brown, postclypeus with lateral stripes; vertex with 4 round spots along anterior margin, disc with 2 spots; pronotum pale green, sometimes with brown tint; forewings subhyaline; venter pale green.

Pygofers (fig. 10a) widely and deeply incised dorsally, macrosetae elongate and numerous, ventrocaudal margin oblique; valve (fig. 10b) with a small lobe on posterior margin; plates short, triangular; styles (fig. 10c) with ventral arms elongate, preapical lobe and apophysis elongate, acute, directed caudolaterad; connective and aedeagus (fig. 10e-d) as F. griseostriatus, gonopore apical.

Holotype, male, Paraguay, The Chaco, nr. Filadelphia, at light, 18 June 1975 (Blocker, Elzinga and Granovsky). A male paratype, Paraguay, San Lorenzo, nr. College of Agric. 9 June 1975 (Granovsky, Blocker and Elzinga). Holotype in KSU, paratype in USNM.

F. acristylus resembles griseostriatus but can be distinguished by the elongate, acute apophysis and preapical lobe of the styles in acristylus.

Haldorus parallelocornis maculatus, new subspecies

(fig. 11a-e)

Length of male 3.5-3.8 mm, female 3.7-3.8 mm; head width of male 0.9 mm, female 1.0 mm; pronotal width of male 0.9 mm, female 1.0 mm.

Head as wide as pronotum; vertex bluntly produced medially, approximately as long as width between eyes; ocelli located at a distance approximately 1/2 their diameter from eyes; anteclypeus parallel-margined, not exceeding gena; postclypeus narrow; postclypeal sulci parallel above

antennal pits; pronotum a little longer than vertex, lateral margins short and carinate; forewings with appendix distinct, central anteapical cell subdivided.

Color from white to pale yellow; anteclypeus dark brown, clypeus with lateral stripes, lora with dark brown margin, vertex with 4 to 6 small dark spots, the lateral two pairs sometimes small and obscure, disc tinged with 2 light orange clouds; pronotum with 4 longitudinal bands; forewings with veins whitish and broad, cells from pale yellow to light brown, costal region, 5th apical cell and claval region each with a dark brown spot; venter dark brown; legs light, with dark brown rings.

Male pygofers (fig. 11a) with numerous macrosetae, laterventral margin obliquely truncate; valve (fig. 11b) rather elliptical, posterior margin with a median lobe; plates sharply triangular, lateral margin slightly concave, with 3 to 4 marginal macrosetae; styles (fig. 11c) with ventral arm long, preapical lobe acute, apophysis finger-like curved laterad; connective slender, fused with aedeagus (fig. 11d-e), aedeagus with two pairs of long, falcate processes, the proximal pair slightly divergent and longer than the middle pair which are nearly parallel, stem gradually curved dorsad, gonopore apical, slit-like; female sternum VII (fig. 11f) with posterior margin concave.

Holotype, male, Paraguay, Bayer ranch, 27 km W Pto. Pte. Stroessner, 15 June 1975 (Elzinga, Granovsky and Blocker). Paratypes, 4 males and 5 females also from Paraguay. Holotype, paratypes in KSU. Paratypes in USNM.

H. parallelocornis maculatus resembles the nominate subspecies but can be distinguished by the unequal length of the processes on the aedeagus of maculatus.

Haldorus scissis, new species

(fig. 12a-e)

Length of male 3.1-3.2 mm; head width 0.9 mm; pronotal width 0.8 mm; female unknown.

Head slightly wider than pronotum; vertex bluntly produced, approximately the same length as width between eyes; ocelli large, near eyes; anteclypeus slightly wider apically, not exceeding gena, postclypeus narrow; postclypeal sulci parallel above antennal pits; pronotum slightly longer than vertex, with lateral margins short; forewings with appendix distinct, central anteapical cell not divided.

Body shiny, color green-yellowish; face light brown or greenish marked with dark brown; vertex with six dark spots along anterior margin; forewings hyaline or subhyaline; venter dark; legs with dark brown rings.

Pygofers (fig. 12a) rectangular, with numerous macrosetae, caudal margin truncate; valve (fig. 12b) triangular; plates acute apically, lateral margin sinuate, with 4 to 6 marginal macrosetae; styles (fig. 12c) with ventral arm elongate, preapical lobe acute, apophysis straight, directed caudolaterad; connective slender, fused with aedeagus, apex broadly expanded, truncate; aedeagus (fig. 12d-e) with two pairs of basal processes; lateral pair elongate, falcate, curved mesally; medial pair short, narrow, divergent; shaft with pair of subapical processes curved dorsad; gonopore large, on ventral surface at apex.

Holotype, male, Paraguay, 5 km E and 2 km N of San Lorenzo on Luque Road, 26 June 1975, at light (Blocker, Elzinga and Granovsky). Paratype, male, Paraguay, Parque Nacional Guiyaque, between Caaguazu y Cnel Oviedo

159.5 km E Asuncion, 16 June 1975, sweeping (Blocker, Elzinga and Granovsky); described from these two specimens. Holotype in KSU, paratype in USNM.

H. scissis resembles sexpunctatus but can be distinguished by the shorter, medial basal processes and the longer subapical processes of the aedeagus in scissis.

Haldorus schizus, new species

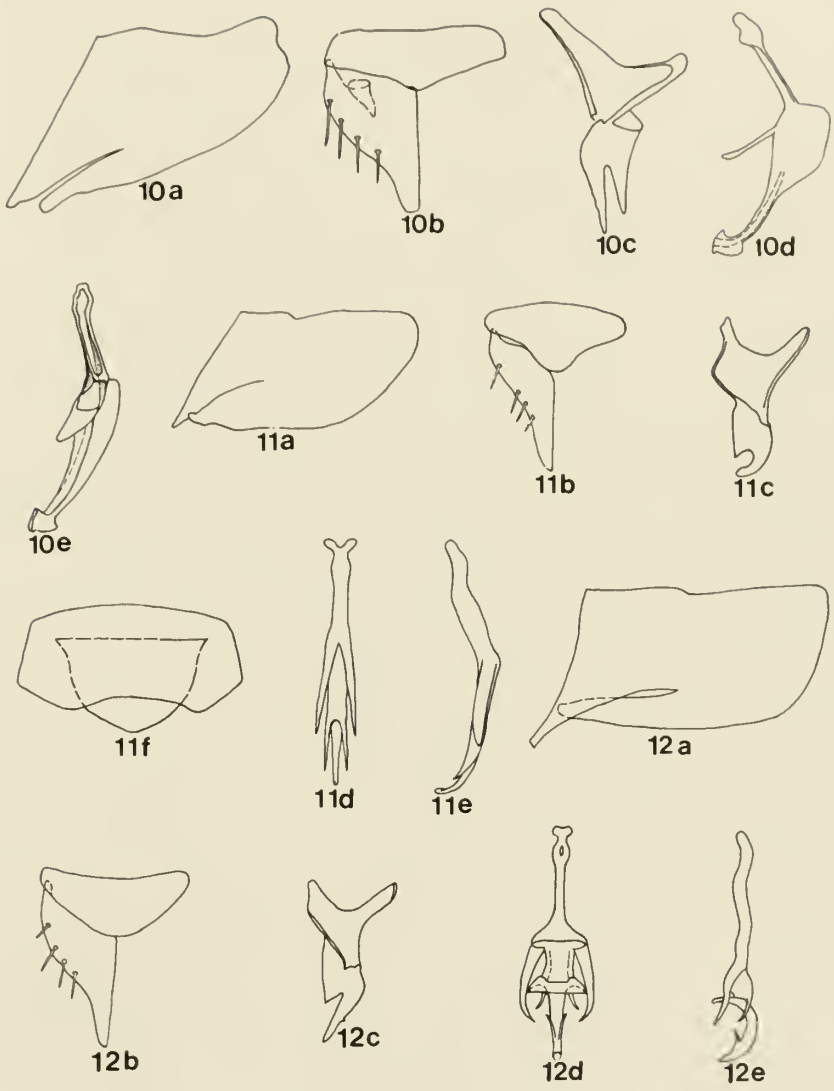
(fig. 13a-g)

Length of male 3.5-3.6 mm, female 4.0 mm; head width of male 0.9 mm female 1.0 mm; pronotal width of male 0.9 mm, female 1.0 mm.

Head as wide as pronotum; vertex bluntly produced, as long medially as width between eyes; ocelli large, located at a distance 1/2 their diameter from eyes; anteclypeus slightly constricted subapically, not exceeding gena; clypeus narrow, elongate; postclypeal sulci parallel above antennal pits; pronotum slightly longer than vertex, lateral margins short and carinate; forewings with central anteapical cell subdivided.

Coloration resembles sexpunctatus: face light brown, anteclypeus with medial stripe; lora with dark margins; postclypeus with lateral stripes; vertex and pronotum pale yellow; vertex with pair light orange bands, six dark spots on anterior margin; pronotum with four longitudinal, light orange bands; forewings subhyaline, veins broad, whitish, with brown borders; cells darker; venter light, tinged with dark brown; legs with brown rings.

PLATE V



Male genitalia (fig. 13a-f) resembles H. scissis but styles with apex broader; connective with apex triangular; aedeagus with a pair of subapical processes inconspicuous; female sternum VII (fig. 13c) with posterior margin truncate.

Holotype, male, Paraguay, Fortuna Ranch, nr. Pedro Juan Caballero, 21 June 1975, at light (Blocker, Elzinga, and Granovsky). One male and one female paratype, one with same data and one from Paraguay, sweeping, nr. Ypacarai, 10 June 1975 (T. A. Granovsky). Holotype and female paratype in KSU, male paratype in USNM.

H. schizus resembles scissis but can be distinguished by the subdivided central anteapical cells of the forewings, the color pattern and the smaller subapical processes on the aedeagus of schizus.

Haldorus drepanus, new species

(fig. 14a-e)

Length of male 3.4 mm; head width 0.8 mm; pronotal width 0.8 mm; female unknown.

Resembles H. schizus externally, but with venter darker.

Pygofers (fig. 14a) rounded apically, with numerous macrosetae; valve (fig. 14b) triangular; plates slender, elongate, lateral margin sinuate, with 6 to 8 marginal macrosetae; styles (fig. 14c) with ventral arm elongate, preapical lobe acute, apophysis slightly curved laterad; connective fused with aedeagus; aedeagus (fig. 14 d-e) with two pairs of basal processes, the dorsal pair expanded basally, apical ends divergent, the ventral pair slender, parallel, equal in length, stem slender, curved dorsad with pair of subapical tooth-like processes, gonopore apical on ventral surface.

Holotype, male, Paraguay, San Lorenzo at College of Agriculture, 24 June 1975 (Granovsky, Blocker and Elzinga); described from this single specimen; holotype in KSU.

H. drepanus resembles maculipes but can be distinguished by the processes on the aedeagus of drepanus.

Haldorus cratus, new species

(fig. 15a-e)

Length of male 3.2 mm; head width 0.8 mm; pronotal width 0.8 mm; female unknown.

Resembles H. schizus, but with body shorter.

Pygofers (fig. 15a) with numerous macrosetae, caudal margin obliquely truncate; valve (fig. 15b) short; plates broad, apex blunt; styles (fig. 15c) with ventral arm elongate, slender, preapical lobe distinctly produced, apophysis long, straight; connective with apex expanded, fused with aedeagus; aedeagus (fig. 15d-e) with a pair of basal, falcate processes, directed caudomesad, shaft slender, gradually curved dorsad, apex slightly bifid with small, subapical tooth-like process; gonopore apical on ventral surface.

Holotype, male, Paraguay, NW Asuncion 2 km E Limpo, sweeping, 17 June 1975 (Granovsky, Blocker and Elzinga). One male paratype, Paraguay, 2 km W Eusebio Ayala, 10 June 1975 (Blocker, Granovsky, and Elzinga). Holotype in KSU, paratype in USNM.

