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New Millipeds from Peru and Adjacent Parts

BY

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NEW MILLIPEDS FROM PERU AND ADJACENT PARTS

By Ralph V. Chamberlin

The millipeds described in the present paper form part of the new forms found in the course of a study of four important collections from Peru, Ecuador and Bolivia which have come into my hands for study. One of these lots embraces material in the American Museum of Natural History collected in 1945-1947, chiefly by F. Woytowski and loaned through the courtesy of Dr. Willis J. Gertsch; a second one was made for me in Ecuador by Mr. Clarke-Macintyre in 1937; the third was made in Bolivia by Dr. W. W. Mann on the Mulford Expedition; while the fourth and much the largest was made in Peru by Prof. W. Weyrauch by whom it was generously submitted to me for study. The surprising number of new forms that continue to appear in collections from this area results naturally from two causes, — the heretofore lack of careful collecting of myriopods in the area and from the actual multiplicity of species due to the great diversity in environmental factors associated with the wide range in elevations and the large number of well separated rivers and river valleys, etc. Thus the elevations from which specimens in the Weyrauch collection came range from 300 to 4,000 meters.

The localities at which diplopods were taken by Prof. Weyrauch, together with his field numbers for the same, are as follows:

LOCALITIES OF THE WEYRAUCH COLLECTION

FC.884. Atiquipe, near Chala (west Andean area). 900 m.
W.10.095. Yanasara. (Affluent of River Marañon, near Huamachuco). 2300 m.
W.10,292 and W.10.293. Huamachuco. 3,200 m.
W.11.014. Abancay. (near Cuzco). 2.480 m.
W.11.115. Lima.
W.11.115A. Lima, in cotton field.
W.11.116. Valle Chanchamayo. (Tropical rain forest). 800 m.
W.11.129. Zapotal, River Chinchipe. (Northern affluent of the Marañon.
W.11.130. River Namballe. (One the Ecuadorean border, savanna forest). 900 m.
W.11.130A. Chirinos. N. Peru in affluent system of the Marañon). 1800 m.
W.11.131. Jaën. (Near the river Marañon, savanna forest). 700 m.
W.11.132. Tingo Maria. (River Huallaga, tropical rain forest). 670 m.
W.11.133. Tarma. 3,000 m.
W.11.134. Divisoria. (Cordillera Azul, subtropical rain forest dividing Huallaga and Ucayali systems). 1400 m.
W.11.135. Yanasara, River Chusgon. 2,300 m.
W.11.136. Celedin, near Cajamarca.
W.11.137. La Viuda, near Canta. (West Andean northeast of Lima). 4,100 m.
W.11.137 (duplicate number). Cajamarca. 2,700 m.
W.11.138. San Alejandro. (Affluent of Ucayali). 300 m.
W.11.139. Oxapampa. (Subtropical rain forest). 1,700 m.
W.11.140. Jaën. 700 m.
W.11.141. Jaën. 700 m.
W.11.142. Contumaza. (West Andean, near Trujillo). 2,850 m.
W.11.144. River Namballe. 900 m.
W.11.144. Cajamarca. 2,700 m.
W.11.145. Puna, between Abancay and River Pampas. 4,000 m.(?).
W.11.146. Hacienda Cochambul, near Cajamarca.
W.11.146A. Hacienda Chaquil, near Cajamarca. 3,150 m.

W.11.148. Hacienda Marcabal, River Chusgon, western affluent of Marañon. 1600 m.
W.11.149. Hacienda Cochambul, near Cajamarca. 2,800 m.
W.11.150. Quebrada Verde, near Lima.
W.11.150 (duplicate number). Oxapampa. 1,600 m.
W.11.151. Oxapampa. (Subtropical rain forest). 1,600 m.
W.11.157. La Viuda, above Canta. (West Andean, near Lima). 4,100 m.
W.12.065. Tingo Maria, in the cave "Cueva da Lechuzas." (The cave is inhabited by the bird *Steatormis caripensis*.)
W.12.132. Huamantanga, near Canta. (Coll. by S. Sanchez). 3,500 m.
W.12.178. Saposoa, River Huallaga. 420 m.
W.12.180. Oxapampa. 1600 m.
W.12.181. River Huallaga. 500 m.
W.12.183. Huanuco, River Huallaga. 1,900 m.
W.12.185. Tingo Maria, River Huallaga, in Cueva de Luchuzas ("Steatornis Cave). Specimens abundant in detritus of palm seeds carried there by the cave birds.
W.12.186. River Urubamba. (Savanna forest). 800 m.
W.12.187. Same data as for 186.
W.12.188. Carpapata, river Tarma. (Upper course of the Chanchamayo). 2,300 m.
W.12.189. Huanuco, River Huallaga. 1,900 m.
W.12.190. San Alejandro. (Affluent system of the Ucayali). 300 m.
W.12.191. River Huallaga. 500 m.
W.12.192. Acomayo, near Huanuco. 2,700 m.
W.12.193. Between Cerro de Pasco and Huanuco. 3,800 m.
W.12.194. Valle Chanchamayo. 1,000 m.
W.12.195. Cuzco. 3,600 m.
W.12.196 and W.12.197. Tingo Maria, River Huallaga. 670 m.
W.12.198. Hacienda Cachi-cachi, near Tarma. 4,000 m.
W.12.199. Andahuayalas. 3,000 m.
W.12.200 and W.12.201. Same data as for W.12.199.
W.12.202. Above Tarma. 3,500 to 3,800 m.
W.12.203. Hacienda Marcabal, River Chusgon. 1600 m.
W.12.204. Ninabamba, near Chiclayo. 1800 m.
W.12.206. Bellavista, River Marañon. (Savanna forest). 500 m.
W.12.211. Juanjui, River Huallaga. (Tropical rain forest). 350 m.

LIST OF NEW SPECIES DESCRIBED

SPIROBOLIDA

Spirobolidae

Incobolus thaumastus n. gen. and sp.

Rhinocricidae

Andocricus harae n. gen. and sp.
Eurhinocricus aphanes n.sp.
Eurhinocricus collitrus n.sp.
Eurhinocricus elattus n.sp.
Eurhinocricus manni n.sp.
Eurhinocricus huadus n.sp.
Eurhinocricus lissior n.sp.
Eurhinocricus tarmanus n.sp.
Eurhinocricus tungurus n.sp.
Eurhinocricus urubambae n.sp.
Lissocricus ecuadorae n.sp.
Lissocricus holostrius n.sp.
Lissocricus oblitus n.sp.
Lissocricus retrus n.sp.
Rhinocricus acus n.sp.
Rhinocricus balanus n.sp.
Rhinocricus bellus n.sp.
Rhinocricus blancus n.sp.
Rhinocricus cantanus n.sp.
Rhinocricus carpapatae n.sp.
Rhinocricus covendo n.sp.
Rhinocricus cuzconus n.sp.
Rhinocricus divisus n.sp.
Rhinocricus entypus n.sp.
Rhinocricus eucrines n.sp.
Rhinocricus kezantus n.sp.
Rhinocricus loreto n.sp.
Rhinocricus tarapoto n.sp.
Rhinocricus tingo n.sp.
Rhinocricus tuobitus n.sp.
Rhinocricus yanus n.sp.

POLYDESMIDA

CHELODESMIDAE

Incodesmus urubambae n.gen. and sp.
Leptodesmus abancus n.sp.
Leptodesmus oxapus n.sp.
Leptodesmus weyrauchi n.sp.
Watoporus quechuanus n. gen. and sp.
Yanadesmus celendinus n. gen. and sp.
Yanadesmus chusgonus n.sp.

CRYPTODESMIDAE

Tridesmus perucola n.sp.

STRONGYLOSOMIDAE

Catharosoma contumum n.sp.
Catharosoma ethophor n.sp.
Catharosoma flavius n.sp.
Habrodesmus consocius n.sp.
Habrodesmus frater n.sp.
Habrodesmus huallagae n.sp.
Habrodesmus punae n.sp.

ONISCODESMIDAE

Detodesmus tingo n.sp.

POLYXENIDA

POLYXENIDAE

Oroxenus quebradanus n. gen and sp.

Of these species, all are from Peru with the exception of those named in the two lists below.

SPECIES FROM ECUADOR

Eurhinocricus aphenes n.sp.
Eurhinocricus elattus n.sp.
Eurhinocricus tungurus n.sp.
Eurhinocricus lissior n.sp.
Lissocricus ecuadorae n.sp.
Rhinocricus acus n.sp.
Rhinocricus balanus n.sp.
Rhinocricus blancus n.sp.
Rhinocricus eucrines n.sp.

SPECIES FROM BOLIVIA

Eurhinocricus huadus n.sp.
Eurhinocricus manni n.sp.
Rhinocricus covendo n.sp.

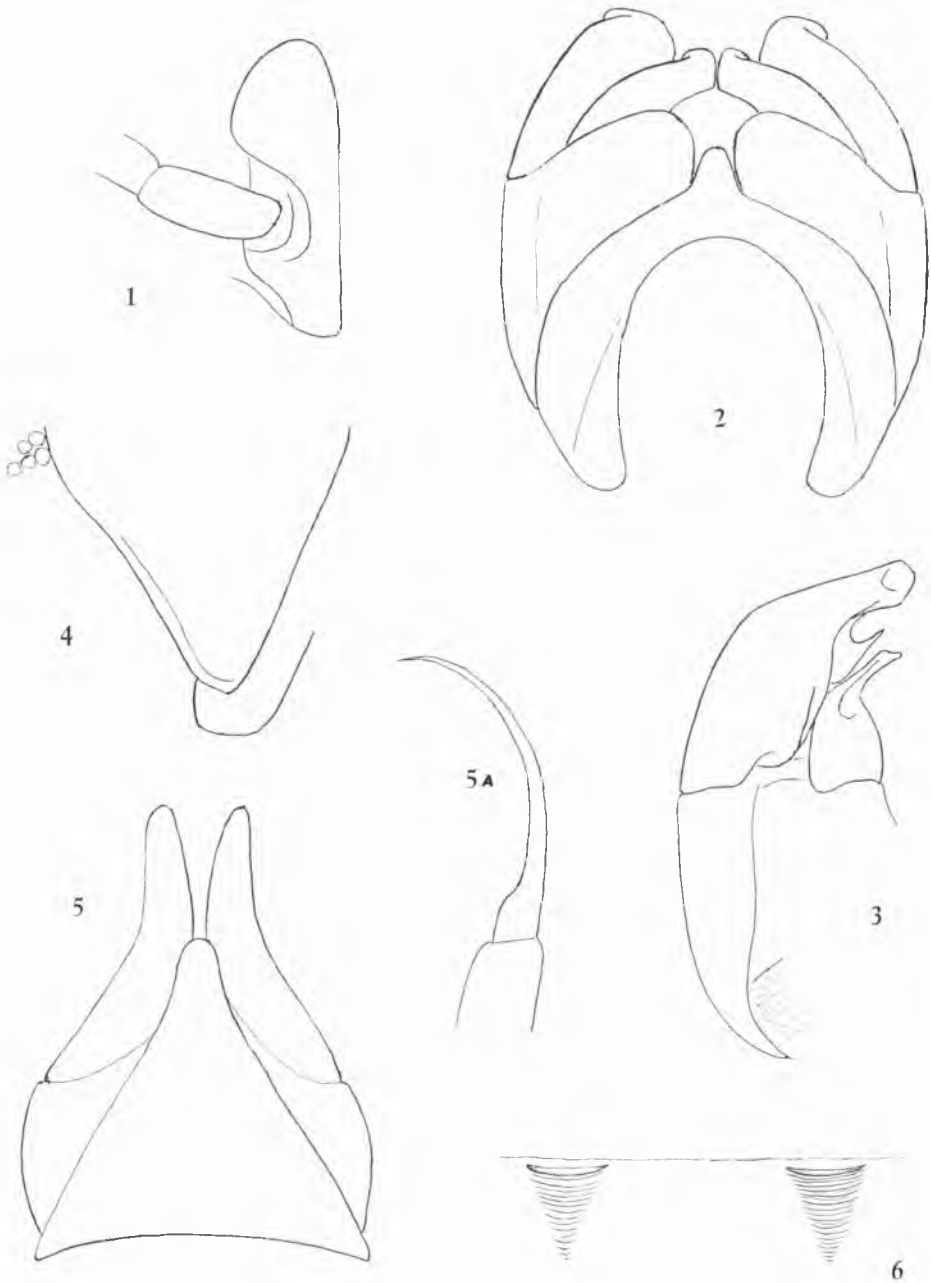
SPIROBOLIDA

SPIROBOLIDAE

Genus INCOBOLUS, new

Clypeal setigerous foveolae 4+4. In the structural character of the gonopods of the male close in general to the Mexican *Aztecolus,* but differing from that genus in having conspicuous coxal processes on the legs of the fifth, sixth and seventh pairs in the male. The sternite of the anterior gonopods short, U-shaped, with the arms narrow. Posterior gonopods with a free inner piece, the larger outer piece meeting its mate at the middle line when the gonopods are in situ.