H. cratus resembles fractus but can be distinguished by the straight basal processes of the aedeagus in cratus.

EXPLANATION OF PLATE VI

Fig. 13. *Haldorus schizus*.

13a, pygofer; 13b, pygofer, dorsal view; 13c, valve and plate; 13d, styles; 13e, connective and aedeagus, dorsal view; 13f, connective and aedeagus; 13g, female abdominal sternum VII.

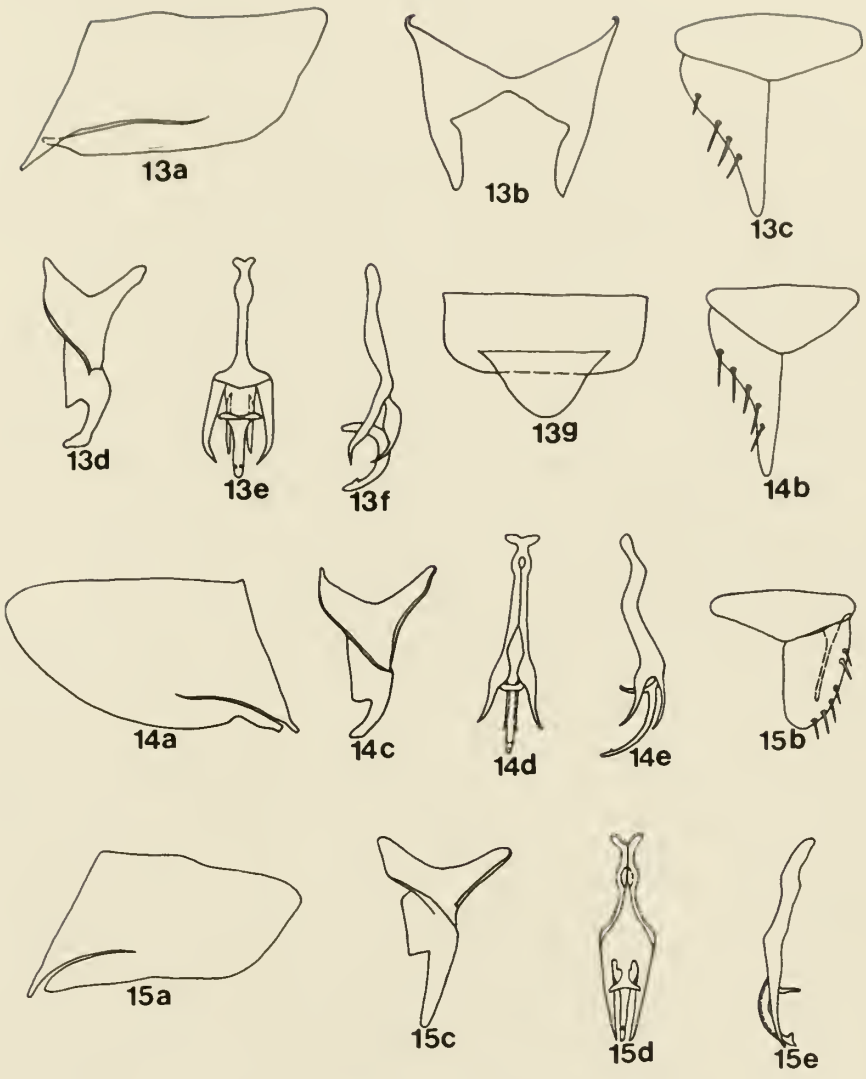
Fig. 14. *Haldorus drepanus*.

14a, pygofer; 14b, valve and plate; 14c, styles; 14d, connective and aedeagus, dorsal view; 14e, connective and aedeagus.

Fig. 15. *Haldorus cratus*.

15a, pygofer; 15b, valve and plate; 15c, styles; 15d, connective and aedeagus, dorsal view; 15e, connective and aedeagus.

PLATE VI


13a
13b
13c
13d
13e
13f
13g
14b
14a
14c
14d
14e
15b
15a
15c
15d
15e

Limpica, new genus

Type species: *Limpica forcata*, new species.

Medium-sized leafhoppers; vertex bluntly produced medially, pronotum with lateral margins short, approximately as long medially as vertex; elytra exceeding apex of abdomen, appendix developed, central anteapical cell divided, color pale ocherous, vertex with 4 spots along anterior margin, the lateral pair sometimes small and obscure, forewings sub-hyaline with veins pale.

Pygofers conical, slightly incised dorsally, macrosetae elongate; anal tube membranous dorsally; genital plates short, lateral margin strongly sinuate. Inner-apical margin obliquely truncate; connective linear, fused with aedeagus; aedeagus with shaft elongate, gonopore deeply excavated, extending nearly to the base of shaft on ventral surface.

This genus is related to *Amplicephalus* but can be distinguished by the deeply-excavated gonopore on the ventral surface of the shaft of the aedeagus in *Limpica*.

Limpica forcata, new species

(fig. 16a-f)

Length of both male and female 4.0 mm; head width of both 1.1 mm; pronotal width 1.0 mm.

Head slightly wider than pronotum; vertex bluntly produced medially, approximately as long as width between eyes; ocelli near eyes; anteclypeus parallel-margined, not exceeding gena; postclypeal sulci slightly divergent above antennal pits; pronotum as long as vertex medially, with lateral

margins short; forewings extending beyond apex of abdomen, appendix developed, extending to middle of 2nd apical cell.

Color pale ocherous; face light brown, anteclypeus and lora with darker margin, postclypeus with light lateral stripes; vertex with 4 spots along anterior margin; pronotum white with 4 longitudinal obscure stripes; forewings subhyaline, veins white; venter brown, legs with dark rings.

Pygofers (fig. 16a) with caudal end triangular, macrosetae elongate, valve (fig. 16c) short, elliptical; plates short, lateral margins sinuate, inner apical margin obliquely truncate; styles (fig. 16d) with preapical angle rectangular, apophysis finger-like, slightly curved laterad; connective (fig. 16e-f) fused with aedeagus; aedeagus with gonopore deeply excavated, nearly extending to the base of shaft ventrally, making apex fork-like in ventral view; female sternum VII (fig. 16b) with acute medial lobe on posterior margin.

Holotype, male, Paraguay, NW Asuncion 2 km E Limpo, sweeping, 17 June 1975 (Granovsky, Blocker and Elzinga). Paratype, female, same data. Types in KSU.

Mendozellus asunctia, new species

(fig. 17a-f)

Length of male 2.2-2.4 mm, of female 2.6-2.8 mm; head width of both male and female 0.8 mm; pronotal width of both 0.8 mm.

Small, head as wide as prothorax; vertex produced, approximately 1 1/4 times as long as width between eyes; ocelli small, located at a distance of 3 times their diameter from eyes; anteclypeus narrower apically, not exceeding gena; postclypeus narrow; postclypeal sulci parailel above

antennal pits; prothorax slightly shorter than vertex in male, as long as vertex in female; forewings exposing apex of pygofers, with apical cells short, appendix reduced.

Color pale-yellow; face dark; vertex with 2 small spots along anterior margin, disc with 2 pairs of spots; prothorax with 6 longitudinal stripes, the central pair extending to scutellum; forewings subhyaline, veins white, broad; venter dark; legs with femur dark, tibia with dark rings.

Pygofers (fig. 17a) lightly sclerotized dorsally, caudal margin triangular; valve (fig. 17b) triangular; plates short, with 2 to 3 macrosetae; styles (fig. 17c) with preapical lobe a right angle, apophysis stout; connective fused with aedeagus; aedeagus (fig. 17d-e) simple, widest proximally in dorsal view, shaft short, tubular, apex with pair of minute tooth-like processes, apical; female sternum VII (fig. 17f) with posterior margin slightly produced medially.

Holotype, male, Paraguay, NW Asuncion 2 km E Limpio, at light, 17 June 1975 (Elzinga, Granovsky and Blocker). Paratypes, 6 males and 3 females, same data. Holotype and paratypes in KSU, paratypes in USNM.

M. asunctia resembles dubis but can be easily distinguished by the tubular shaft of the aedeagus and the minute tooth-like process on the aedeagus of asunctia.

Planicephalus serratus, new species

(fig. 18a-f)

Length of male 3.4-3.5 mm; head width 0.8 mm; pronotal width 0.8 mm; female unknown.

Head as wide as pronotum; vertex bluntly produced medially (fig. 18a), approximately equal to width between eyes; anteclypeus parallel-margined, not exceeding gena; postclypeus narrow; postclypeal sulci parallel above antennal pits; pronotum as long as vertex, with lateral margin short and carinate.

Color pale-greenish to ocherous; face with fuscous lateral stripes, lora with dark margins; vertex with 4 dark spots along anterior margin, disc with 2 orange bands; pronotum with 6 longitudinal orange bands; elytra subhyaline, with veins white, faintly bordered with brown; venter dark.

Pygofers (fig. 18b) round caudally, membranous to base dorsally, ventral margin with elongate lobe, serrated apically; valve (fig. 18c) short; plates triangular, with macrosetae uniseriate, marginal; styles (fig. 18d) slender, apophysis elongate, finger-shaped, preapical lobe acute; aedeagus (fig. 18e-f) approximately the same length as connective, shaft simple, curved dorsad, apex serrated dorsally and laterally, gonopore apical on ventral surface.

Holotype, male, Paraguay, San Lorenzo at College of Agriculture, 24 June 1975 (Granovsky, Blocker and Elzinga). Paratypes, five male, two with same data, three from Paraguay, nr Pto. Pte. Stroessner, at light, nr. President's vacation home, 14 June 1975 (Elzinga, Granovsky and Blocker). Holotype and paratypes in KSU, paratypes in USNM.

P. serratus resembles crassistylus but can be distinguished by the ventral lobe of the pygofers and elongate apophysis of the styles in serratus.

EXPLANATION OF PLATE VII

Fig. 16. *Limpica forcata*.

16a, pygofer; 16b, female abdominal sternum VII; 16c, valve and plate; 16d, styles; 16e, connective and aedeagus, ventral view; 16f, connective and aedeagus.

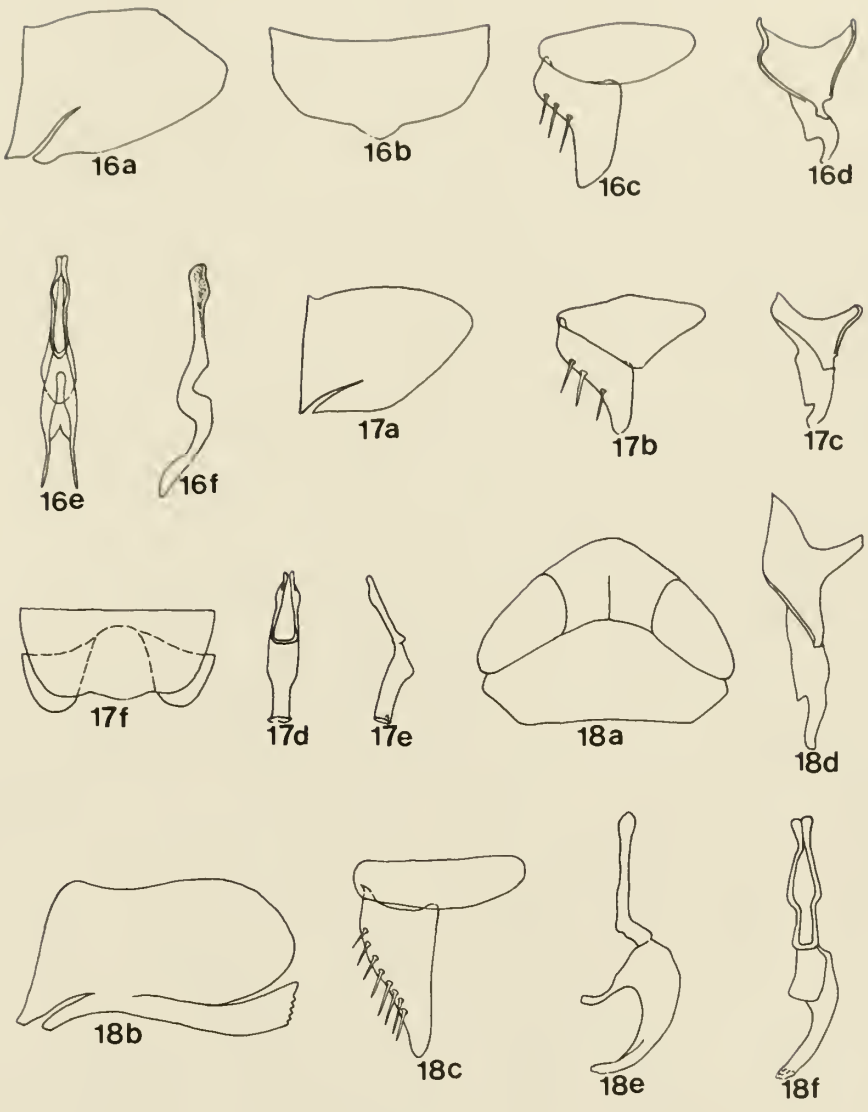
Fig. 17. *Mendozellus asunctia*.

17a, pygofer; 17b, valve and plate; 17c, styles; 17d, connective and aedeagus, dorsal view; 17e, connective and aedeagus; 17f, female abdominal sternum VII.

Fig. 18. *Planicephalus serratus*.

18a, head and pronotum; 18b, pygofer; 18c, valve and plate; 18d, styles; 18e, connective and aedeagus; 18f, connective and aedeagus, dorsolateral view.

PLATE VII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Aplanatus, new genus

Type species: Aplanatus pallibandus, new species.

Medium-sized, body wedge-shaped; head slightly wider than prothorax, vertex produced medially, disc flat, frontal region round to face; face broad, convex in lateral view, anteclypeus parallel-margined; postclypeus broadest dorsally; pronotum as long as vertex medially; forewings extending beyond apex of abdomen, appendix developed, anteapical cells elongate.

Color pale-greenish, face, vertex and pronotum without distinct markings; forewings hyaline, with a white band along costal margin and a brown stripe along anterior margin of discal cell, extending to outer anteapical cell.

Pygofers incised dorsally, caudo-ventral margin smooth, ventral margin with process; anal tube elongate, membranous dorsally and ventrally; valve short, rectangular; plates with lateral margin sinuate, apex with finger-like lobe, macrosetae uniseriate and submarginal; styles with preapical lobe obscure, apophysis slender, elongate; connective Y-shaped; aedeagus with pair of proximal processes, shaft simple, gonopore large, located apically on dorsal surface.

This genus is related to Chlorotettix but can be distinguished by the processes of the aedeagus which are proximal instead of apical. The vertex is microsculptured only on the frontal region and the frontal region is slightly elevated and rounded to the face in Aplanatus.

Aplanatus pallibandus, new species

(fig. 19a-f)

Length of male 4.1-4.2 mm, female 4.5-4.6 mm; head width of male 1.1 mm, female 1.2 mm; pronotal width of male 1.0 mm; female 1.1 mm.

Head slightly wider than pronotum; vertex bluntly produced, approximately same length as width between eyes, disc flat, anterior region rounded to face; ocelli located at a distance approximately their diameter from eyes; anteclypeus parallel-margined, not exceeding gena, postclypeus widest dorsally, convex; postclypeal sulci divergent above antennal pits; pronotum approximately the same length as vertex, with lateral margins short and carinate.

Color from pale green to light brown; face without distinct markings; forewings hyaline, with a white band along costal margin and a dark brown band along anterior margin of the discal cell, extending to anteapical cell.

Male pygofers (fig. 19a) short, incised dorsally, caudal half with 8 to 10 macrosetae, ventral margin with an elongate, falcate process directed caudad; valve (fig. 19b) short, rectangular; plates with 8 to 10 submarginal macrosetae, lateral margin sinuate, apex finger-like; connective (fig. 19c) slender, approximately 2/3 length of styles; styles with preapical lobe obscure, apophysis slender, elongate, curved ventrolaterad; aedeagus (fig. 19d-e) stout, simple, shaft with a pair of proximal processes slender, acute, gonopore large, apical on dorsal surface; female sternum VII (fig. 19f) with posterior margin broadly excavated, deeply notched medially.

Holotype, male, Paraguay, N Col. Bogado 7 June 1975, sweeping (Granovsky and Elzinga). Paratypes, 2 males and 3 females all with the same data. Holotype and paratypes in KSU, paratypes in USNM.

A. pallibandus can be distinguished from other species by its generic characters.

Atanus gracilus, new species

(fig. 20a-e)

Length of male 4.4 mm; head width 1.1 mm; pronotal width 1.0 mm; female unknown.

Body elongate, slender; vertex parallel-margined, approximately 3/5 as long as width between eyes; anteclypeus widest apically, not exceeding gena; postclypeus narrow; postclypeal sulci slightly divergent above antennal pits; ocelli near eyes; pronotum approximately 1 2/3 times as long as vertex.

Color uniformly pale yellow; vertex with 2 small orange spots; forewings hyaline; venter and legs pale yellowish.

Pygofers (fig. 20a) elongate, caudal end triangular, macrosetae long, ventral margin with one or two acute, short processes; valve (fig. 20b) short; plates elongate, lateral margin strongly sinuate, with 6 to 8 submarginal macrosetae; connective (fig. 20c) short, about 1/3 length of styles, apex expanded; styles elongate, ventral arm short, preapical lobe acutely produced, apophysis hook-like, inner margin bearing 2 angular lobes; aedeagus (fig. 20d-e) with shaft elongate with pair of acute,

apical processes directed caudolaterad and pair of subapical, minute tooth-like processes, gonopore apical on dorsal surface.

Holotype, male, Paraguay, 2 km W Eusebio Ayala, 10 June 1975 (Blocker, Granovsky and Elzinga); described from this single specimen. Holotype in KSU.

A. gracilus is related to curvilinea but can be distinguished by the elongate aedeagus with subapical processes on the shaft of gracillus.

Atanus luqueatus luqueatus, new species

(fig. 21a-f)

Length of male 3.8-4.2 mm, of female 4.4-4.5 mm; head width of male 1.1-1.2 mm, of female 1.2-1.3 mm; pronotal width of male 1.1-1.2 mm, of female 1.2-1.3 mm.

Head as wide as prothorax; vertex parallel-margined, approximately 1/2 as long as width between eyes; ocelli located at a distance approximately their diameter from eyes; anteclypeus widest apically, not exceeding gena; postclypeus narrow; postclypeal sulci slightly divergent above antennal pits; pronotum approximately 1 1/2 times length of vertex; forewings extending beyond apex of abdomen in both sexes.

Color pale yellow to brown; anteclypeus and lora with pale brown margins; postclypeus with lateral stripes; crown and pronotum with consistent pattern of dark markings; forewings subhyaline, veins brown, clavus, brachial cell, 1st, 2nd and 3rd apical cells with brown tint, clavus with 3 white spots along commissure; venter greenish-grey.

Pygofers (fig. 21a) with caudal margin concave; valve (fig. 21b) short; plates elongate, lateral margin sinuate; connective (fig. 21c) short, arms divergent; styles with preapical lobe produced, apophysis acute, curved laterad; aedeagus (fig. 21d-e) with shaft flattened laterally, shaft with pair of bifurcate apical processes, dorsal branch slender, acute, approximately 3 times as long as ventral branch, apex curved dorso-laterad; gonopore oval, apical, on ventral surface of shaft; female sternum VII (fig. 21f) with central lobe on posterior margin.

Holotype, male, Paraguay, nr. Parque and International airport, 26 June 1975, sweeping (Blocker, Elzinga and Granovsky). Paratypes, 8 males and 5 females, same data; holotype and paratypes in KSU, paratypes in USNM.

A. luqueatus luqueatus is closely related to coronatus, but can be distinguished by the processes on the apex of aedeagus in luqueatus which are curved dorsolaterad.

Atanus luqueatus equalis, new subspecies

(fig. 22a-b)

Length of male 4.0 mm; head width 1.1 mm; pronotal width 1.1 mm; female unknown.

External morphology and coloration as in nominate subspecies, but with darker markings.

Male genitalia as in nominate subspecies; shaft of aedeagus (fig. 22a-b) with pair of apical, bifurcate processes, dorsal branch only slightly longer than ventral in lateral view, approximately equal in dorsal view.

EXPLANATION OF PLATE VIII

Fig. 19. *Aplanatus pallibandus*.

19a, pygofer and anal tube; 19b, valve and plate; 19c, connective and styles; 19d, aedeagus; 19e, aedeagus, dorsolaterad view; 19f, female abdominal sternum VII.

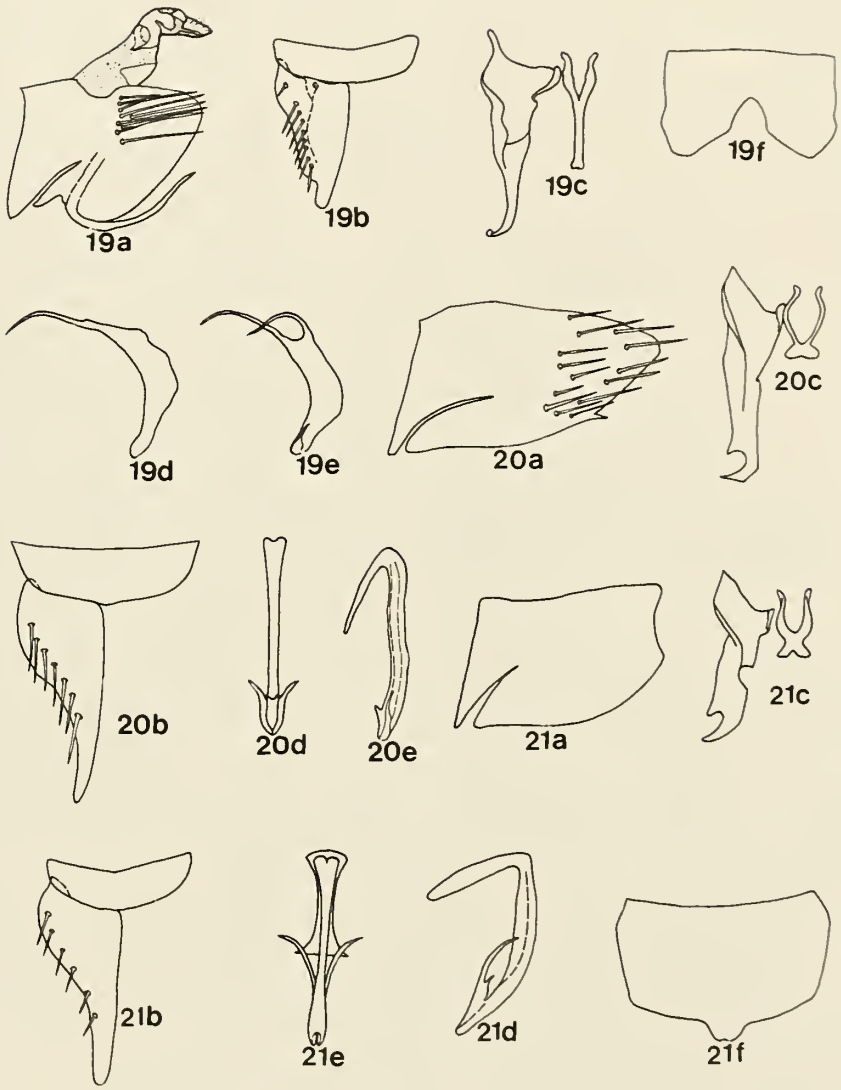
Fig. 20. *Atanus gracilus*.