GENEROTYPE.—*Incobolus thaumastus* n.sp.



Incobolus thaumastus n.sp. Fig. 1. Coxal process, seventh leg of male, caudal side. 2. Anterior gonopods. 3. Posterior gonopod. 4. Lower part of collum. *Andocricus harae* n.sp. Fig.5. Anterior Gonopods. 5A. Posterior Gonopod. 6. Scobina.

Incobolus thaumastus n.sp.

Figs. 1-4

A conspicuously annulate form in which the anterior part of the prozonites is light ferruginous yellow, the light band widening down the sides to also include the metazonite; elsewhere the tergites chocolate or deep brown in color, in part showing a slight ferruginous cast; legs and antennae ferruginous yellow; the collum bordered with the lighter color; head brownish above, lighter below; anal tergite and valves of the darker color.

Head in general smooth and shining; the median sulcus sharply impressed, interrupted at the level of the antennal sockets.

On the body tergites the primary sulcus fine but distinct throughout, sharply angled at level of pore. In front of this sulcus several complete corss striae, these fine and close together toward anterior margin.

Last tergite obtusely angled behind, its surface smooth; much exceeded by the anal valves. Mesal valves mesally compressed and elevated but the border not limited by a distinct furrow.

In the male the coxal processes of the fifth leg long, curving backward below the ends of the shorter, erect processes of the sixth legs; the processes of the seventh legs thicker, clavately widening distad; furrowed down the anterior face (cf. fig. 1). Claws of anterior legs of male not specially enlarged.

Gonopods of the male as shown in figs. 2 and 3.

Number of segments, 52.

Width, 8-10 mm.

LOCALITY.—Peru. (A.M.N.H. lot No. A3973, without more specific note on the locality.)

The types consist of two males and three females.

RHINOCRICIDAE

Genus ANDOCRICUS, new

A genus related to *Cubocricus* and *Alcimobolus* in having the posterior gonopods slender and unbranched but differing especially in the anterior gonopods. In these the coxal piece is much shorter than the sternite and the telopodite is unusually slender and prolonged. The type species is much smaller than those so far known in the other groups mentioned.

GENEROTYPE.—*Andocricus harae* n.sp.

Andocricus harae n.sp.

Figs. 5-6

Black, the covered portion of prozonites, and on some segments the entire prozonite, lighter; the entire last tergite, including its cauda, and the anal valves black; head and collum also black; legs reddish brown.

Median sulcus of head sharply impressed across vertex and below the usual interruption at level of antennal sockets. Clypeal foveolae 2+2.

On the body segments the primary sulcus sharply impressed throughout, excurved at level of pore. A distinct supplementary sulcus and in front of this a number of conspicuous transverse striae, some of the latter being continuous

as oblique striae on the sides of the prozonites. Longitudinal striae well marked on the metazonites up to and sometimes a little above the pore. Surface under the lens appearing finely rugose throughout. The scobina of moderate size, their diameter or more apart; anterior pit narrow anterodcaudally and but little curved; the posterior area striate, acutely pointed behind, its striae coarse (Fig. 6).

Gonopods of the male as drawn (cf. figs. 5 and 5A).

Number of segments, 47.

Width, 5 mm.

LOCALITY.—Peru. Hara, southeast of Mogalbamba, Dept. San Martin. One male taken by Woytowsik, June, 1947. (A.M.N.H.)

Genus EURHINOCRICUS Brolemann

Eurhinocricus Brolemann, 1903, Ann, ent. Soc. France, vol. 73, p. 131.

The key below will aid in the recognition of the members of this genus described in this paper. In this key the statements on the scobina pertain to those of maximum development, these being usually toward the anterior end of the series. There are also occasionally differences in the scobina of the two sexes which must be kept in mind.

KEY TO SPECIES OF EURHINOCRICUS

1. Last tergite not surpassing the anal valves 2
– Last tergite with tip free, surpassing the anal valves 5
2. Primary segmental sulcus replaced by a secondary sulcus dorsally ..... *E.tungurus* n.sp.
– Primary sulcus complete 3
3. Scobina large, about once and a half their width apart ..... *E.lissior* n.sp.
– Scobina small, four or more times their width apart 4
4. Posterior area of scobina a simple depression crossed by ordinary striae ..... *E.aphenes* n.sp.
– Striae of posterior area of scobina fine, specialized ..... *E.elattus* n.sp.
5. True scobina absent ..... *E.tarmanus* n.sp.
– Definite scobina present 6
6. Scobina small, four times or more their width apart ..... *E.urubambae* n.sp.
– Scobina large, not more than their width apart 7
7. Scobina very wide and nearly contiguous ..... *E.callitrus* n.sp.
– Scobina separated by half or more their width (Bolivia) 8
8. Scobina fully their width apart, the posterior area acutely pointed behind (cf. fig. 14) ..... *E.huadus* n.sp.
– Scobina larger, about half their width apart; posterior area widely rounded behind (fig. 13) ..... *E.manni* n.sp.

Eurhinocricus aphanes n.sp.

Fig. 7

Prozonites dark brown to chocolate color, the metazonites usually dull yellow or light brown, the light band expanding below where it tends to spread also over the metazonite; antennae light brown; collum bordered with dull yellow; last tergite deep brown or blackish, except the tip which is light, legs ferruginous yellow.

Head with the usual median sulcus and the foveolae normal; antennae distally clavate.

Collum smooth, of the usual form.

On the body segments there is in front of the primary sulcus a fine transverse stria simulating a secondary sulcus. Longitudinal striae on metazonite below as usual. The oblique striae on the prozonite above curving transversely and anastamosing, the cross lines in front of the secondary sulcus sharply impressed. Scobina small, separated by three or more times their width; anterior depression deep, lunate, the striate area rather weakly developed as a simple depression, short, narrowing caudad (fig. 7).

Last tergite triangular, the caudal angle rounded, surpassing the anal valves.

Segments 44-47.

Width, 5mm.

LOCALITIES.—Peru: Ecuador, Rio Blanco, Prov. Tungurahua. Two females taken by Clarke-Macintyre.

Baños, also in Prov. Tunguruahua. Two females taken by Clarke-Macintyre, Aug. 10-12, 1937.

Eurhinocricus collitrus n.sp.

Figs. 8, 9

Chocolate brown, without lighter annuli, the last tergite and anal valves lighter, dull yellow. Legs ferruginous yellow.

Median sulcus of head fine, interrupted as usual in the frontal area; on vertex a network of fine impressed lines or striae; clypeal foveolae 2+2. Antennae proportionately thick, with the sixth article narrowing from base distad.

The collum extending downward on the sides farther than usual, not exceeded below by the second tergite, the lower end obliquely truncate or slightly incurved; two transverse sulci represented by light lines; in the type a deep longitudinal sulcus a little above level of eye on each side across anterior border, this more weakly impressed over remainder of plate; surface over middle area with a network of impressed lines. (Fig. 9).

On the ordinary tergites the primary sulcus is present as a fine line which is distinct throughout, a little curved about caudal side of pore. On the anterior part of the prozonite a series of interrupted transverse striae of which the most posterior may simulate a secondary sulcus. Surface of tergite elsewhere when viewed under lens showing a network of fine impressed lines. The longitudinal striae on the metazonite below and the oblique ones on the prozonite tending to anastamose. Scobina very wide in anterior part of series and there nearly contiguous, becoming smaller and more widely separated as usual in the posterior part of the series (fig. 8).

Anal tergite with the posterior end rounded, the terminal part set off by a transverse depression; exceeded by the anal valves. Anal scale broadly subtriangular but with the posterior angle widely rounded, a little incurved on each side.

Number of segments, 36.

Width, 4 mm.

LOCALITY.—Peru: Hacienda Cochambul, near Cajamarca. (W. 11.149). One female.

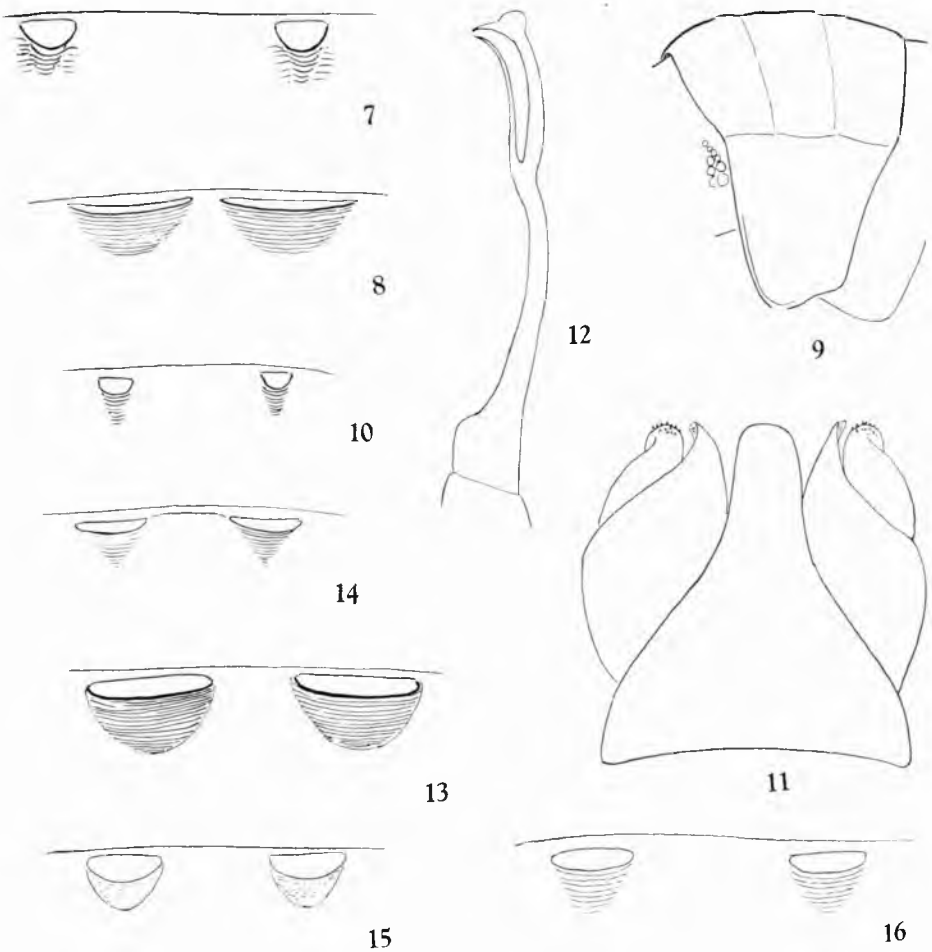
Eurhinocricus elattus n.sp.