20a, pygofer; 20b, valve and plate; 20c, connective and styles; 20d, aedeagus, dorsal view; 20e, aedeagus.

Fig. 21. *Atanus lugueatus lugueatus*.

21a, pygofer; 21b, valve and plate; 21c, connective and styles; 21d, aedeagus; 21e, aedeagus, ventral view; 21f, female abdominal sternum VII.

PLATE VIII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Holotype, male, Paraguay, Fortuna Ranch, nr. Pedro Juan Caballero, 21 June 1975 (Blocker, Elzinga and Granovsky), male paratype, same data; described from these two specimens. Holotype in KSU, paratype in USNM.

A. luqueatus equalis is closely related to the nominate subspecies but can be distinguished by the processes on the apex of the aedeagus which are nearly equal in length in equalis.

Atanus loriatus, new species

(fig. 23a-e)

Length of male 3.3 mm; head width 0.9 mm; pronotal width 0.9 mm; female unknown.

Body small, slender; head as wide as pronotum; vertex parallel-margined, approximately 1/2 times as long as width between eyes; ocelli located at a distance approximately their diameter from eyes; anteclypeus widest apically, not exceeding gena; postclypeus narrow; postclypeal sulci slightly divergent above antennal pits; pronotum approximately 2 times as long as vertex; forewings extending beyond apex of abdomen.

Color from pale yellow to yellowish-green; anteclypeus with pale brown margins; postclypeus with white lateral stripes; vertex with an obscure band along anterior margin; disc with round spot on each side; pronotum with brown tint; forewings hyaline, veins brown, clavus with 3 white spots along commissure, brachial cell, anteapical cell and 3rd apical cell with brown tint; venter and legs yellowish-green.

Pygofers (fig. 23a) with caudal margin triangular, ventro-caudal margin obliquely truncate; valve short, posterior margin with a small, acute, medial lobe; plates (fig. 23b) elongate, lateral margin sinuate;

connective (fig. 23c) short, expanded apically; styles with preapical lobe produced, apophysis acute, curved laterad; aedeagus (fig. 23d-e) with shaft slightly curved dorsad, shaft with pair of bifurcate apical processes, apex minutely serrate dorsally, ventral branch longer than dorsal in lateral view; gonopore apical on the ventral surface.

Holotype, male, Paraguay, 5 km E and 2 km N of San Lorenzo on Luque Road, 26 June 1975, at light (Blocker, Elzinga and Granovsky), male paratype, same data; described from these two specimens. Holotype in KSU, paratype in USNM.

A. loriatus resembles viridis, but can be distinguished by the aedeagus which is curved dorsad and the minute serrations on the apex of the aedeagus in loriatus.

Bahita cirrofasciata, new species

(fig. 24a-e)

Length of male 4.5-4.6 mm; head width 1.5 mm; pronotal width 1.4 mm; female unknown.

Body robust; head slightly wider than pronotum, vertex parallel-margined, anterior margin slightly elevated; ocelli large, near eyes; face broad, anteclypeus parallel-margined, exceeding gena; postclypeus widest dorsally; postclypeal sulci divergent above antennal pits; pronotum with lateral margin short, sinuate.

Vertex pale yellow, anterior margin with two small medial spots, disc with broad, transverse, orange band between eyes; face orange brown, postclypeus with brown lateral stripes; pronotum pale yellow tinged with light orange; forewings with veins dark brown, except apicals tinged with

numerous pigments; costal margin with 2 to 3 reflexed veinlets; venter dark; hind tibia with dark spots.

Pygofers (fig. 24a) rectangular, deeply and broadly incised dorsally, caudodorsal margin with an elongate, curved process directed caudad; valve (fig. 24b) triangular; plates short, lateral margin sinuate; connective (fig. 24c) elongate, slender; styles with ventral arm short, preapical lobe produced, apophysis elongate, stout; aedeagus (fig. 24d-e) simple, shaft short and flat, apex with two pairs of small processes, the proximal pair directed cephalad, the apical pair directed caudad, gonopore subapical on dorsal surface.

Holotype, male, Paraguay, nr. Filadelphia 19 June 1975, at light (Granovsky, Blocker and Elzinga). Paratype, one male, same data. Holotype in KSU, paratype in USNM.

B. cirrofasciata resembles fulvula but can be easily distinguished by the elongate process on the pygofers of cirrofasciata.

Chlorotettix polymaculatus, new species

(fig. 25a-g)

Length of male 5.8-6.4 mm, female 6.0-6.7 mm; head width of male 1.7 mm to 1.75 mm, female 1.8-1.9 mm; pronotal width of male 1.6-1.65 mm, female 1.70-1.75 mm.

Body robust; head slightly wider than pronotum; vertex (fig. 25a) parallel-margined, width between eyes at base approximately 2 1/2 times as long as medial length; ocelli located at a distance approximately their diameter from eyes; face broad, anteclypeus widest apically, not

exceeding gena; postclypeal sulci parallel above antennal pits; pronotum with lateral margins sinuate, approximately 2 1/3 times as long as vertex.

Color stramineous; face with fuscous lateral stripes; vertex with 3 transverse spots, sometimes forming an irregular band; pronotum with ten anterior irregular spots; elytra subhyaline.

Male pygofers (fig. 25b) with a distinct posteroventral lobe in lateral view, ventral margin with acute, elongate process; valve (fig. 25c) triangular; genital plates elongate, with lateral margin slightly sinuate; connective slender; styles (fig. 25d) with ventral arms broad, preapical lobe expanded apically, acute, apophysis stout, curved laterad; aedeagus (fig. 25e-f) resembles giganteus but with apical processes directed dorsad; shaft flattened, as long as connective, smoothly curved dorsad; gonopore subapical on dorsal surface; female sternum VII (fig. 25g) with a deep, medial notch on posterior margin.

Holotype, male, Paraguay, NW Asuncion, 2 km E Limpio, sweeping 17 June 1975 (Granovsky, Blocker and Elzinga). Paratypes, 22 males and 41 females, all from Paraguay. Holotype and paratypes in KSU, paratypes in USNM.

C. polymaculatus resembles giganteus but can be easily distinguished by the peculiar shape of the pygofers and distinct spots on pronotum of polymaculatus.

Chlorotettix fuscifascicatus, new species

(fig. 26a-f)

Length of male 5.4-5.6 mm, female 5.7-6.0 mm; head width of male 1.6 mm, female 1.7 mm; pronotal width of male 1.4 mm, female 1.5 mm.

EXPLANATION OF PLATE IX

Fig. 22. *Atanus luqueatus equalis*.

22a, aedeagus; 22b, aedeagus, ventrolateral view.

Fig. 23. *Atanus loriatus*.

23a, pygofer; 23b, valve and plate; 23c, connective and styles; 23d, aedeagus; 23e, aedeagus, ventral view.

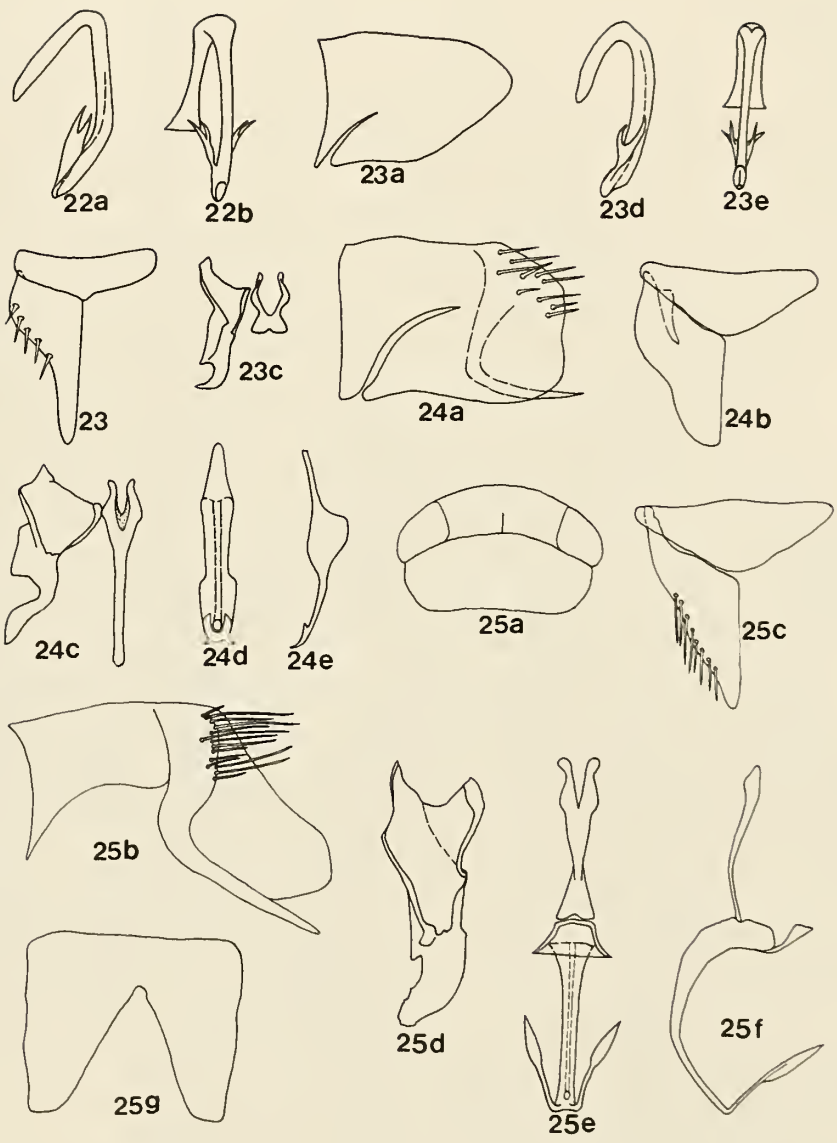
Fig. 24. *Bahita cirrofasciata*.

24a, pygofer; 24b, valve and plate; 24c, connective and styles; 24d, aedeagus, dorsal view; 24e, aedeagus.

Fig. 25. *Chlorotettix polymaculatus*.

25a, head and pronotum; 25b, pygofer; 25c, valve and plate; 25d, styles; 25e, connective and aedeagus, dorsal view; 25f, aedeagus; 25g, female abdominal sternum VII.

PLATE IX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25g

Head wider than pronotum; vertex short, parallel-margined, width between eyes at base approximately 3 times medial length; ocelli located at a distance approximately 3 times their diameter from eyes; face broad; gena with lateral margin sinuate; anteclypeus widest apically, not exceeding gena; postclypeal sulci parallel above antennal pits; pronotum with lateral margins sinuate, medial length approximately 5 times that of vertex.

Color stramineous; face brown; postclypeus with obscure lateral stripes, 4 dark brown spots proximally along ocellocular area; elytra hyaline, with a longitudinal faint brown band from humeral angle, along discal cell, central anteapical cell, and extending to apex of 3rd apical cell; venter and legs light brown.

Pygofers (fig. 26a) elongate, caudal margin triangular; valve (fig. 26b) triangular; plates elongate, lateral margin sinuate; styles (fig. 26c) with preapical lobe produced, apophysis acute, curved laterad; connective expanded apically; aedeagus (fig. 26d-e) with shaft flattened dorsoventrally, apex with pair of elongate, acute processes directed cephalodorsad, gonopore round, apical on dorsal surface; female sternum VII (fig. 26f) with posterior margin roundly concave.

Holotype, male, Paraguay, 175 km NW Encarnacion, 7 June 1975, sweeping, (Granovsky and Elzinga). Paratypes, one male and six females, all from Paraguay. Holotype and paratypes in KSU, paratypes in USNM.

C. fuscifascicatus is apparently related to polymaculatus but the pygofers are without processes and the color pattern is distinct in fuscifascicatus.

Chlorotettix longibrachium, new species

(fig. 27a-f)

Length of both male and female 4.8 mm; head width 1.3 mm; pronotal width 1.3 mm.

Head as wide as pronotum; vertex slightly produced medially, approximately 1/2 as long as width between eyes; ocelli near eyes, located at a distance about 1/2 their diameter from eyes; anteclypeus parallel-margined, not exceeding gena; clypeus widest proximally, convex; post-clypeal sulci parallel above antennal pits; pronotum with medial length approximately 2 times that of vertex, with lateral margins carinate.

Color tawny, sometimes tinged with pale yellow or pale green; forewings with veins broad and pale.

Male genitalia resembles C. fraterculus; pygofers (fig. 27a) long, triangular, incised dorsally, ventral margins with a long, acute process directed caudodorsad; valve (fig. 27b) triangular; genital plates elongate, triangular, with 6 to 8 marginal macrosetae; connective (fig. 27c) expanded apically, approximately 2/3 length of styles; styles with preapical lobe distinctly produced, apophysis elongate, acute, a small lateroventral tooth-like process on apical 1/3; aedeagus (fig. 27d-e) with shaft flat, 2 pairs of apical processes, the ventral pair longer, curved dorsad and directed basad, the dorsal pair shorter and directed caudad; gonopore apical between processes; female sternum VII (fig. 27f) with posterior margin irregularly truncate.

Holotype, male, from Paraguay, NW Asuncion 2 km E Limpio, at night, 17 June 1975 (Elzinga, Granovsky and Blocker). One male and one female

paratypes, one with the same data, one from Paraguay, 8 km W San Bernardino, sweeping 28 June 1975 (Blocker and Granovsky). Holotype and paratype in KSU, paratype in USNM.

C. longibrachium is apparently related to fraterculus, but can be distinguished by the longer apophysis of the styles and ventral processes on the aedeagus which are directed caudally in longibrachium.

Chlorotettix latocinctus paraguayensis, new subspecies

(fig. 28a-g)

Length of male 6.6 mm; head width 1.8 mm; pronotal width 1.8 mm; female unknown.

Body robust; head as wide as pronotum, vertex short, parallel-margined, approximately 1/3 as long as width between eyes; ocelli large, near eyes; anteclypeus with lateral margins parallel, not exceeding gena; postclypeal sulci slightly divergent above antennal pits; pronotum approximately 3 times length of vertex, lateral margins carinate.

Color brown; face with thin, dark brown lateral stripes; vertex darker, with a transverse stripe behind anterior margin; scutellum pale yellow with two brown submarginal spots; forewings hyaline with veins white, thin.

Pygofers (fig. 28a) with ventrocaudal margin smoothly convex, a shallow notch on caudal margin, ventral margin with elongate acute internal process directed dorsad; valve (fig. 28b) short; plates elongate, lateral margin convex on proximal 1/3, straight on apical 2/3, medial margin curved laterad; connective (fig. 28c) flat, elongate, with apex slightly expanded;

EXPLANATION OF PLATE X

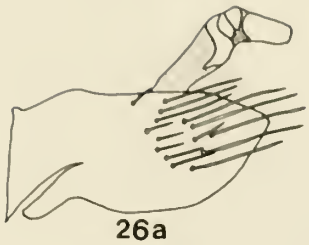
Fig. 26. *Chlorotettix fuscifasciatus*.

26a, pygofer and anal tube; 26b, valve and plate; 26c, connective and styles; 26d, aedeagus, ventral view; 26e, aedeagus; 26f, female abdominal sternum VII.

Fig. 27. *Chlorotettix longibrachium*.

27a, pygofer; 27b, valve and plate; 27c, connective and styles; 27d, aedeagus, ventral view; 27e, aedeagus, 27f, female abdominal sternum VII.

PLATE X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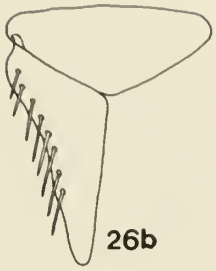
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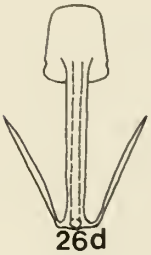
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26e


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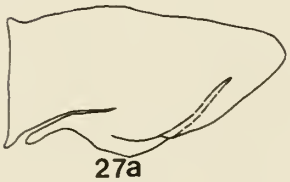
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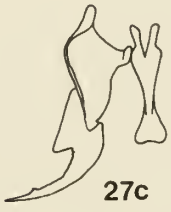
27b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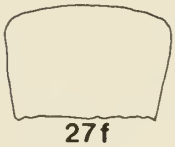

27f

styles with preapical lobe acutely produced, apophysis stout, acute, strongly curved laterad; aedeagus (fig. 28d-f) with shaft very slender, elongate, gradually curved dorsad, apex with two elongate, thin processes directed caudad, convergent, crossed near apex, gonopore subapical on dorsal surface.

Holotype, male, Paraguay, Parque National Guiyaque, between Caaguazu y Col Oviedo, 159.5 km E Asuncion, 16 June 1975, sweeping (Blocker, Elzinga and Granovsky). Two male paratypes, same data. Holotype and one paratype in KSU, paratype in USNM.

G. latocinctus paraguayensis can be distinguished from the nominate subspecies (fig. 28g) by the apical processes that are crossed near the apex in paraguayensis.

Chlorotettix fulvicus, new species

(fig. 29a-g)

Length of male 5.3 mm; head width 1.4 mm; pronotal width 1.3 mm; female unknown.

Head slightly wider than pronotum; vertex slightly produced medially, approximately 1/2 as long as width between eyes; ocelli near eyes; anteclypeus parallel-margined, not exceeding gena; postclypeal sulci divergent above antennal pits; pronotum approximately 2 times length of vertex, lateral margins carinate.

Color light brown; face and body without contrasting color; pronotum and scutellum tinged with white; forewings subhyaline, with veins thin, whitish; venter white.

EXPLANATION OF PLATE XI

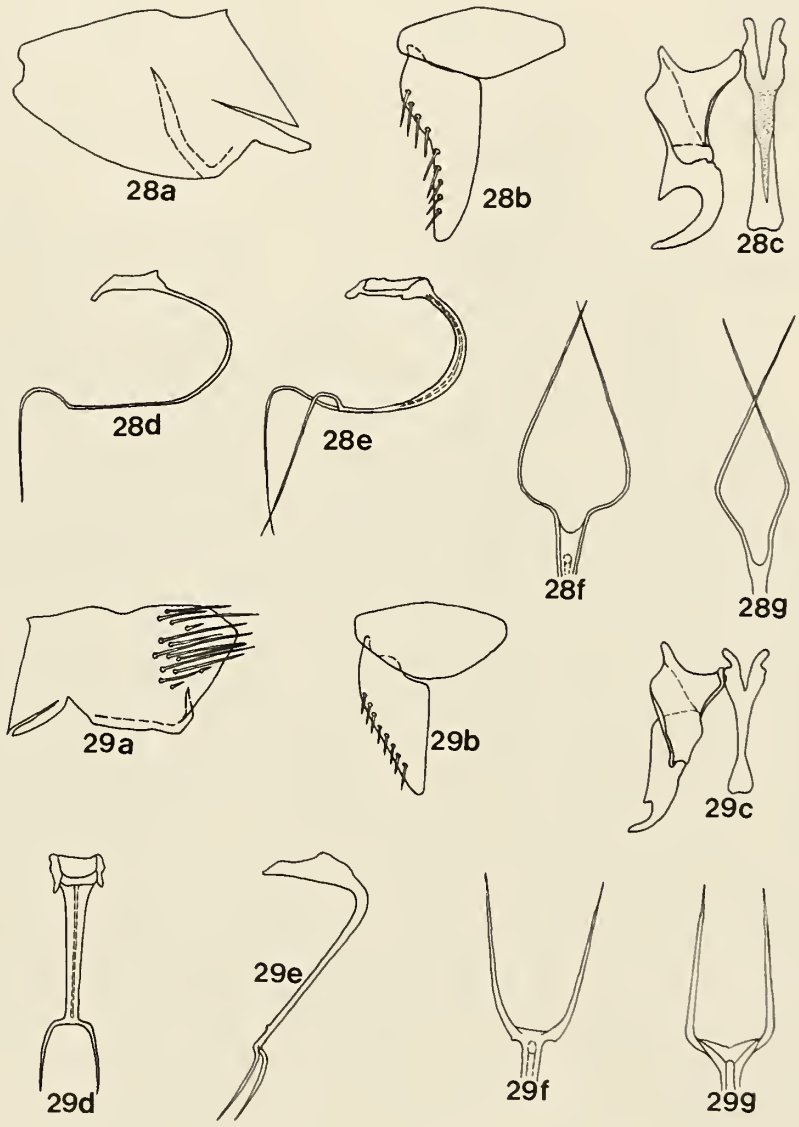
Fig. 28. *Chlorotettix latocinctus paraguayensis*.

28a, pygofer; 28b, valve and plate; 28c, connective and styles; 28d, aedeagus; 28e, aedeagus, dorsolateral view; 28f, apex of aedeagus, ventral view; 28g, apex of aedeagus of *C. latocinctus latocinctus*.

Fig. 29. *Chlorotettix fulvicus*.

29a, pygofer; 29b, valve and plate; 29c, connective and styles; 29d, aedeagus, dorsal view; 29e, aedeagus; 29f, apex of aedeagus, ventral view; 29g, apex of aedeagus of *C. giganteus*.

PLATE XI



External genitalia resembles C. giganteus, pygofers (fig. 29a) incised dorsally, laterocaudal margin obliquely truncate, a long process on ventral margin, with apex curved dorsad; valve (fig. 29b) ovate; plates triangular, with lateral margin slightly convex; medial margin straight; connective (fig. 29c) approximately 2/3 length of styles, apex expanded and truncate; styles with preapical lobe small, acute, apophysis elongate, curved laterad; aedeagus (fig. 29d-f) with shaft flat, straight, directed dorsocaudad, apex with pair of elongate, thin, bifurcate processes, each base with a minute tooth, gonopore subapical on dorsal surface.

Holotype, male, Paraguay, nr. Filadelphia, Mennonite Expt. Sta. 18 June 1975, sweeping (Granovsky, Blocker and Elzinga). Paratype, male, Paraguay 23 km SSE Filadelphia, The Chaco, Hans Disck Farm, 19 June 1975 (Elzinga, Granovsky and Blocker); described from these two specimens. Holotype in KSU, paratype in USNM.

C. fulvicus is closely related to giganteus (fig. 29g), but can be distinguished by the dorsal gonopore and slightly divergent processes of the aedeagus in fulvicus.

Faltala furcipennis, new species

(fig. 30a-e)

Length of male 2.1 mm (not including abdomen); head width 1.1 mm; pronotal width 1.1 mm; female unknown.

Body broad, short; vertex flat, produced medially, approximately the same length between eyes, frontal region slightly elevated; face broad, anteclypeus parallel-margined, not exceeding gena; postclypeus widest

dorsally; postclypeal sulci divergent above antennal pits; ocelli located at a distance approximately 2 times their diameter from eyes; pronotum short, about 2/3 length of fertex; forewings brachypterous, not extending beyond abdominal segment III.

Coloration resembles F. brachyptera but abdomen tawny, tinged with brown; legs light brown with dark brown rings.