Figs. 10-12

Brown, the metazonites mostly of a lighter shade than the free part of the prozonites; antennae and legs yellow.

Median sulcus of head distinct across vertex below which widely interrupted. Clypeal foveolae 2+2. Antennae distally clavateLateral ends of collum wel rounded; surface smooth.

On the tergites of the body segments the primary sulcus complete, represented in mid-dorsal region by a shallow furrow; an interrupted coarse stria



Eurhinocricus aphanes n.sp. Fig. 7. Scobina.
Eurhinocricus collitrus n.sp. Fig. 8. Scobina (10th segment).
9. Collum, lateral aspect.
Eurhinocricus elattus n.sp. Fig. 10. Scobina (12th segment).
11. Anterior gonopods. 12. Posterior gonopod.
Eurhinocricus manni n.sp. Fig. 13. Scobina.
Eurhinocricus huadus n.sp. Fig. 14. Scobina.
Eurhinocricus lissior n.sp. Fig. 15. Scobina.
Eurhinocricus tungurus n.sp. Fig. 16. Scobina.

seems to represent a supplementary sulcus. The longitudinal striae below on the metazonites continue into the oblique striae of the prozonites. Scobina small, widely separated; anterior depression deep, semicircular in outline (fig. 10).

Last tergite with tip free, this decurved rather abruptly distally. Anal scale triangular, its caudal angle narrowly rounded.

Gonopods of male as shown in figs. 11 and 12.

Number of segments, 44.

Coxae of third legs, and less markedly those of fourth legs, produced ventrally into small triangular plates.

Width, 4.8 mm.; length, 30 mm.

LOCALITY.—Ecuador: Baños, Prov. Tungurahua. One male taken by Clarke-Macintyre, August, 1937.

Eurhinocricus huadus n.sp

Fig. 14

Brown, with the metazonites mostly darker than the prozonites; head dark brown excepting a lighter, more yellowish color over the lower border from where extending upward in a narrow tongue-like stripe.

Head smooth and shining; the median sulcus evident across vertex and below as usual; clypeal foveolae 2+2 and sensory cones of antennae 4, as usual.

Collum convexly rounded at each lateral end; margined below and part way up the front; surface roughened with a fine network of anastamosing, low and sharp-edged ridges.

Body segments with both primary and secondary sulci, the pore closely embraced by the former; surface in general finely puncto-rugose. Scobina rather large, separated by about their transverse width; anterior depression deep, narrowly sublunate, the striate area subtriangular, narrower anteriorly than the anterior depression from where narrowing caudad, the caudal end narrowly rounded (fig. 14).

Anal tergite well rounded posteriorly. Inner border of anal valves not obviously compressed or elevated.

Number of segments, 44.

Width, 3.5 mm.

LOCALITY.—Bolivia: Huadu. One female collected by W. M. Mann on the Mulford Expedition.

Eurhinocricus lissior n.sp.

Fig. 15

Prozonites dark brown, the metazonites a lighter brown; anal tergite and valves dull yellow; head and collum brown, the latter narrowly bordered with a lighter brown; antennae and legs dull yellow.

Vertigial sulcus ending in a depression or pit just above level of antennal sockets, the stria again sharply impressed below. Antennae of uniform width beyond second article. Clypeal foveolae as usual.

Segmental sulcus of body tergites impressed throughout. No secondary sulcus. Prozonite unusually smooth and without cross striae, both prozonite and metazonite showing striae only below. Scobina of moderate size, less than once and a half their width apart on the more anterior segments; proportionately short antero-posteriorly; posterior area proportionately wide and short, rounded behind (fig. 15).

Last tergite narrowed abruptly into a more slender, acute and short cauda which only a little surpasses the anal valves.

Number of segments, 47.

Width, 5.5 mm.

Locality.—Ecuador: Rio Blanco, Prov. Tungurahua. One female taken in Sept., 1937, by Clarke-Macintyre.

Eurhinocricus manni n.sp.

Fig. 13

Metazonites in preserved specimens dark brown to blackish, the prozonites lighter and of olivaceous cast; last tergite and anal valves of the darker color; legs and antennae light orange yellow.

Antennae of uniform thickness from second to fifth article, the sixth narrower.

Body segments in the type specimen showing three equal zones separated by two encircling sulci, with a connecting longitudinal sulcus at the pore level on each side. The usual longitudinal striae below; the oblique striae on prozonite bending transversely above. Surface densely and finely puncto-rugose. Scobina large, wide, where fully developed less than their width apart, the striate area semicircularly rounded behind (fig. 13).

Number of segments, 39.

Width, 5 mm.

Locality.—Bolivia: Covendo. One female taken by W. M. Mann on the Mulford Expedition.

Eurhinocricus tarmanus n.sp.

Fig. 84

Entire body, together with antennae and legs, shining black.

Median sulcus on head impressed below level of antennae but obliterated across vertex. Clypeal foveolae 2+2. Antennae not clavate, subfiliform, with the usual four sensory cones. Collum rounded and margined below as usual, its surface smooth and shining.

Segmental sulcus on body segments evident below and up to level of pore on each side but obliterated across dorsum. Metazonites beneath with a rather short series of longitudinal striae; both metazonite and prozonite without striae above and the surface densely, uniformly and very finely punctate. Developed scobina absent in the male, but in the female represented by border notches with a darker area behind showing through from subsurface tissue, the surface not depressed or striate.

Last tergite with caudal angle obtuse, a little more than rectangular, the tip free but exceeded by the valves. Anal scale convexly rounded behind or very slightly angled at middle.

Number of segments, 46.

Width, 5.2 mm.; length, 53 mm.

LOCALITY.—Peru: Tarma. Five females. (W.11.183). The reference of this species to *Eurhinocricus* is tentative.

Eurhinocricus tungurus n.sp.

Figs. 16-18

The surface of the type is completely covered with an adherent substance making detection of color impossible.

Head and collum having the typical features of most species.

On the body segments the primary sulcus is replaced across dorsum by a secondary or supplementary sulcus. Longitudinal striae on metazonites below and extending well up the sides. The oblique striae of the prozonites especially strongly marked, curving into transverse position dorsally. Scobina small and widely separated; the anterior depression deep, lunate; the striate area rather short ,narrowing caudad and rounded at the end (fig. 16).

Anal tergite exceeding the anal valves, the tip curving downward.

Gonopods as drawn (figs. 17, 18).

Number of segments, 52.

Width, 4 mm.

LOCALITY.—Ecuador: Mt. Tungurahua. El. 2,500 m. One male taken Aug. 20, 1937, by Clarke-Macintyre.

Eurhinocricus urubambae n.sp.

Figs. 19-21

Head olivaceous, darker over labral border. Collum olive, with borders darker; exposed part of tergites olive, the color deepest along the secondary sulcus; caudal border of metazonites ferruginous, making the body conspicuously annulate; anal tergite and valves olive; antennae and legs brown.

Median sulcus of head fine, with the usual interruption; surface in general smooth and shining. Collum of the usual form, without distinctive features.

On the body tergites the supplementary sulcus more distinct than the primary one. The primary sulcus evenly curved about the caudal part of the repugnatorial pore on each side. Scobina small and widely separated; the striate area prolonged, oblong in outline, the caudal end rounded (fig. 19).

Gonopods as drawn (figs. 20, 21).

Number of segments, 48.

Width, 5 mm.

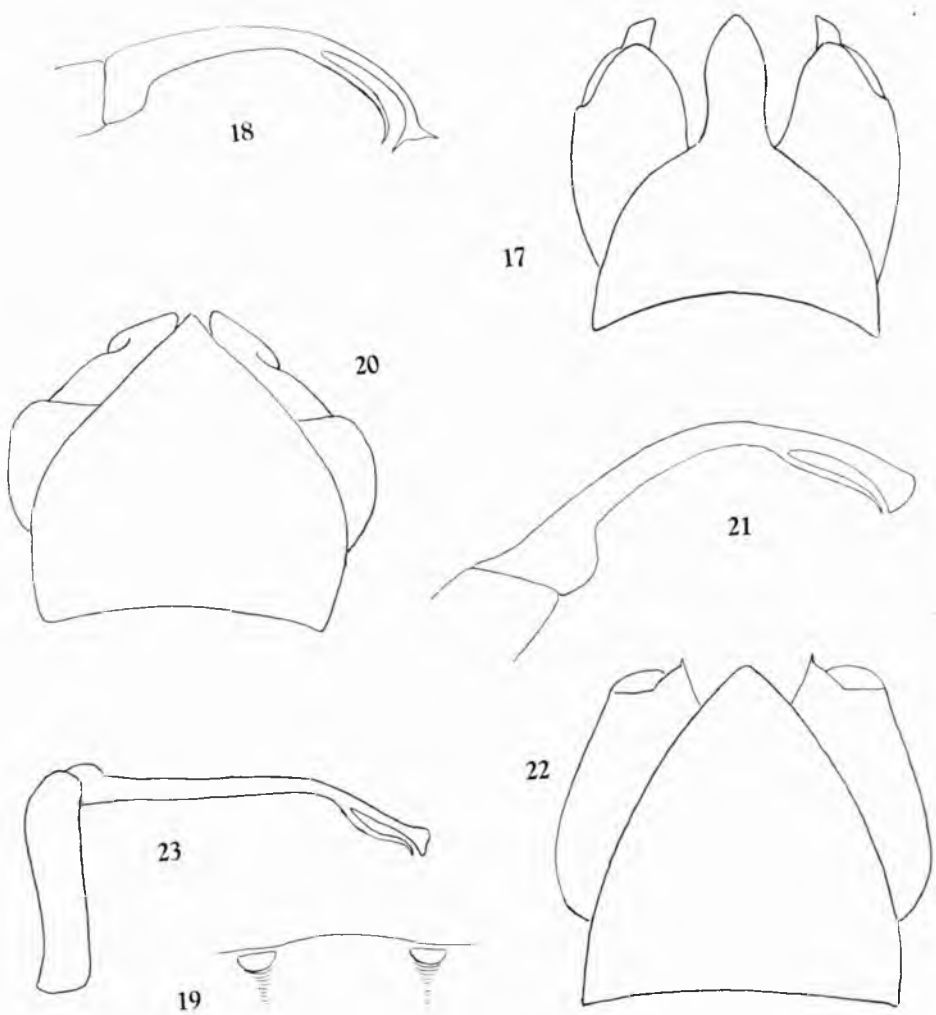
LOCALITY.—River Urubamba. El. 800 m. (W.12.187). Two males taken by Professor Weyrauch on Dec. 1, 1940.

Genus LISSOCRICUS Chamberlin

Lissocricus Chamberlin, 1953, American Midl. Nat, vol. 50, No. 1, p. 141.

Perucricus Kraus, 1954, Senckenbergiana, vol. 35 (1 2), p. 45, figs. 60, 65.

Perucricus was set up primarily on the basis of the trapeziform sternite of the anterior gonopods in the species *rostratus;* but this character is subject to much variation in this group and is not present in the very closely related species described below. The genus is therefore synonymized here with the Colombian *Lissocricus.* The species now referable to the latter genus may be separated as follows:



Eurhinocricus tungurus n.sp. Fig. 17. Anterior gonopods. 18. Posterior gonopod.
Eurhinocricus urubambae n.sp. Fig. 19. Scobina. 20. Anterior gonopods.
21. Posterior gonopod.
Lissocricus ecuadorae. Fig. 22. Anterior gonopod. 23. Posterior gonopod.

KEY TO SPECIES OF LISSOCRICUS

1. Anal and preanal segments, a narrow caudal border on the other segments, and the legs bright orange ..... *L.retrus* n.sp.
– Not thus colored 2
2. Tergites not longitudinally striate in mid-dorsal region ..... *L.howlandi* Chamb.
– Metatergites finely striate througout 3
3. Sternite of anterior gonopods trapeziform, its anterior margin incurved ..... *L.rostratus* (Kraus)
– Not so 4
4. Sternite of anterior gonopods abruptly narrowed distad of middle (cf. fig. 26); coxal process of third legs of male, small, subconical ..... *L.oblitus* n.sp.
– This sternite not abruptly narrowed distally; processes of third legs of male more conspicuously large 5
5. Coxal processes of third legs of male laminate and apically acute, the two contiguous at middle line (Ecuador) ..... *L.ecuadorae* n.sp.
– These coxal processes expanded distally into somewhat shoe-shaped, caudally directed, terminal lobes (Peru) ..... *L.holostrius* n.sp.

Lissocricus ecuadorae n.sp.

Figs. 22, 23

Brown to chestnut, the metazonites darker than prozonites.

In character of head, collum, anal tergite and sculpturing of the body segments agreeing with the other species herein described. Cauda with the tip somewhat upcurved.

In the male characterized by having the coxal processes of the third and fourth legs in the form of large triangular, acutely pointed laminae, each pair of which are contiguous at the middle line. Similar but smaller processes from the fifth coxae, the processes of the sixth and seventh coxae still smaller and of the more usual form.

In the posterior gonopods of the male the proximal joint long; the telopodite with the usual two branches, with the solenomerite slender and curved, and the supplementary branch expanded distally as shown in fig. 23. Sternite of anterior gonopods triangular, extending beyond basal plate of the gonopods; telopodite with a laminate apical portion extending caudad, its apex acute (fig. 22).

Number of segments, 44.

Width, 3-3.2 mm.

LOCALITY.—Ecuador: Baños, Tungurahua Province. Five specimens, males and females, taken Aug. 10-22, 1937 by Clarke-Macintyre.

Lissocricus holostrius n.sp.

Figs. 24, 25

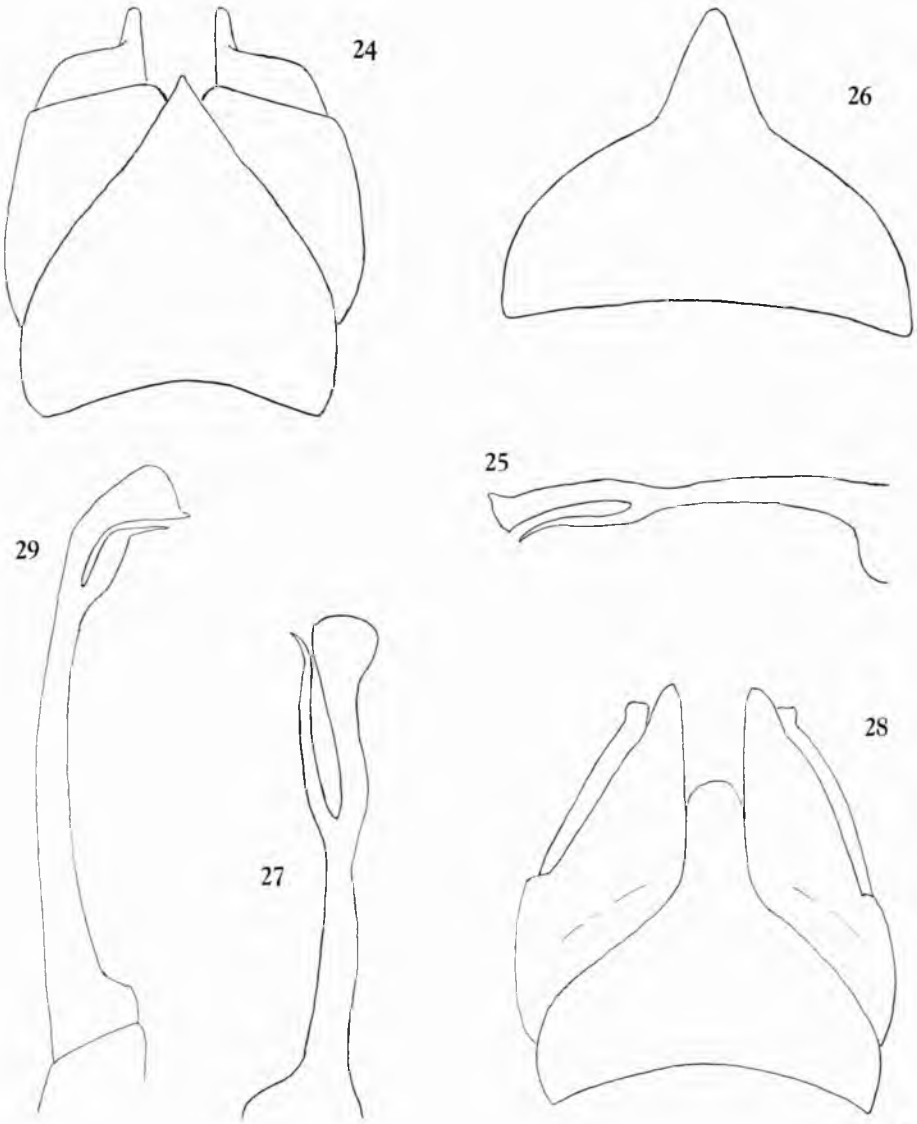
General color black, with the covered portion of prozonites and, in part some of exposed area, lighter. On some segments the metazonites may be dark chestnut. Antennae and legs chestnut to nearly black.

Head in general smooth and shining; median sulcus complete excepting the usual interruption; several broken cross striae or wrinkles in area between antennal sockets. Clypeal foveolae 2+2. Antennae moderately clavate, bearing the usual four sensory cones. Collum without special features.

On the ordinary tergites the primary sulcus well impressed throughout. A series of close-set longitudinal striae over both metazonite and prozonite, the series complete across dorsum; the striae on prozonites on the sides bending obliquely upward.

Last tergite smooth, strongly narrowed into an acutely pointed, straight cauda which as usual extends much beyond the anal valves. Anal valves with mesal border moderately compressed.

Gonopods of the male as shown in figs. 24 and 25.



Lissocricus holostrius n.sp. Fig. 24. Anterior gonopods. 25. Posterior gonopod.
Lissocricus oblitus n.sp. Fig. 26. Sternite of anterior gonopod. 27. Posterior gonopod.
Rhinocricus acus. Fig. 28. Anterior gonopods. 29. Posterior gonopod.

In the male the coxae of the third legs with conspicuous processes expanded distally into a shoe-shaped lobe which extends back over the tips of the processes of the following legs; the coxae of legs four to seven moderately produced ventrad and flattened antero-caudally.

Number of segments in the male, 44.

Diameter, 3 mm.

LOCALITY.—Peru: Hacienda Cochambul, near Cajamarca (W.11.149). El. 2,800 m. Two males. Cajamarca (W.11.137). Two males, including the holotype, taken in August, 1948 by Professor Weyrauch.

Lissocricus oblitus n.sp.

Figs. 26, 27

General color appearing black. On some segments the prozonites, especially the covered portion, may appear a slightly olive grey mottled with small black spots; anal tergite and valves of a lighter color; antennae and legs black or nearly so.

Several cross striae in the interval in the median sulcus at level of the antennal sockets. Antennae subfiliform being but little enlarged distally, sensory cones four. Clypeal foveolae 2+2.

Segmental sulcus sharply defined throughout, closely embracing the pores; fine longitudinal striae throughout as in *holostrius* and *rostratus*.

Cauda surpassing the valves as in all other species of the genus. Anal valves with mesal border a little compressed. Anal scale obtusely angular behind. Collum without distinctive features.

In the male the coxae of legs three to seven flattened and produced ventrad, but the coxae of the third legs narrowed apically and directed somewhat caudad but not specially enlarged as it is in *holostrius*.

Gonopods as illustrated (figs. 26, 27).

Number of segments, 44.

Width, 5 mm.

LOCALITY.—Peru: Hacienda Cochambul, near Cajamarca. El. 2,800 m. (W.11.149). One male.

Lissocricus retrus n.sp.

Figs. 85, 86

Body black except along caudal margin of tergites which is narrowly bordered with orange, or this color faded to white. Anal valves and the preanal tergite and the legs bright orange.

No median sulcus on vertex of head but in its place a shallow, rather wide, depression or furrow, and the sulcus also absent below or its place indicated merely by a pale line; a series of irregular transverse striae in frontal region. Clypeal foveolae 2+2. Antennae rather long, moderately increasing in thickness distad. Sensory cones four. Collum narrowly rounded below.

Segmental sulcus complete and sharply impressed. Longitudinal striae of the metazonite and the oblique ones of prozonite sharply impressed below and on sides, the series on metazonite continuing across dorsum where the striae are not close-set, these striae running from caudal margin to the sulcus. Sco-

bina absent in the male, but in the female represented by a small angular incision or depression at anterior margin, but with no striate posterior area, these structures being perhaps something like anlags of true scobina.

Last tergite narrowed into a cauda that much exceeds the anal valves.

Processes of third coxae of legs of male elongate conical, the distal end becoming slenderly acute; coxae of following legs compressed but not obviously produced.

Gonopods of the male with anterior sternite broad, its anterior margin weakly and very obtusely angled at middle. Basal plates of the anterior gonopods completely covered in anterior view by the sternite; telopodite with distomesal corner extended in a short lobe.

Number of segments, 49.

Width, 5-6 mm.

LOCALITY.—Peru. No more definite locality indicated on the label coming with the specimens. (A.M.N.H.)

Genus RHINOCRICUS Karsch

Rhinocricus Karsch, 1881, Zeit. Naturw., vol. 54, (2), p. 68.

The following key is intended to aid in the identification and separation of the species of this large genus herein first named and described. It will be noted that much use is made of the characters presented by the scobina. In each case the scobina chosen are those of largest size or major development, which ordinarily are those on the more anterior segments possessing them. This is because the scobina decrease in size and correspondingly increase in the distance between the members of each pair as one proceeds caudad toward the end of the scobinal series. As an example of these changes, reference may be made to figures 64, 65 and 66, illustrating this regression in *R.yanus*.

KEY TO SPECIES OF RHINOCRICUS

1. Last tergite with caudal end free, surpassing the anal valves 2
— Last tergite not surpassing the anal valves 12
2. Last tergite produced in a narrow process or cauda 3
— Last tergite not thus caudate 8
3. Primary segmental sulcus absent dorsally, replaced by a secondary sulcus ..... *R.ninus* n.sp.
— Primary sulcus not thus replaced 4
4. Posterior area of scobina not obviously striate 5
— Posterior area of scobina striate ..... *R.tingo* n.sp.
5. A secondary segmental sulcus deeply impressed ..... *R.ecuadorensis* n.sp.
— No such deeply impressed secondary sulcus 6
6. Body solid black, width 6 mm ..... *R.tarapoto* n.sp.
— Body more chocolate colered, with metazonites reddish or chestnut, width 8-10 mm 7
7. Solenomerite of gonopods longer than the accessory branch, barbed at the end (fig. 32) ..... *R.balanus* n.sp.
— Solenomerite not longer than the accessory branch, not barbed at the end (fig 29) ..... *R.acus* n.sp.
8. Posterior area of scobina not striate 9
— Posterior area of scobina plainly striate 10
9. Caudal end of last tergite obtusely angular, almost caudate; anterior pit of scobina nearly semicircular (fig. 60) ..... *R.loreto* n.sp.

— Caudal end of last tergite obtusely angular; anterior pit of scobina not semicircular (fig. 40) ..... *R.carpapatae* n.sp.

10. Segmental sulcus obliterated dorsally; width 9 mm. ..... *R.bellus* n.sp.
— Segmental sulcus complete; width of body 5 mm. or less 11

11. Scobina once and a half or more their width apart, the striate area much prolonged, segments 51-54 ..... *R.ekinus* n.sp.
— Scobina less than their width apart, the striate area shorter; segments 47 ..... *R.covendo* n.sp.