Pygofers (fig. 30a) broad, short, triangular in dorsal view, with one or two macrosetae, caudodorsal margin with acute process; valve (fig. 30b) triangular; plates short, lateral margin sinuate, central part with 3 or 4 macrosetae, connective (fig. 30c) short, arms divergent, apex expanded; styles with ventral arm short, preapical lobe obscure, apophysis stout; aedeagus (fig. 30d-e) with acute ventral process, shaft with apex curved dorsad, gonopore round, apical on ventral surface.

Holotype, male, Paraguay, N Col Bogado, 7 June 1975, sweeping (Granovsky and Elzinga); described from this single specimen. Holotype in KSU.

F. furcipennis resembles brachyptera but can be distinguished by the ventral process on the aedeagus of furcipennis.

Menosoma longita, new species

(fig. 31a-e)

Length of male 4.4-4.8 mm; head width 1.4-1.5 mm; pronotal width 1.4-1.5 mm; female unknown.

Body robust, broad; head as wide as pronotum, vertex short, slightly produced, approximately 1/2 as long as width between eyes; ocelli near eyes;

face broad, anteclypeus widest apically, not exceeding gena; postclypeus widest dorsally; postclypeal sulci divergent above antennal pits; pronotum approximately 2 times as long as vertex, lateral margins short, carinate; forewings exceeding beyond the apex of abdomen, appendix well developed, 5th apical cell with 2 to 5 reflexed veinlets, outer anteapical cell sometimes dubdivided.

Color tawny; face with obscure lateral stripes, anteclypeus and lora sometimes tinged with brown; vertex pale-yellow, with obscure transverse brown stripe on disc; pronotum tinged with brown; forewings pale yellow, subhyaline, veins brown; venter light, tibia with dark rings.

Pygofers (fig. 31a) incised dorsally, with caudal lobe; valve (fig. 31b) short, rectangular; plates elongate, triangular, lateral margins sinuate, with macrosetae uniseriate and marginal; styles (fig. 31c) with preapical lobe produced, apophysis stout, acute, directed laterocaudad; connective elongate, slender; aedeagus (fig. 31d-e) with shaft bearing a dorsal, accuminate process of approximate equal length, gradually curved dorsad, gonopore apical.

Holotype, male, Paraguay NW Asuncion 2 km E Limpio, at light, 17 June 1975 (Elzinga, Granovsky and Blocker). Two paratypes, male, same data. Holotype and paratype in KSU, paratype in USNM.

M. longita is closely related to cincta but can be distinguished by the short vertex and the absence of a small tooth-like process on the posterior margin of the pygofers in longita.

Menosoma inprica, new species

(fig. 32a-d)

Length of male 5.0 mm; head width 1.5 mm; pronotal width 1.5 mm; female unknown.

Robust, broad; head as wide as pronotum, vertex short, slightly produced, approximately 1/2 as long as width between eyes; face broad; anteclypeus widest apically, not exceeding gena; postclypeus widest proximally; postclypeal sulci divergent above antennal pits; pronotum with medial length approximately twice that of vertex, lateral margins carinate; forewings exceeding the apex of abdomen, appendix developed, costal margin with 6 to 7 veinlets.

Color tawny; face tinged with brown, anteclypeus and lora with dark margins; vertex, pronotum, scutellum and forewings densely irrorated with minute brown pigments; forewings hyaline; venter pale brown; legs brown with dark rings.

Pygofers (fig. 32a) incised dorsally, caudal margin triangular, ventral margin smooth; valve (fig. 32b) short, rectangular; plates elongate, triangular, with lateral margin slightly sinuate; styles (fig. 32c) with preapical lobe a right angle, apophysis stout, directed latero-caudad; connective slender, elongate, apex expanded; aedeagus (fig. 32D) with shaft slender, slightly curved dorsad, bearing a dorsal process (broken in holotype), gonopore apical.

Holotype, male, Paraguay, nr. Filadelphia, 19 June 1975, at night (Granovsky, Blocker and Elzinga); described from this single specimen. Holotype in KSU.

EXPLANATION OF PLATE XII

Fig. 30. Faltala furcipennis.

30a, pygofer; 30b, valve and plate; 30c, connective and styles; 30d, aedeagus, dorsolateral view; 30e, aedeagus.

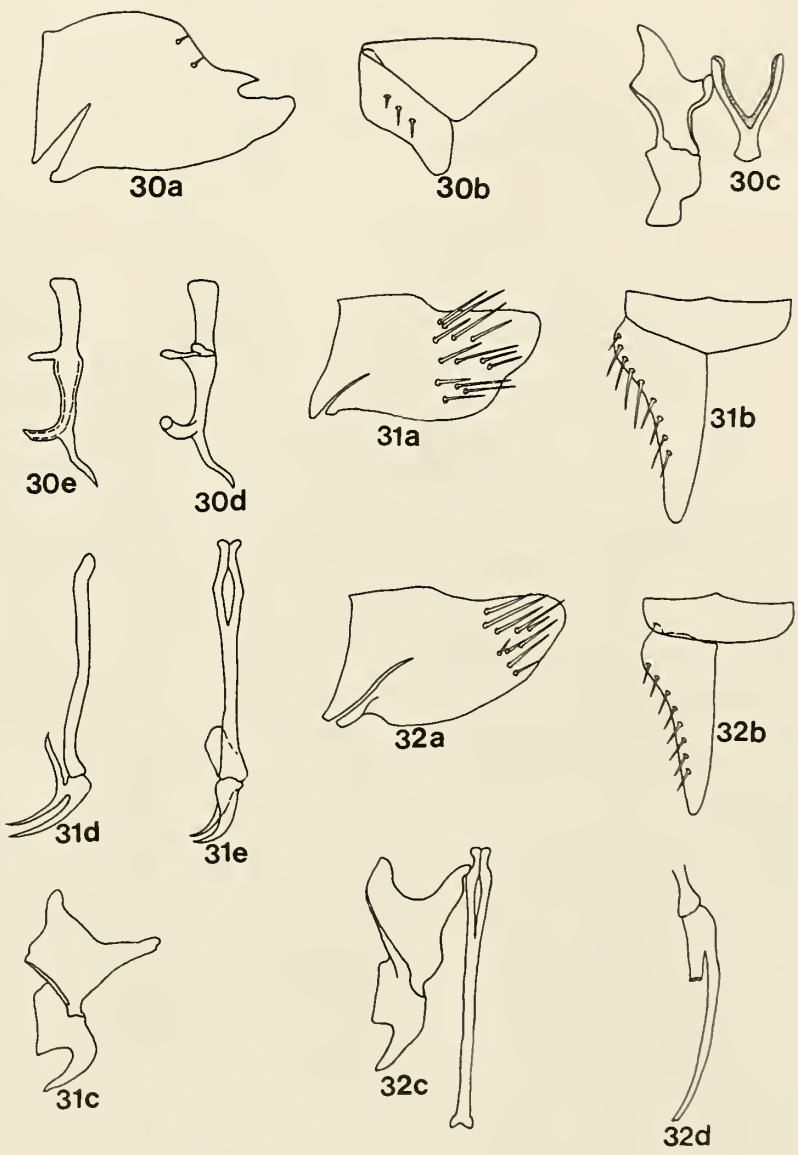
Fig. 31. Menosoma longita.

31a, pygofer; 31b, valve and plate; 31c, styles; 31d, connective and aedeagus, 31e, connective and aedeagus, ventrolateral view.

Fig. 32. Menosoma inprica.

32a, pygofer; 32b, valve and plate; 32c, connective and styles; 32d, aedeagus.

PLATE XII



M. imprica is closely related to longita but can be distinguished by the densely irrorated pigments on the body and the straighter apophysis of the styles in imprica.

Neophlepsius phlorus, new species

(fig. 33a-f)

Length of male 6.9-7.2 mm, of female 7.2 mm; head width of both 1.5 mm; pronotal width 1.6 mm.

Body stout, head distinctly narrower than pronotum; vertex slightly produced, medial length approximately 1/2 distance between eyes; ocelli near eyes; face elongate, anteclypeus widest apically, not exceeding gena; postclypeus elongate; postclypeal sulci parallel above antennal pits; pronotum elongate, approximately 3 times median length of vertex, lateral margins carinate; forewings with distinct appendix, apical cells elongate, 5th apical cell with 4 to 6 cross veins, outer anteapical cell with 1 to 4 cross veins.

Color light brown with distinct marks; anteclypeus and gena bordered with dark brown; clypeus with lateral stripes; vertex with 6 dark spots along anterior margin, disc with 2 transverse spots; pronotum tawny, irrorated with brown; forewings white, subhyaline, claval region densely irrorated with brown, brachial cell, discal cell, inner anteapical cell and 3rd apical cell sparsely irrorated with brown; venter light, legs with dark brown rings.

Male pygofers (fig. 33a) deeply incised dorsally, caudoventral margin with a sharp process; valve (fig. 33b) short, rectangular; plates triangular, apex with elongate, transparent process, lateral margin sinuate, with 6 to 8 macrosetae; connective (fig. 33c) approximately 2/3 length of styles, apex

expanded; styles stout, preapical lobe acute, apophysis strongly curved laterad; aedeagus (fig. 33d-e) with two pairs of acute processes, the basal pair elongate, falcate, gradually curved ventrad, the apical pair short, slender, directed caudad, shaft stout, gonopore apical on ventral surface; female sternum VII (fig. 33f) heart-shaped, caudal margin with small notch.

Holotype, male, Paraguay, 101 km NW Encarnacion, sweeping, 2 July 1975 (T. A. Granovsky); paratype, male and female, same data. Holotype and female paratype in KSU, male paratype in USNM.

N. phlorus resembles corpulentus, but can be distinguished by the apical processes and the gradually curved basal processes on the aedeagus of phlorus.

Paratanus brevicapitus, new species

(fig. 34a-e)

Length of male 3.7 mm; head width 1.2 mm; pronotal width 1.2 mm; female unknown.

Body wedge-shaped, vertex short, parallel-margined, 1/2 as long as width between eyes, with dense minute microsculpturing; anteclypeus slightly wider apically; postclypeus narrow; postclypeal sulci divergent above antennal pits; ocelli approximately its diameter from eyes; pronotum approximately 1 2/3 times length of vertex, lateral margins short, sinuate.

Color olive-greyish; vertex with a pale green band along anterior margin, disc brown; postclypeus sometimes with obscure lateral stripes; pronotum tinged with brown; forewings light brown, subhyaline, a pale

green band along costal margin, claval region, 1st, 4th and 5th apical cells with milky spots; venter pale green; legs light brown.

Pygofers (fig. 34a) broadly incised dorsally, caudal margin truncate; valve (fig. 34b) short, triangular; plates elongate, lateral margin sinuate; connective (fig. 34c) approximately 2/3 length of styles, apex expanded; styles with preapical lobe a right angle, apophysis stout, slightly curved laterad; aedeagus (fig. 34d-e) with pair of elongate basal processes acute apically, shaft slender, cylindrical, gradually curved dorsad, gonopore apical.

Holotype, male, Paraguay, nr. Filadelphia, Mennonite Expt. Sta. 18 June 1975, sweeping (Granovsky, Blocker and Elzinga). Two male paratypes, one with the same data and one from Paraguay, nr. Filadelphia 19 June 1975 (Granovsky, Blocker and Elzinga). Holotype and paratype in KSU, paratype in USNM.

P. brevicapitus resembles exitiosus but can be distinguished by the pale green band on the costal margin of the forewings and the longer basal processes on the aedeagus of brevicapitus.

Paratanus inermis paraguayensis, new subspecies

(fig. 35a-f)

Length of male 4.0 mm; head width 1.3 mm; pronotal width 1.2 mm; female unknown.