12. Posterior area of scobina not striate 13
— Posterior division of scobina plainly striate 14

13. Scobina less than their width apart; body width, 6 mm ..... *R.entypus* n.sp.
— Scobina about twice their width apart; body width, 9 mm ..... *R.divisus* n.sp.

14. Scobina very wide, often subcontiguous 15
— Scobina narrower, from half or three fourths to several times their width apart 16

15. Scobina about four times as wide as long antero-caudally, the anterior depression almost slit-like (fig. 64); width of body, 9 mm ..... *R.yanus* n.sp.
— Scobina a little less than twice as wide as longitudinal diameter or length, the anterior depression more open (fig. 50); width of body, 5 mm. ..... *R.eucrines* n.sp.

16. Scobina small, simple depressions without clear differentiation of an anterior pit, about five times their width apart (fig. 36); width of body 8-10 mm. ..... *R.blancus* n.sp.
— Scobina larger, well developed, only from one half to twice their width apart 17

17. Scobina less than their width apart ..... *R.kezantus* n.sp.
— Scobina twice or more their width apart 18

18. Scobina with anterior depression not sharply limited (fig. 39); body segments, 57 ..... *R.cantanus* n.sp.
— Anterior pits of scobina distinctly set off; body segments 46 or less 19

19. No definite supplementary sulcus; color solid black, without differently colored annuli; width 8 mm. ..... *R.tuobitus* n.sp.
— A more or less distinct supplementary sulcus; body banded with ferruginous to chestnut annuli; width 5 to 6.5 mm. 20

20. Striate area of scobina short, acutely pointed (fig. 54); width, 5 mm. ..... *R.iquitus* Chamb.
— Striate area of scobina broad, widely rounded behind; width, 6.5 mm. ..... *R.cuzconus* n.sp.

Rhinocricus acus n.sp.

Figs. 28, 29

General color appearing black, with the metazonites dull to bright chestnut or orange, with the lower part of both zonites tending to take of the lighter color; collum with light borders and the caudal process orange.

Antennae of nearly uniform thickness throughout their length. The collum narrowly rounded at lower end and on one side of one specimen acute.

Primary sulcus of tergites deeply impressed throughout, straight, or but slightly excurved at level of pore. Surface of both metazonites and prozonites smooth above. Scobina moderately large, those of maximum development separated by their width or less; anterior pit narrow anterocaudally, the striate area wide and short.

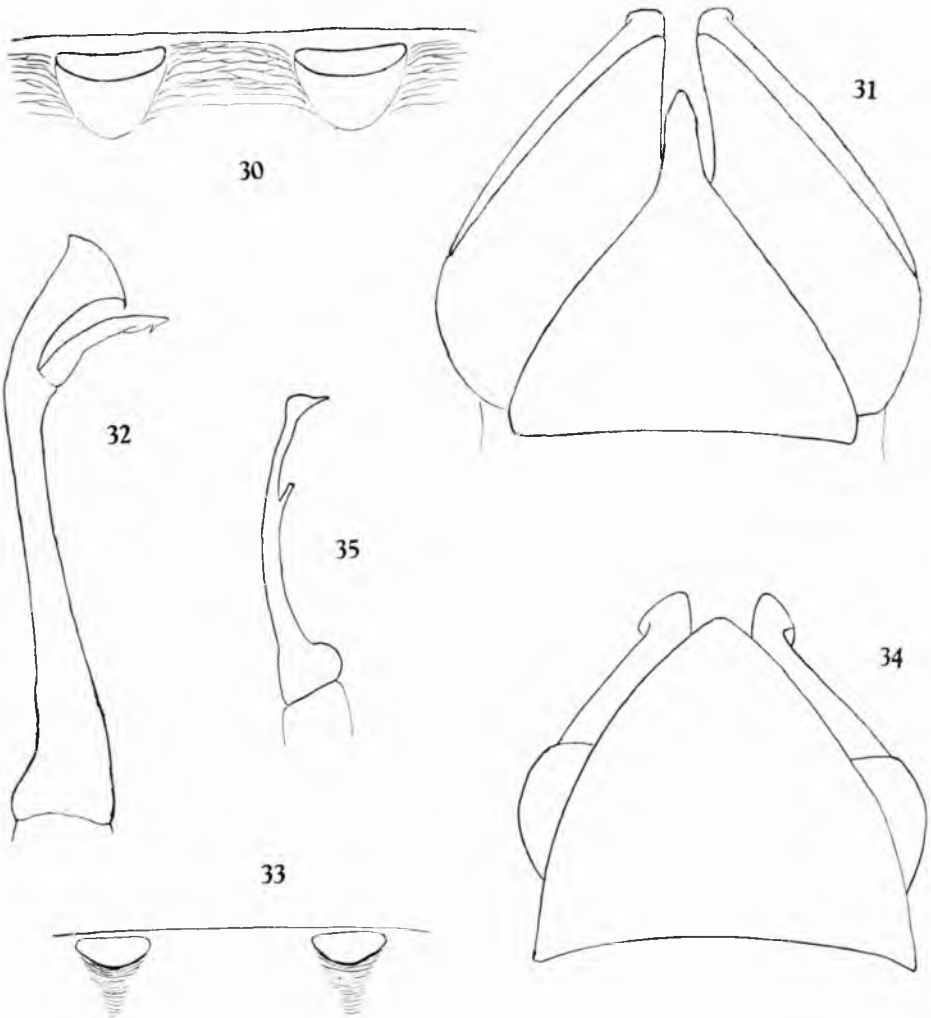
Anal tergite narrowed into a cauda which is acute at its tip and evenly moderately curved downward and much exceeding the anal valves.

Gonopods of the male as shown in figs. 28 and 29.

Number of segments, 46.

Width, 8 mm.

LOCALITY.—Ecuador: Rio Blanco, Prov. Tungurahua. El. 1,800 m. a male and a female collected by Clarke-Macintyre.



Rhinocricus balanus n.sp. Fig. 30. Scobina (22nd segment, female). 31. Anterior gonopods. 32. Posterior gonopod.

Rhinocricus bellus n.sp. Fig. 33. Scobina (segment 14). 34. Anterior gonopods. 35. Posterior gonopod (one branch broken off).

Rhinocricus balanus n.sp.

Figs. 30-32

General color mahogany, with metazonites reddish brown or somewhat ferruginous; legs brown or somewhat olive brown.

Head with sulcus as usual. Clypeal foveolae 2+2. Antennae moderately long, not clavate. Collum with faint lines represeting two transverse sulci, with a connecting longitudinal sulcus at level of eyes.

Segmental sulcus of the ordinary body segments deeply impressed throughout and a supplementary sulcus as well usually well marked. Prozonites with comparatively few longitudinal striae below but these absent, or nearly so, above; surface in general otherwise smooth excepting the covered portion of the prozonites which shows the usual fine, anastamosing cross striae. Scobina of moderate size, where closest about half their width apart, this distance gradually increasing farther caudad to twice the width of the reduced scobina; depression transverse, not lunate, the posterior area not striate. (fig. 30).

Last tergite produced in a slender, acutely pointed, slightly curved cauda which much exceeds the anal valves.

Gonopods as shown in figs. 31 and 32.

Number of segments, 43-46.

Width, 7.5 mm. (males) to 8-10 mm. (females).

LOCALITY.—Ecuador: Baños, Prov. Tungurahua. El. 1,800 m. One male and three females taken by Clarke-Macintyre in August, 1937.

Rhinocricus bellus n.sp.

Figs. 33-35

Prozonites bright red, at least on the sides and below; metazonites and legs black; anal tergite with basal portion also bright red; head and antennae olivaceous.

Median sulcus of head with the usual interruption at level of antennal sockets, with short cross wrinkles each side of it on the vertex, the head otherwise smooth and shining. Antennae proportionately longer than in *loreto*. Collum widely rounded at lower ends, without any distinctive markings.

The primary segmental sulcus obliterated across dorsum, but no supplementary sulcus replacing it. Surface of tergites in general smooth and shining, with the usual longitudinal striae below but the series on metazonites far from reaching up to the pore. Scobina rather small; anterior depression deep; striate area narrow, prolonged caudad ;separated by twice or more the width of one of them (fig. 33).

Last tergite surpassing the valves; apically narrowly rounded; surface smooth and shining, lacking the conspicuous transverse sulcus present in *loreto*.

Gonopods of the male as shown in figs. 34 and 35.

Number of segments, 46.

Width, 9 mm.

LOCALITY.—Northern Peru: Zapotal, Rio Chinchipe. El. 600 m. (W.11.129). July, 1948. Also Bellavista, Rio Marañon. El. 500 m. (W.12.206). Male and females.

Rhinocricus blancus n.sp.

Figs. 36-38

When in full color shining mahogany, with the caudal borders of tergites with a narrow band of ferruginous color; legs brown.

Collum exceeded below by the second tergite, its lower ends convexly rounded and margined as usual. Vertigial sulcus of head deep, with below its anterior end, at upper level of eyes, a fine cross stria which does not extend to the eyes. Clypeal foveolae 2+2.

Primary segmental sulcus represented by deep furrow, with metazonite behind it rather narrow antero-caudally; a supplementary sulcus irregularly and not strongly marked; on anterior segments the pore once or more its diameter from the primary sulcus but contiguous with it on posterior segments. Striae below on both metazonite and prozonite oblique, on prozonite curving upward and then transversely; exposed part of prozonite and the metazonite smooth above. Scobina represented by depressions on anterior border in which there is slight or no differentiation between an anterior pit and a posterior striate area; scobinal area sometimes scarcely depressed and outlined only by closeness of the striae (fig. 36).

Last tergite not exceeding the valves.

Gonopods of the male as drawn (cf. figs. 37 and 38).

Number of segments, 401.

Diameter, 6 to 8 mm. in the male and 9.5 in the female.

Locality.—Ecuador: Rio Blanco, Prov. Tungurahua. El. 1,800 m. Two males and three females taken by Clarke-Macintyre.

Rhinocricus cantanus n.sp.

Fig. 39

Body in general black and the legs black to somewhat chocolate colored.

Head smooth and shining, without markings except for the usual median sulcus. Foveolae 2+2. Antennae not clavate. Collum well rounded at lower ends, surface smooth and shining.

On the ordinary tergites the primary sulcus sharply impressed throughout; embracing the caudal border of pore. Metazonites with striae only below, the oblique striae of prozonites conspiculus up to level of thepore, the surface otherwise smooth. Scobina sometimes almost vestigial and showing no definite anterior pit, but usually as shown in fig. 39, with striae also in the anterior depression which is not well separated off.

Last tergite surpassed by the anal valves, its caudal angle narrowly rounded; a transverse depression across it at middle of length. Anal scale broadly triangular, the sides moderately convex and the posterior angle obtuse.

Number of segments, 57.

Width, 6 mm.

Locality.—Peru: Huamantanga, near Canta. El. 3,500 m. (W.12.132). Four males collected by S. Sanchez in Jan., 1953.

Rhinocricus carpapatae n.sp

Fig. 40

Prozonites appearing nearly black when wet, but sometimes decidedly olivaceous when dry; the metazonites ferruginous yellow to red. Collum black, with lighter borders. Head chocolate colored to nearly black. Anal tergite and valves black. Legs and antennae also black.

Head without special features; antennae of nearly uniform thickness throughout; clypeal foveolae 2+2. Collum under the lens showing a network of fine lines.

Primary segmental sulcus a very fine line but this complete; curved opposite the pore. A fine secondary sulcus usually also evident. Longitudinal striae of both zones developed only below. Scobina where largest once and a half their width apart; anterior pit narrow antero-caudally, moderately curved; the posterior area well rounded behind as shown in fig. 40.

Last tergite triangularly narrowed behind, the tip not rounded; clearly exceeding the valves.