Body wedge-shaped, head and pronotum distinctly wider than body; vertex short, broad, parallel-margined, approximately 1/2 as long as width between eyes, face broad, anteclypeus widest apically, not exceeding gena; postclypeus widest dorsally; postclypeal sulci divergent above

EXPLANATION OF PLATE XIII

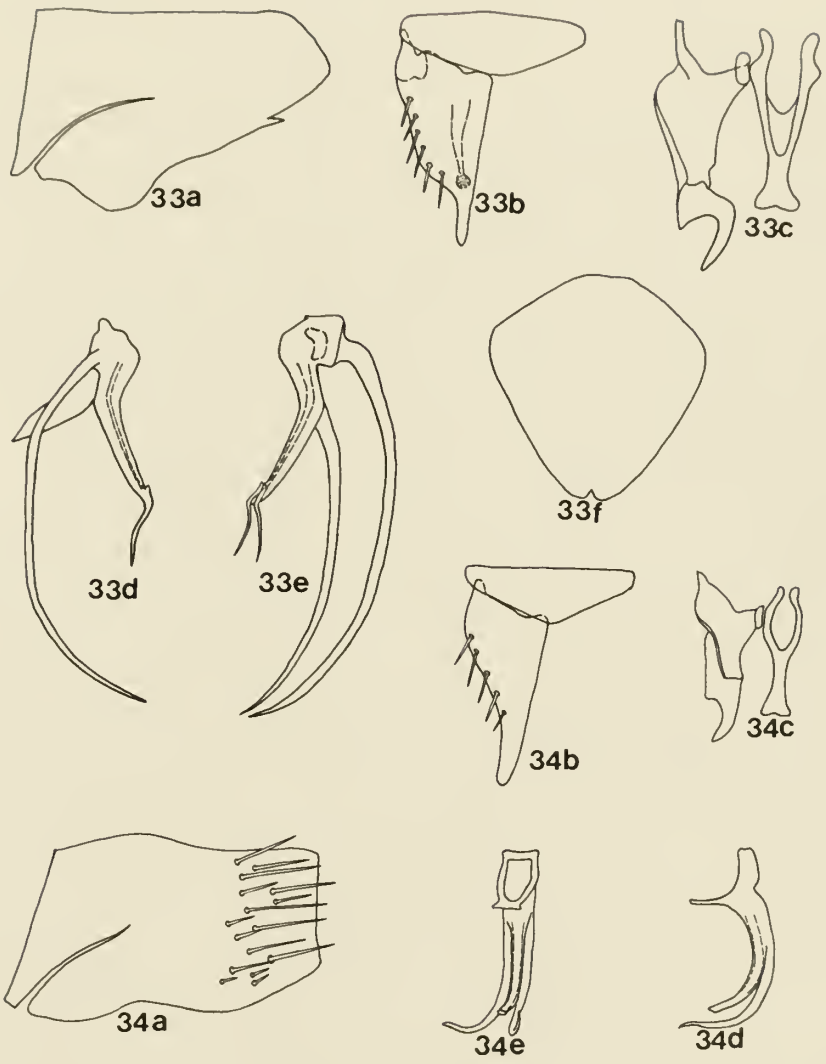
Fig. 33. Neophlepsius phlorus.

33a, pygofer; 33b, valve and plate; 33c, connective and styles; 33d, aedeagus; 33e, aedeagus, dorsolateral view; 33f, female abdominal sternum VII.

Fig. 34. Paratanus brevicapitus.

34a, pygofer; 34b, valve and plate; 34c, connective and styles; 34d, aedeagus; 34e, aedeagus, dorsolateral view.

PLATE XIII



antennal pits; ocelli small, located at a distance approximately their diameter from eyes; pronotum 1 2/3 times length of vertex, lateral margin short, carinate.

Color olive-greyish; pronotum tinged with brown; forewings hyaline, venter and legs pale green.

Pygofers (fig. 35a) deeply incised in dorsal view, caudal margin obliquely truncate; valve (fig. 35b) short; plates elongate, triangular; connective (fig. 35c) slender, apex expanded; styles with body elongate, preapical lobe acute, apophysis elongate, curved laterad; aedeagus (fig. 35d-e) with a pair of basal processes exceeding length of shaft, apex with a small apical lobe, gonopore apical.

Holotype, male, Paraguay, nr. Filadelphia Mennonite Expt. Sta. 18 June 1975, sweeping (Granovsky, Blocker and Elzinga); described from this single specimen. Holotype in KSU.

P. inermis paraguayensis resembles the nominate subspecies but can be distinguished by the basal processes of the aedeagus and the small apical lobe on the shaft in paraguayensis.

Tubulanus rhopalus, new species

(fig. 36a-f)

Length of male 3.5-3.6 mm, of female 3.8-3.9 mm; head width of both 1.1 mm; pronotal width 1.0 mm.

Head slightly wider than pronotum; vertex parallel-margined, approximately 1/2 as long as width between eyes; anteclypeus slightly wider apically, not exceeding gena; postclypeus narrow; postclypeal sulci parallel

above antennal pits; ocelli located at a distance approximately their diameter from eyes; pronotum approximately 1 2/3 times length of vertex.

Color dark brown; clypeus with a median yellow stripe and lateral stripes, gena yellow with dark borders; vertex with 4 black spots along anterior margin, disc with pair of everted L-shaped bands, a round spot near each eye; pronotum yellow, anterior margin with irregular spots, remainder tinged with fuscous; forewings hyaline, claval region and 3rd apical cell tinged with brown; venter and abdomen dark; legs light brown.

Male pygofers (fig. 36a) with approximately 10 microsetae, ventral margin straight, caudal margin truncate, caudoventral angle with a finger-like lobe directed caudad; valve (fig. 36b) short, rectangular; plates elongate, curved laterad apically, lateral margin sinuate; connective (fig. 36c) short; styles slender, elongate, ventral arm and preapical lobe obtuse; aedeagus (fig. 36d-e) simple, flattened laterally, gonopore slit-like, apical on ventral surface; female sternum VII (fig. 36f) elongate, posterior margin with medial lobe indented apically.

Holotype, male, Paraguay, nr. Lugue & International airport, 26 June 1975, sweeping (Elzinga, Granovsky and Blocker). Twelve male and 11 female paratypes from Paraguay, one female from Brazil, nr. Ponta Pora, 23 June 1975, sweeping (Blocker, Elzinga and Granovsky). Holotypes and paratypes in KSU, paratypes in USNM.

T. rhopalus resembles lagunae but can be distinguished by the elongate, slender styles of rhopalus.

EXPLANATION OF PLATE XIV

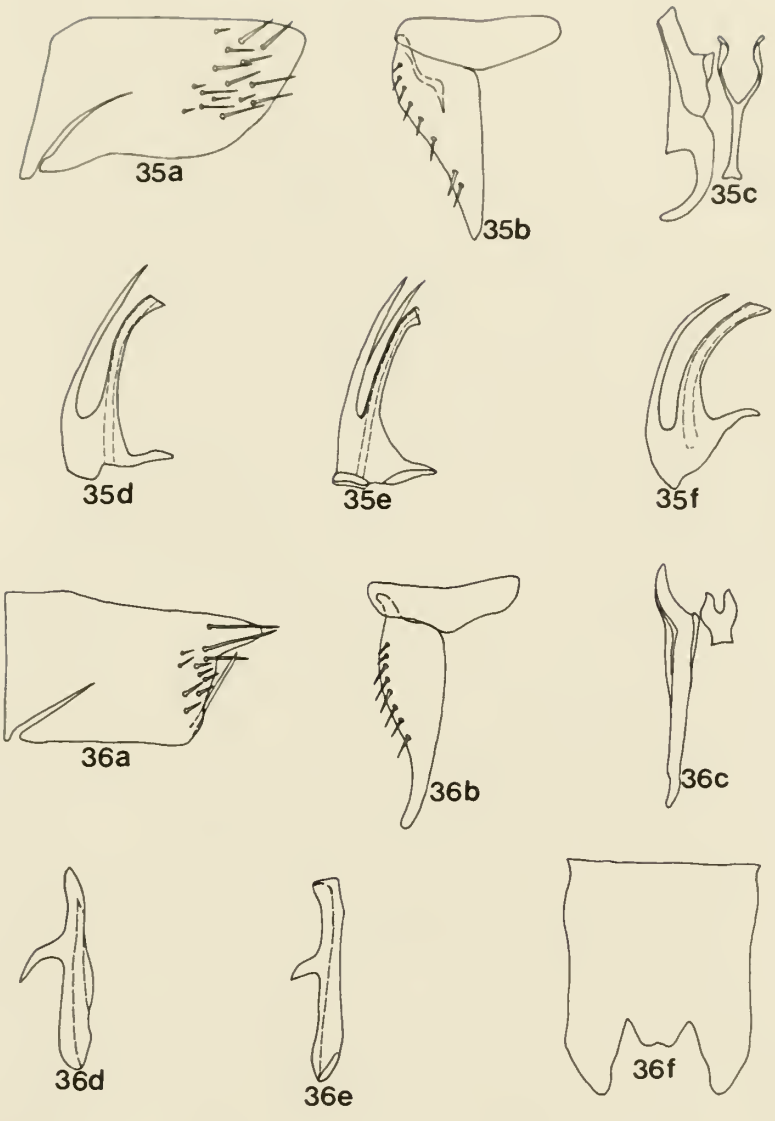
Fig. 35. *Paratanus inermis paraguayensis*.

35a, pygofer, 35b, valve and plate; 35c, connective and styles; 35d, aedeagus; 35e, aedeagus, dorso-lateral view; 35f, aedeagus of *P. inermis inermis*.

Fig. 36. *Tubulanus rhopalus*.

36a, pygofer; 36b, valve and plate; 36c, connective and styles; 36d, aedeagus; 36e, aedeagus, ventro-lateral view; 36f, female abdominal sternum VII.

PLATE X IV



Tubulanus trifurcatus, new species

(fig. 37A-F)

Length of male 3.5 mm; head width 1.1 mm; pronotal width 1.0 mm; female unknown.

Head slightly wider than pronotum; vertex short, slightly produced medially, approximately 1/2 as long as width between eyes; ocelli located at a distance approximately 1/2 their diameter from eyes; anteclypeus widest apically, distinctly exceeding gena; postclypeus elongate, narrow; postclypeal sulci divergent above antennal pits; pronotum approximately 1 2/3 length of vertex; forewings with appendix small.

Color pale yellow; anteclypeus and gena bordered with brown, postclypeus with light brown lateral stripes; anterior margin of vertex with 6 elongate spots, disc with 2 orange spots; pronotum and scutellum pale yellow, tinged with brown and orange; forewings white, subhyaline, veins slender, brown; venter and legs pale yellow; hind tibia with small brown spots.

Pygofers (fig. 37a) tapered apically, ventral margin with acute processes directed caudad; anal tube (fig. 37b) membranous dorsally, ventral surface with an elongate process, apex tripartate; valve (fig. 37c) triangular; plates elongate, lateral margin sinuate; connective (fig. 37d) short, apex expanded; styles slender, elongate, ventral arm and preapical lobe obscure, apophysis with apex expanded; aedeagus (fig. 37e-f) stout, flattened laterally, bifurcate apically, gonopore apical, slit-like.

Holotype, male, Paraguay, 128.5 km W Pto. Pte, Stroessner, between Campo 8 y Caaguazu, 16 June 1975 (Granovsky, Blocker and Elzinga), described from this single specimen. Holotype in KSU.

T. trifurcatus resembles lagunae but can be easily distinguished by the process on the anal tube of trifurcatus.

Scaphytopius (Cloanthanus) paraguayensis, new species

(fig. 38a-f)

Length of male 3.9-4.0 mm, of female 4.3-4.4 mm; head width of both 0.9-1.0 mm; pronotal width 1.0-1.1 mm.