Number of segments, 47.

Width, 7 mm.

LOCALITY.—Peru: Carpapata. El. 2,300 m. (W.12.185). One female taken Jan. 15, 1943.

Rhinocricus covendo n.sp.

Figs. 41-43

Color black or nearly so, not annulate but covered part of prozonites colorless or nearly so.

Collum of the usual general form; in the type two transverse sulci represented by white lines, a cross, longitudinal, line at level of eyes below which line the two transverse lines converge into a single line.

On the head the median sulcus and the foveolae as usual. Antennae clavate.

On body tergites a distinct supplementary sulcus present. The primary sulcus a little excurved at level of pores on each side. The longitudinal striae not strongly developed. Scobina of moderate size, about their width apart; aanterior depression narrow antero-caudally, weakly curved; the striate area as shown in fig. 41.

Gonopods of male as shown in figs. 42 and 43.

Number of segments, 47.

Width, 4.5 mm.

LOCALITY.—Bolivia: Covendo. One male taken by Dr. Mann on the Mulford Expedition.

Rhinocricus cuzconus n.sp.

Fig. 44

Color dull black, with broad ferruginous annuli about the metatergites.

Antennae distally conspicuously compressed.

Primary segmental sulcus weak across dorsum; a supplementary sulcus usually evident. The usual longitudinal striae below on the metatergite and the oblique ones on prozonite. Scobina widely separaed; form of anterior pit and striate area as shown in fig. 44.

Last tergite surpassed by the valves. Anal valves with a narrow mesal border elevated and distintcly limited.

Number of segments, 44-46.

Diameter, 6.5 mm.

LOCALITY.—Peru: Cuzco. El. 3,600 m. (W.12.195). Three females taken by Dr. Weyrauch Nov. 20, 1940.

Rhinocricus entypus n.sp.

Fig. 49

General color deep shining black with caudal border of metazonites ferruginous to dark chestnut, this color spreading over entire zonite below. Antennae and legs yellow of a slightly ferruginous cast. Head black excepting for a supralabral band of yellowish color which extends up middle in a narrow tongue. Collum black, with border lighter. Last tergite and anal valves black excepting the raised border of the latter.

Primary segmental sulcus well impressed throughout, slightly angled at level of pore. A deeply impressed supplementary sulcus also present. Prozonite and metazonite with longitudinal striae below, but none of thes on side of metazonite, the prozonite also without transverse striae above, the surface in general smooth and shining.

Scobina wide and very close together, toward anterior end of series half or less their width apart. Cf. fig. 49. Anal tergite exceeded by the valves, its posterior portion triangular, the caudal end rounded.

Number of segments, 44.

Width, 6 mm.

LOCALITY.—Peru: Aquaitia, Dist. Loreto. (A.M.N.H.). Two females taken by F. Woytowski in Sept., 1946.

Rhinocricus eucrines n.sp.

Fig. 50

Metatergites dull olive, the prozonites tending toward chestnut. Legs yellow of an olivaceous tinge. Head pale below and in a stripe up middle from clypeal area.

Segmental sulcus well impressed throughout, contiguous with repugnatorial pore. Covered portion of prozonite with a network of very fine striae; longitudinal striae below on both zonites as usual. Scobina very wide, in

anterior part of series subcontiguous; anterior depression transverse, narrowly oblong with striate area as shown in fig. 50; decreasing in size and correspondingly in space by which separated as usual.

Last tergite exceeded by the anal valves or its tip but slightly free.

Number of segments, 36.

Width, 5 mm.

LOCALITY.—Ecuador, Prov. Tungarahua. One female taken by Clarke-Macintyre in Sept., 1937.

Rhinocricus divisus n.sp.

Figs. 45-47

Prozonites appearing chocolate colored when wet but in part showing a bright olive color when dry, the metazonites contrasting sharply in being light brown or yellowish of a ferruginous cast. Anal tergite and valves black. Collum black with lighter borders. Head chocolate colored with lighter clypeal border. Legs and antennae brown.

Head with distinct median sulcus across vertex and below level of antennal sockets. Head above showing a fine coriarious roughening, but in general smooth. Distal half of antennae of uniform thickness. Collum of the usual form; with two rather vague transverse furrows representing the sulci and on each side a pale longitudinal line at level of the eye.

Primary segmental sulcus deeply impressed throughout its length, slightly obtusely angled at level of pores. Longitudinal striae evident only below; with the usual transverse striae across covered part of prozonites above. Surface in general punctorugose, under magnification showing a close-set network of fine rugae. Scobina moderate in size, at their maximum size separated by about twice their width.

Anal tergite exceeded by the valves, triangularly narrowed behind, with the end narrowly rounded.

Gonopods as drawn (figs. 46, 47).

Number of segments, 44-48.

Width, 9 mm.

LOCALITY.—Peru: Divisoria, Dept. Huanuco (A.M.N.H.). Males and females taken by F. Woytowski in Sept. and Oct., 1946.

Rhinocricus ecuadorensis n.sp.

Fig. 48

Prozonites chocolate colored to nearly black, the metazonites lighter. Antennae and legs of a weakly orange or ferruginous color. Tip of cauda also orange.

Head in general smooth and shining, the median sulcus not evident on the vertex but well impressed below. Clypeal foveolae normal. Antennae cylindrical, the sixth and seventh articles somewhat narrower.

Primary segmental sulcus complete, lying in a definite furrow, the pore a little removed from it. A fine secondary sulcus on prozonite and in front of this the usual anastamosing transverse striae. Longitudinal striae on both

zonites few, found only below, the surface otherwise smooth and shining, showing no roughening. Scobina proportionately wide, once and a half their width apart; posterior area not striate but sharply limited (cf. fig. 48).

Cauda of last tergite much exceeding the anal valves, slightly curved and acute.

Number of segments, 48.

Width, 9 mm.

LOCALITY.—Ecuador: Baños. One female taken by Clarke-Macintyre in April, 1939.

Rhinocricus ekinus n.sp.

Figs. 51-53

Head black, with clypeal border light. Collum black with light border. Also the prozonites in general black, with the metazonites dull yellow to orange or red and the tip of the cauda also of this color. Legs and antennae yellow of orange cast.

Head with the usual features; antennae clavate at distal end. Collum of normal form; the surface tending to be somewhat rugose toward lower ends.

Primary segmental sulcus distinct throughout and in front of it a supplementary sulcus also evident. Longitudinal striae of metazonite extending far up on sides, the corresponding striae on prozonites obliques as usual. Scobina small and widely separated; the anterior depression nearly semicircular, the striate area relatively long, narrowing caudad (fig. 51).

Last tergite subtriangular in outline but the end well rounded, moderately surpassing the valves.

Gonopods of the male as drawn (figs. 52, 53).

Number of segments, 51-54.

Width, 5 mm.

LOCALITY.—Peru: east of Ekin, Dept. San Martin. Males and females, March, 1949. (A.M.N.H.)

Rhinocricus kezantus n.sp.

Fig. 55

Prozonites dark, probably black in life, the metazonites from ferruginous to red in the preserved specimen. Head, collum and anal tergite and valves black.

Collum with lower corners rounded but the lateral margin straight or incurved slightly. Median sulcus of head sharply impressed, with the usual frontal interruption; over vertex and down to level of antennal sockets with a coarse network of impressed lines; clypeal foveolae 2+2. Sensory cones of antennae 10-12.

Segmental sulcus showing as a fine line lying in a wide and shallow furrow, the sulcus angled at level of pore. Longitudinal striae of metazonite present up nearly to level of the pore; the oblique striae of prozonite conspicuous throughout, bending transversely above as usual, with one or two of the transverse striae and suggesting supplementary sulci; between these striae and the primary sulcus a network of impressed lines giving a coriarious appearance.

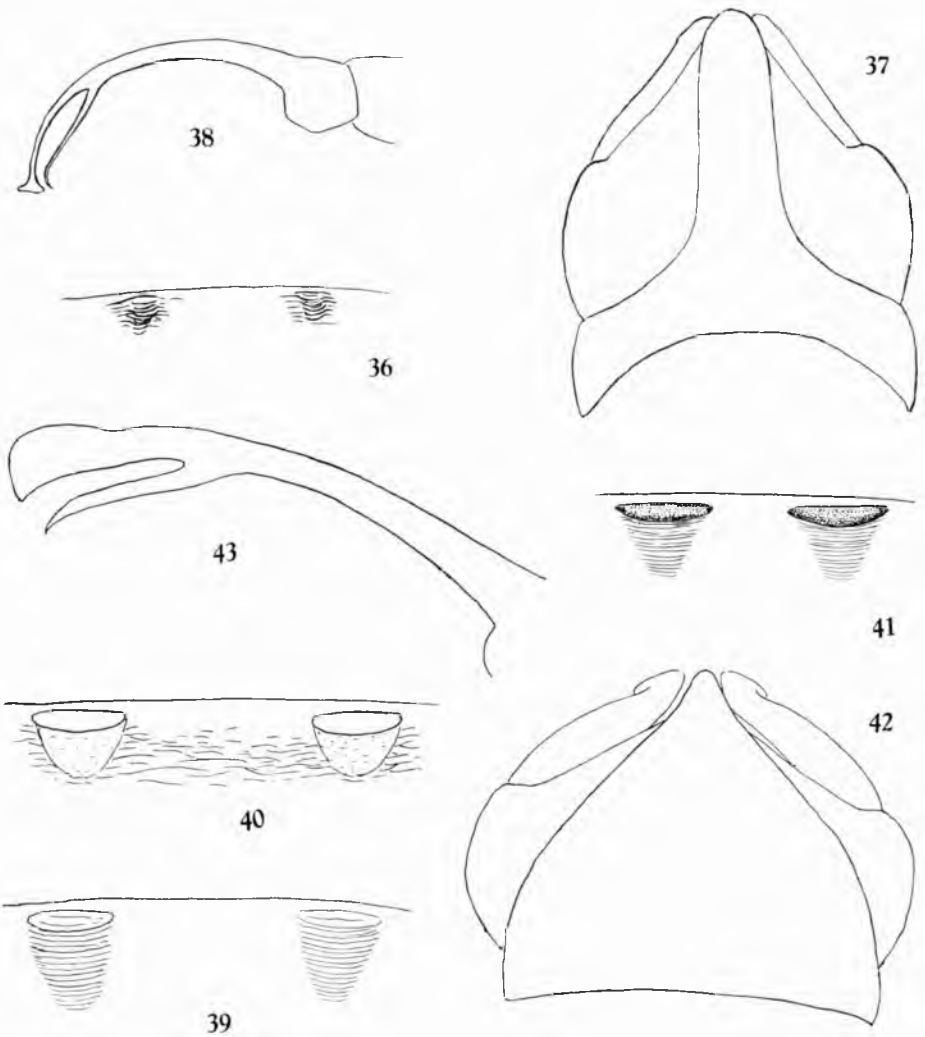
Scobina wide, their form similar to that of those of *tuobitus* but less than their width apart (cf. fig. 55).

Last tergite narrowed caudally abruptly into a narrowly acute tip which, however, does not surpass the anal valves.

Number of segments, 40.

Width, 7 mm.

LOCALITY.—Peru: Hacienda Cachi-cachi, near Tarma. El. 4,000 m. (W.12.-198). One female taken Jan. 1, 1943.



Rhinocricus blancus n.sp. Fig. 36. Scobina. 37. Anterior gonopods. 38. Posterior gonopod.

Rhinocricus cantanus n.sp. Fig. 39. Scobina (11th segment).

Rhinocricus carpapatae n.sp. Fig. 40. Scobina segment 10; farther forward only (1.2 width apart).

Rhinocricus covendo n.sp. Fig. 41. Scobina (segment 14). 42. Anterior gonopods. 43. Posterior gonopod.

Rhinocricus loreto n.sp.

Figs. 58-60

Color deep brown or blackish between sulcus and covered portion of prozonites, which is dull yellow, the dark color extending also a little behind the sulcus; the remaining portion of the metazonites red or bright chestnut. Head dark above chestnut elsewhere. Antennae and legs brown.

Median sulcus distinct, with the usual frontal interruption. Head above coriariously marked but this marking weak or absent below. Antennae proportionately short and thick, compressed. Collum widely rounded below, with the usual margining but without other special features.

Primary segmental sulcus very deeply impressed throughout, very slightly angled at upper level of pore. No supplementary sulcus. Longitudinal striae only beneath, the surface elsewhere smooth and shining. Scobina wide, the wisely lunate anterior depression nearly semicircular; from 1.25 to twice their width apart; the posterior area without obvious striae but sharply set off by a limiting marginal sulcus.

Last tergite behind narrowly triangular, the acute apical portion much exceeding the anal valves; a deep transverse furrow setting off an anterior part and caudad of this a series of irregular cross sulci.

In the furcate solenomerite of the posterior gonopods set apart with *R.acicauda* Silvestri from other Peruvian species. It differs from *acicauda,* however, in the deeply impressed segmental sulcus, the larger number of body segments (55 vs. 45), in the form of the anterior gonopods, and also apparently in the larger scobina. For features of gonopods see figs. 58 and 59.

Number of segments, 55-56.

Width, male, 8.5 mm.; length, 90 mm.

LOCALITY.—Peru: Aqualitia, Dist. Loreto (A.M.N.H.) One male and two females taken Sept. 21, 1946.

Rhinocricus ninus n.sp.

Fig. 56

Black throughout, not annulate. Legs brown, antennae somewhat darker.

Head smooth and shining; median sulcus not evident in frontal and clypeal section, scarcely detectable over vertex as a fine line. Antennae distally compressed. Collum smooth and shining; a single short longitudinal sulcus on each side in front of caudal margin.

Primary segmental sulcus obliterated but a secondary sulcus in front of pores and across dorsum sharply impressed. The usual longitudinal striae below on metazonites, and the partly oblique ones on prozonite, above the striae over metazonite run forward to or nearly to the secondary sulcus, interrupted cross striae on prozonite above, the surface otherwise smooth and without punctae. The scobina of more anterior part of series of small or moderate size, separated by about twice their width; anterior pit lunate, deep; the striate area narrow and short (fig. 56).

Last tergite narrowed into an apically acute cauda which much exceeds the anal valves. Anal valves with inner borders compressed and elevated.

Number of segments, 50.

Width, 5 mm.

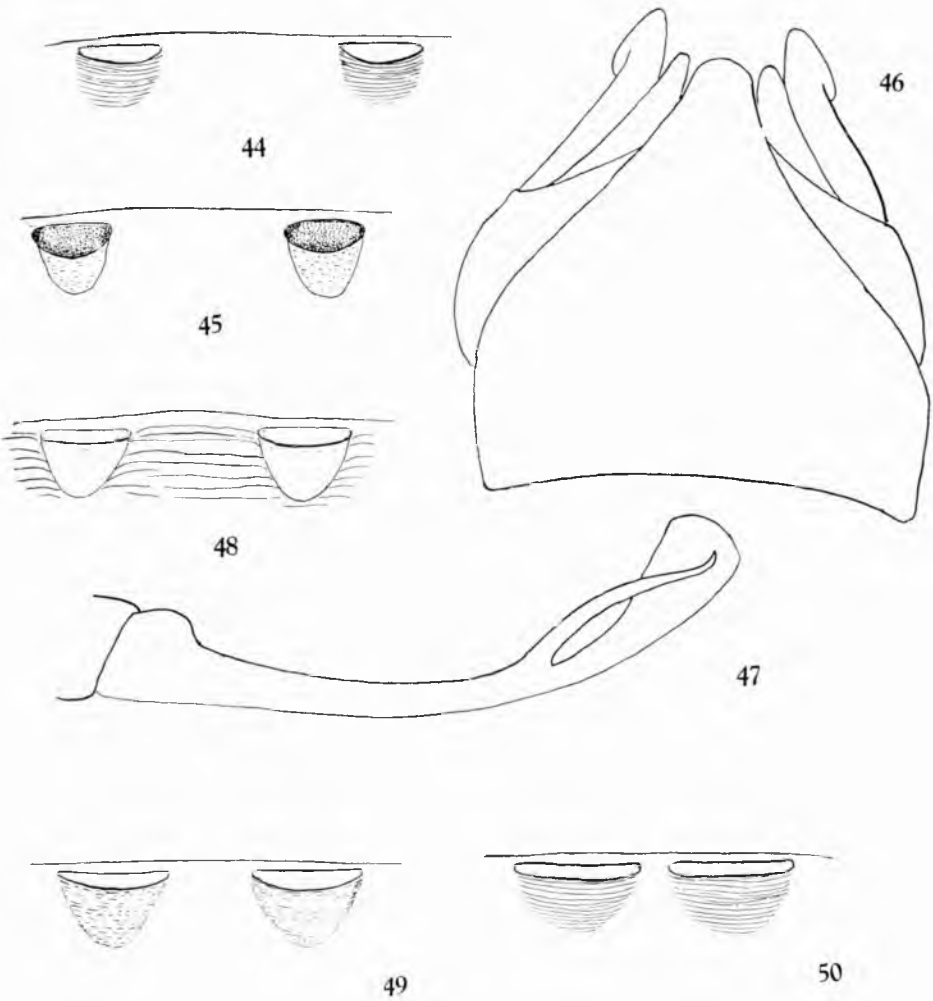
LOCALITY.—Peru: Mirabamba, near Chiclayo. El. 1,800 m. (W.12.204). One female.

Rhinocricus tarapoto n.sp

Nearly black, the color more solid over the metazonites. Antennae and legs reddish yellow.

Interrupted median sulcus and foveolae of head as usual. Antennae short and clavately widening above base. Collum of usual pattern.

Primary segmental sulcus complete and distinct. Logitudinal striae of both zonites present only below, with the prozonite essentially free of striae above, the surface in general exceptionally smooth and shining. The scobina at



Rhinocricus cuzconus n.sp. Fig. 44. Scobina.
Rhinocricus divisus n.sp. Fig. 45. Scobina. 46. Anterior gonopods. 47. Posterior gonopod.
Rhinocricus ecuadorensis n.sp. Fig. 48. Scobina (segment 13).
Rhinocricus entypus n.sp. Fig. 49. Scobina (segment 12).
Rhinocricus eucrines n.sp. Fig. 50. Scobina (segment 14).

maximum development less than their diameter apart; posterior area not striate.

Last tergite narrowed into a slender, acutely pointed and moderately curved cauda which much exceeds the valves.

Number of segments, 50.

Width, 6 mm.

LOCALITY.—Peru: Ekin, east of Tarapoto, Dept. San Martin. Two females taken by Woytowski, Mar. 9-21, 1947. (A.M.N.H.)

Rhinocricus tingo n.sp.

Fig. 57A

Prozonites light olive, the metazonites brown. Anal valves and tergite olivaceous, the tip of the cauda darker. Collum olive, the head similar but with the clypeal region lighter. Legs dilute brown, the antennae darker.

Head with the usual median sulcus which is discontinuous in frontal level. Clypeal foveolae 2+2 . Antennae of nearly uniform thickness throughout, the sensory cones only about ten. Collum without any distinctive features.

Segmental sulcus distinct, with two or three transverse striae in front of it. Longitudinal striae on both metazonite and prozonite as usual, those on the metazonite present up to the pore or nearly so. Those on prozonite also conspicuous and dorsally running into transverse striae. Under the lens the entire surface is seen to be strongly but rather finely tuberculo-rugose. Scobina wide, only about half their width apart; the striate area conspicuously narrowed caudad (cf. fig. 57A).

Cauda much exceeding the anal valves, much narrowing caudad.

Number of segments, 44.

Width, 6 mm.

LOCALITY.—Peru: Tingo Maria. One female taken by J. C. Pallister Oct. 8, 1940. (A.M.N.H.)

Rhinocricus tuobitus n.sp.

Fig. 67

Body and legs black.

Head strongly puncto-rugose above and down to level of antennal sockets, smooth below; median sulcus interrupted in frontal region as usual. Clypeal foveolae 2+2. Antennae of nearly uniform width throughout; sixth article densely setose; sensory cones four. Collum with ventro-anterior corner widely rounded, the posterior more narrowly rounded.

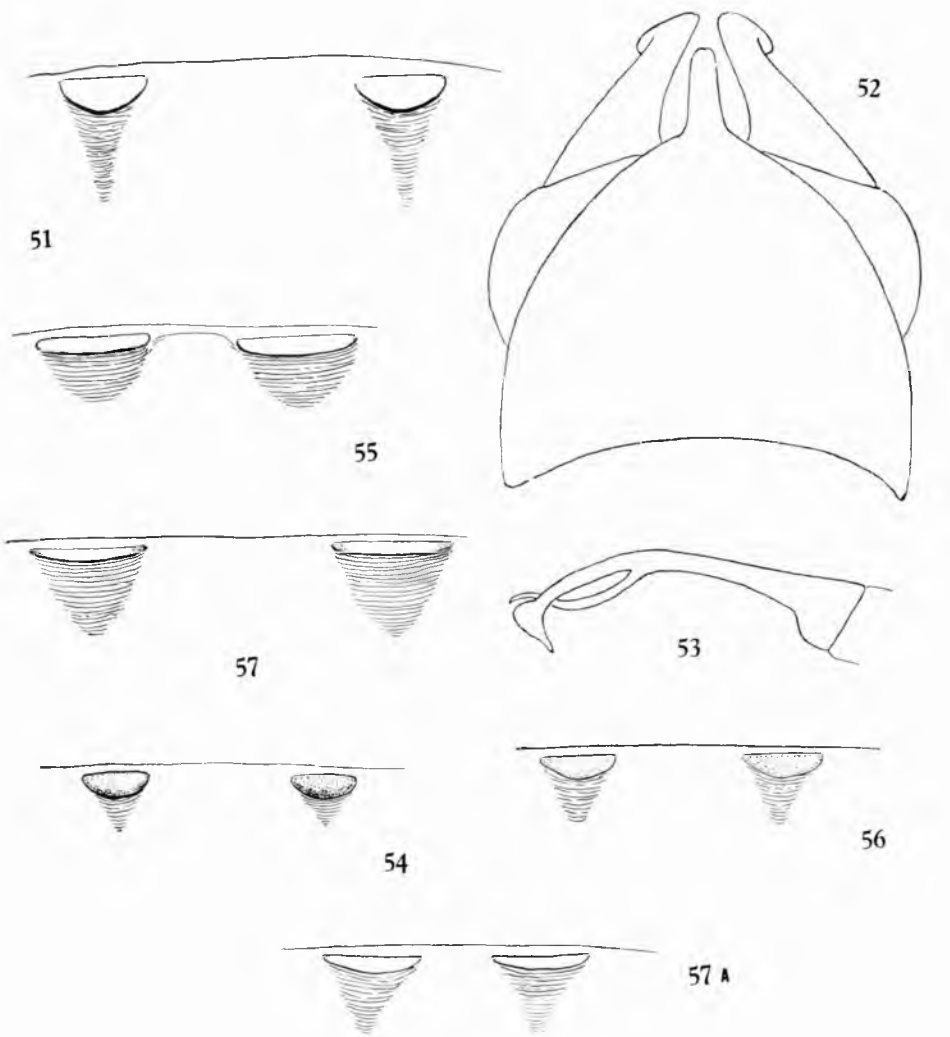
Segmental sulcus fine, curved opposite pore, disappearing in a furrow above, this furrow also extending down the sides. No secondary sulcus. Covered part of prozonite with a network of mostly transverse striae which are rather coarse. The usual longitudinal striae below, these coarse, those on prozonite curving upward and becoming transverse above as usual. Scobina moderately large, separated by about once and a half their width; anterior depression narrow antero-caudally and nearly straight, almost slit-like; posterior portion with striae rather coarse, of form shown in fig. 67.