Head narrower than pronotum; vertex sharply produced, about 1 1/2 as long as width between eyes, disc concave medially; ocelli small, near eyes; anteclypeus widest apically, exceeding gena, postclypeus elongate, narrow; postclypeal sulci divergent above antennal pits; pronotum short, approximately 3/4 length of vertex; forewings with appendix distinct, extending to 4th apical cell.

Color pale yellow, with dense dark brown spots; face yellow, without lateral arcs but tinged with brown; forewings pale, densely irrorated with minute fuscous spots, costal margin with several reflexed veinlet-like stripes; venter dark; legs with brown rings.

Male pygofers (fig. 38a) elongate, with caudal macrosetae; valve (fig. 38b) diamond-shaped, width equals length; plates (fig. 38b) with anterior margin oblique, blunt caudally; connective (fig. 38c) short, arms strongly divergent; styles with ventral arm short, broad, preapical lobe rounded, apophysis slightly curved laterad; genital paraphyses (fig. 38c)

paired, fused proximally, arms elongate, slender, crossed then divergent; aedeagus (fig. 38d-e) with pair of basal arms, directed cephalad, shaft expanded in dorsal view, apex curved dorsad; female sternum VII (fig. 38f) with a median rounded lobe on posterior margin.

Holotype, male, Paraguay, nr. Luque & International airport, 26 June 1975, sweeping (Elzinga, Granovsky and Blocker). Paratype, 3 males and 2 females, same data. Holotype, one male and female paratypes in KSU, the other paratypes in USNM.

S. paraguayensis resembles hilaris, but can be distinguished by the fused proximal end of genital paraphyses in paraguayensis.

EXPLANATION OF PLATE XV

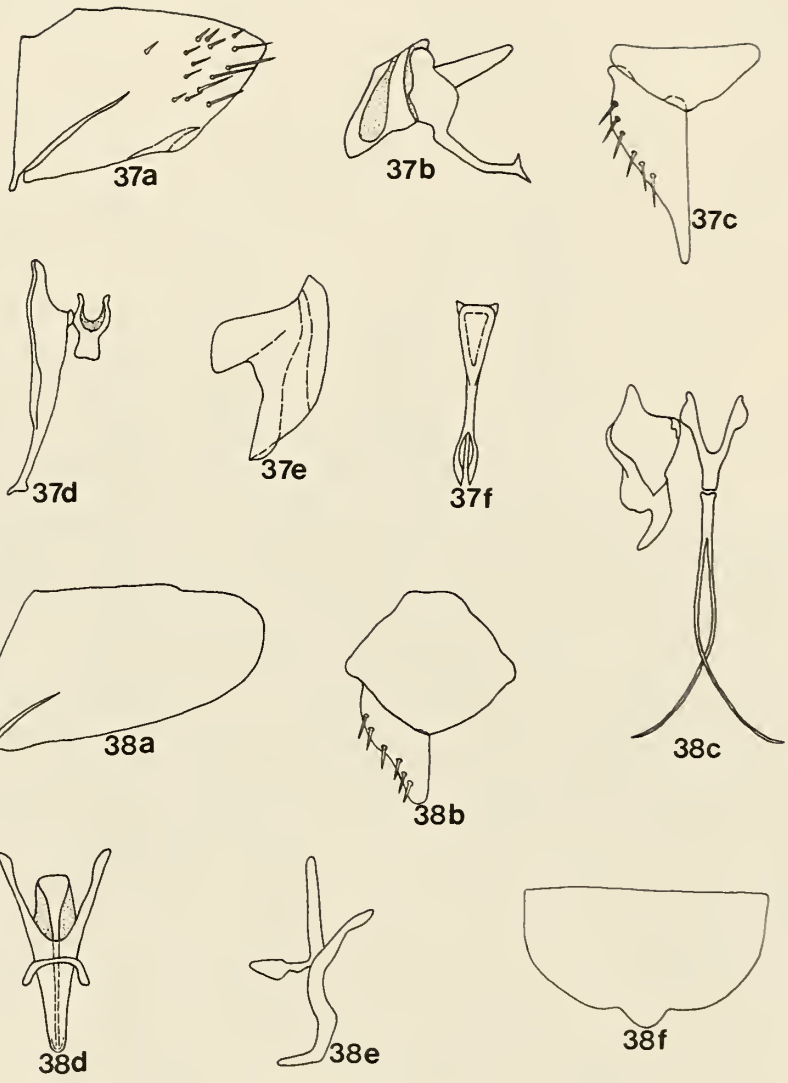
Fig. 37. *Tubulanus trifurcatus*.

37a, pygofer; 37b, anal tube; 37c, valve and plate; 37d, connective and styles; 37e, aedeagus; 37f, aedeagus, ventral view.

Fig. 38. *Scaphytopius* (*Cloanthanus*) *paraguayensis*.

38a, pygofer; 38b, valve and plate; 38c, connective, styles and paraphysis; 38d, aedeagus, dorsal view; 38e, aedeagus; 38f, female abdominal sternum VII.

PLATE XV



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APPENDIX

Neotropical Genera not in Linnavuori (1959)

1. Arundanus DeLong, 1935a:180. Mexico.
2. Knullana DeLong, 1941a:86. Mexico.
3. Omanana DeLong, 1942a:293. Mexico.
4. Deltorynchus DeLong, 1943a:79. Mexico.
5. Stoneata DeLong, 1943b:448. Mexico
6. Artucephalus DeLong, 1943e:654. Mexico.
7. Ascius DeLong, 1943f:250. Mexico.
8. Tumeus DeLong, 1944a:168. Mexico.
9. Hebenarus DeLong, 1944c:41. Mexico.
10. Tenucephalus DeLong, 1944i:236. Mexico.
11. Tenuisanus DeLong, 1944j:73. Mexico.
12. Spathanus DeLong, 1945a:157. Mexico.
13. Acunasus DeLong, 1945f:199. Mexico.
14. Retusanus DeLong, 1945g:135. Mexico.
15. Costamia DeLong, 1946a:82. Mexico.
16. Excavanus DeLong, 1946c:446. Mexico.
17. Frequenamia DeLong, 1947a:63. Mexico.
18. Usanus DeLong, 1947b:110. Mexico.
19. Alanus DeLong and Hershberger, 1947d:231. Mexico.
20. Dampfiana DeLong and Hershberger, 1948c:229. Mexico.
21. Paratanus Young, 1957:14. Ecuador.
22. Spartopyge Young and Beirne, 1958a:48. Mexico.
23. Renonus DeLong, 1959:325. Mexico.

24. Quaziptus Kramer, 1965:29. Colombia.

25. Spinulana DeLong, 1967:20. Mexico.

26. Devolana DeLong, 1967:22. Mexico.

27. Conversana DeLong, 1967:266. Mexico.

28. Pseutettix DeLong, 1967:210. Mexico.

29. Krameraxus Capriles, 1968:35. Puerto Rico.

30. Ilagia Kramer and DeLong, 1968:174. Mexico.

31. Pseudaligia Kramer and DeLong, 1968:171. Mexico.

32. Alladanus DeLong and Harlan, 1968:147. Mexico.

33. Cozadanus DeLong and Harlan, 1968:150. Mexico.

34. Nullamia DeLong, 1970:118. Chile.

35. Soleatus DeLong, 1971:54, Mexico.

36. Icaia Linnavuori, 1973:15. Peru.

37. Desertana DeLong and Martinson, 1973:125. Chile.

38. Kramerana DeLong and Thambimuttu, 1973:165. Chile.

39. Virganana DeLong and Thambimuttu, 1973:167. Chile.

40. Aequecephalus DeLong and Thambimuttu, 1973:172. Chile.

41. Ancudana DeLong and Martinson, 1974:261. Chile.

42. Lorellana DeLong and Kolbe, 1975:9. Panama.

43. Clorindaia Linnavuori, 1975:51. Argentina.

44. Caphodellus Linnavuori and DeLong, 1976:33. Bolivia.

45. Napo Linnavuori and DeLong, 1976:34. Peru.

46. Paradanus Linnavuori and DeLong, 1976:34. Peru.

47. Dariena Linnavuori and DeLong, 1977:561. Panama.

48. Rinconada Linnavuori and DeLong, 1977:203. Chile.

49. Consepusa Linnavuori and DeLong, 1977:205. Chile.

50. Nahuelbuta new subgen. Linnavuori and DeLong, 1977:207. Chile.

51. Concepciona Linnavuori and DeLong, 1977:208. Chile.

52. Vicosa Linnavuori and DeLong, 1978:202. Brazil.

53. Neohegira Linnavuori and DeLong, 1978:205. Bolivia.

54. Comayagua Linnavuori and DeLong, 1978:206. Honduras.

55. Tingopyx Linnavuori and DeLong, 1978:228. Peru.

56. Caruya Linnavuori and DeLong, 1978:230. Peru.

57. Yuraca Linnavuori and DeLong, 1978:231. Peru.

58. Tingolix Linnavuori and DeLong, 1978:234. Peru.

59. Mocoa Linnavuori and DeLong, 1978:236. Colombia.

60. Perubahita Linnavuori and DeLong, 1978:113. Peru.

61. Megabahita Linnavuori and DeLong, 1978:120. Brazil.

62. Suarezia Linnavuori and DeLong, 1978:121. Bolivia.

63. Saavedra Linnavuori and DeLong, 1978:122. Bolivia.

64. Guaporea Linnavuori and DeLong, 1978:123. Argentina and Brazil.

65. Rineda Linnavuori and DeLong, 1978:129. Panama.

66. Sanestebsnia Linnavuori and DeLong, 1978:130. Bolivia.

67. Sinchonoa Linnavuori and DeLong, 1978:132. Peru.

68. Chonosina Linnavuori and DeLong, 1978:134. Peru.

69. Lascumbresa Linnavuori and DeLong, in press.

70. Picchusteles Linnavuori and DeLong, in press.

71. Bolivaia Linnavuori and DeLong, in press.

72. Cruziella Linnavuori and DeLong, in press.

73. Picchuia Linnavuori and DeLong, in press.

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NEW LEAFHOPPER TAXA (HOMOPTERA, CICADELLIDAE: DELTOCEPHALINAE) FROM PARAGUAY

by

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The following new taxa are described: Agudus blockeri, n. sp.; A. forficatus, n. sp.; A. lepidus, n. sp.; A. cyrtobrachium, n. sp.; Amplicephalus chacus, n. sp.; A. tubupennis, n. sp.; A. eusebuis, n. sp.; A. parquis, n. sp.; A. pedriatus, n. sp.; Fusanus acristylus, n. sp.; Haldorus parallelocornis maculatus, n. subsp.; H. scissis, n. sp.; H. schizus, n. sp.; H. drepanus, n. sp.; H. cratus, n. sp.; Limpica forcata, n. gen. and n. sp.; Mendozellus asunctia, n. sp.; Planicephalus serratus, n. sp.; Aplanatus pallibandus, n. gen. and n. sp.; Atanus gracilus, n. sp.; A. luqueatus luqueatus, n. sp.; A. luqueatus equalis, n. subsp.; A. loritus, n. sp.; Bahita cirrofasciata, n. sp.; Chlorotettix polymaculatus, n. sp.; C. fuscifascicatus, n. sp.; C. longibrachium, n. sp.; C. latocinctus paraguayensis, n. subsp.; C. fulvicus, n. sp.; Faltala furcioennis, n. sp.; Menosoma longita, n. sp.; M. inprica, n. sp.; Neophlepsius phiorus, n. sp.; Paratanus brevicapitus, n. sp.; P. innermis paraguayensis, n. subsp.; Tubulanus rhopalus, n. sp.; T. trifurcatus, n. sp.; Scaphytopius (Cloanthanus) paraguayensis, n. sp.

An annotated list of previously named taxa is also included. A total of 72 species and 8 subspecies of leafhoppers were identified. Two new genera, 34 new species and 4 new subspecies are described and illustrated. Twenty-three previously named species are new records for Paraguay.