Last tergites exceeded by the anal valves, caudal portion subtriangular, the angle rounded.

Number of segments, 38.

Width, 8 mm.

LOCALITY.—Peru: between Cerro de Pasco and Huanuco. El. 3,800 m. October, 1947. Females (W.12.193).



Rhinocricus ekinus n.sp. Fig. 51. Scobina (segment 15). Fig. 52. Anterior gonopods. 53. Posterior gonopod.
Rhinocricus iquitus Chamberlin. Fig. 54. Scobina.
Rhinocricus kezantus n.sp. Fig. 55. Scobina (segment 11).
Rhinocricus ninus n.sp. Fig. 56. Scobina (segment 15).
Rhinocricus tuobitus n.sp. Fig. 57. Scobina (segment 13).
Rhinocricus tingo n.sp. Fig. 57A. Scobina (segment 14).

Rhinocricus yanus n.sp.

Figs. 62-66

Body, legs and antennae chocolate colored, body not showing differently colored annuli.

Median sulcus on vertex of head short and nearly obliterated, showing again in and toward clypeal region. Clypeal foveolae smooth and shining, the clypeal foveolae 2+2. Collum rather narrowly rounded at lower ends.

Median sulcus a fine line lying in a shallow furrow up the sides, the furrow shallower and less distinct dorsally. Longitudinal striae of metazonite complete below; above this a series of short striae in the median furrow, the series reaching up about half way to the pore. Striae on prozonite close-set, becoming more and more oblique toward dorsum on which they become transverse, where they tend to anastamose in a close network. Scobina very large or wide, at their maximum in anterior part of series contiguous or nearly so at middle line; anterior depression nearly straight, shallow (cf. fig. 64); becoming smaller and more widely separated in proceeding to more posterior segments (cf. figs. 65 and 66), present back to about segment 32.

Posterior portion of last segment triangular, the caudal apex blunt or narrowly rounded; surpassed by the anal valves. Inner border of anal valves strongly compressed. Anal scale triangular, the sides straight, the caudal angle blunt.

Gonopods as figured (figs. 62 and 63).

Number of segments, 44.

Width of male, 9 to 10 mm.

Localities.—Peru: Yanasora, Rio Chusgon. El. 2,300 m. (W.10.095). Male holotype taken in Feb., 1942.

Hacienda Chaquil, near Cajamarca (W.11.146A). El. 3,150 m. One male taken in Mar., 1942.

Hacienda Cochambul, near Cajamarca. El. 2,800 m. (W.11.146). One female.

CAMBALIDA

EPINANNOLENIDAE

Epinannolene machucus n.sp.

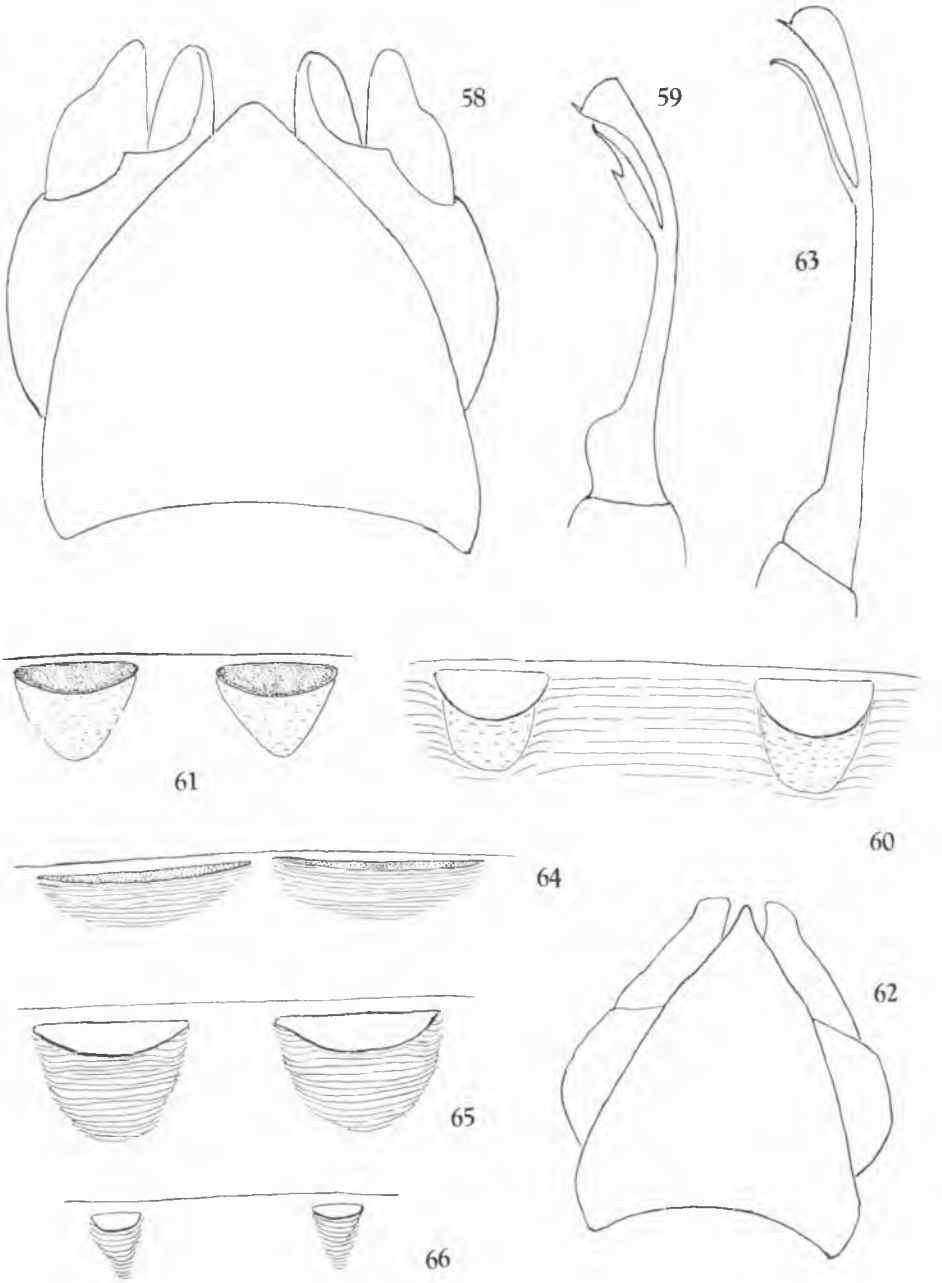
Fig. 87

Body in general shining black, with ventral part of tergites and the legs yellow; anal valves dusky yellow.

Ocelli arranged in three transverse series ,e.g., from behind 6, 7, 6. Antennae distally clavate, with the sixth article much the thickest. Collum narrowly rounded below, the lower anterior corner more widely rounded than the posterior.

Body segments constricted along the sulcus. Sulcus smooth above, but on lower part of sides crossed by fine longitudinal sulci which continue across the metatergite, the striae on upper part of sides short and largely coarsely punctiform, these absent above. Pores conspicuous, their rims elevated.

Gonopods of male as represented in fig. 87.



Rhinocricus lorereto n.sp. Fig. 58. Anterior gonopods. 59. Posterior gonopod. 60. Scobina (segment 12).

Rhinocricus yanus n.sp. Fig. 62. Anterior gonopods. 63. Posterior gonopod. 64. Scobina (segment 10). 65. Scobina (segment 21). 66. Scobina (segment 33).

Number of segments in the male type 48, in the female allotype 51.

Width of female, 1.7 mm.; of male, 1.2 mm.

LOCALITY.—Peru: Huamachuco. El. 3,200 m. Two males and a female taken in Feb., 1942. (W.10.293).

POLYDESMIDA

CHELODESMIDAE

Genus INCODESMUS, new

Body composed of twenty segments, with pores on segments 5, 7, 9, 10, 12 and 15-19. Coxae of the gonopods of the male produced distad on the outer side into a long lappet which surpasses and conceals from the outside the prefemur; also with a stout spine or tooth on the anterior side. Prefemur short, clearly set off, bearing an elongate process which is stouter than the acropodite and is furcate distally, one of the branches being lamellate. Acropodite simple, unbranched, long and slender, straight or but little curved, Metazonites smooth and with no transverse furrow. Lateral keels of moderate width, their margins smooth. Fifth sternite of the male with a process, the other sternites without notable processes. Legs without tarsal pads or other special lobes or modifications, the tarsus longer than the tibia.

GENEROTYPE.—*Incodesmus urubambae* n.sp.

Incodesmus urubambae n.sp.

Fig. 81

General color of preserved specimens chestnut, with caudal portion of metatergites yellowish. Antennae and legs light brown to yellow.

Head with a shallow median furrow across vertex, the surface in general smooth. Collum with laterial ends narrowly rounded, outer part margined both anteriorly and posteriorly; surface smooth or under lens showing but weak coriarious markings.

Metatergites with no transverse sulcus or this sometimes obscurely indicated toward the sides; surface smooth, or under the microscope showing weak coriarious markings of impressed lines and punctae, especially on the more posterior tergites. The keels of moderate width, of the usual form; the caudal angle moderately produced on the last few tergites. Cauda moderately curved, distally blunt.

In the male the process of the fifth sternite between the anterior pair of legs, low. In the gonopods the extension of the coxa on the ectal side is long and gradually narrowed distad, the tip rounded. The slender acropodite end in a needle-like terminus. The preformal spine about equal in length to the acropodite, expanded at the end into a lamellate branch and a subsagittae straight branch. See further fig. 81.

Width, 4 mm.

LOCALITY.—Peru: River Urubamba. El. 800 m. (W.12.186).

Leptodesmus (Pseudoleptodesmus) abancus n.sp.

Fig. 75

Dorsum uniform brown to chocolate colored as far as color is revealed in the preserved specimens. Legs and antennae red or reddish brown.

Collum with lateral and anterior margins together evenly convexly curving from caudo-lateral corners across dorsum and margined throughout; caudal margin nearly straight.

Anterior corners of the anterior keels subrectangular, on subsequent segments becoming widely rounded; posterior corners of keels from second to fourth keels subrectangular, those following gradually becoming widely and obtusely produced and on the last few becoming acute. Surface of tergites in general smooth or nearly so, but across caudal border of several of the last ones a row of tubercles or tuberculiform rugae, replaced on a few of the prior segments by simple low rugae.

In the gonopods of the male the coxa is prolonged on the outer side into a distally rounded lobe which partially conceals the prefemur. Preformal spine nearly straight. The solenomerite slender and rather long (cf. fig. 75).

Width of female, 6 mm.; of male, 5.2 mm.

LOCALITY.—Peru: Abancay, near Cuzco. El. 2,480 m. (W.11.014).

Leptodesmus oxapus n.sp.

Fig. 76

From light brown to a darker dusky brown or chestnut, the prozonites sometimes light chestnut or reddish. Antennae chestnut and the legs the same or varying to light brown in the preserved specimens.

Head and collum smooth and shining.

Tergites in general smooth and shing. Metazonites with no transverse furrow. Keels narrow, the pore swelling at the caudal corner. Cauda a little curved downward, bearing the usual setae at tip.

In the male the sternites and legs without special modifications. Gonopods with no coxal spine or exterior lobe. Prefemoral process biramous, the branches simple. Acropodite elongate and simple, with the solenomerite sheathed by the lower end as shown in fig. 76.

Width, 5 mm.

LOCALITY.—Peru: Oxapampa. El. 1,700 m. (W.11.139).

Leptodesmus (Pseudoleptodesmus) weyrauchi n.sp.

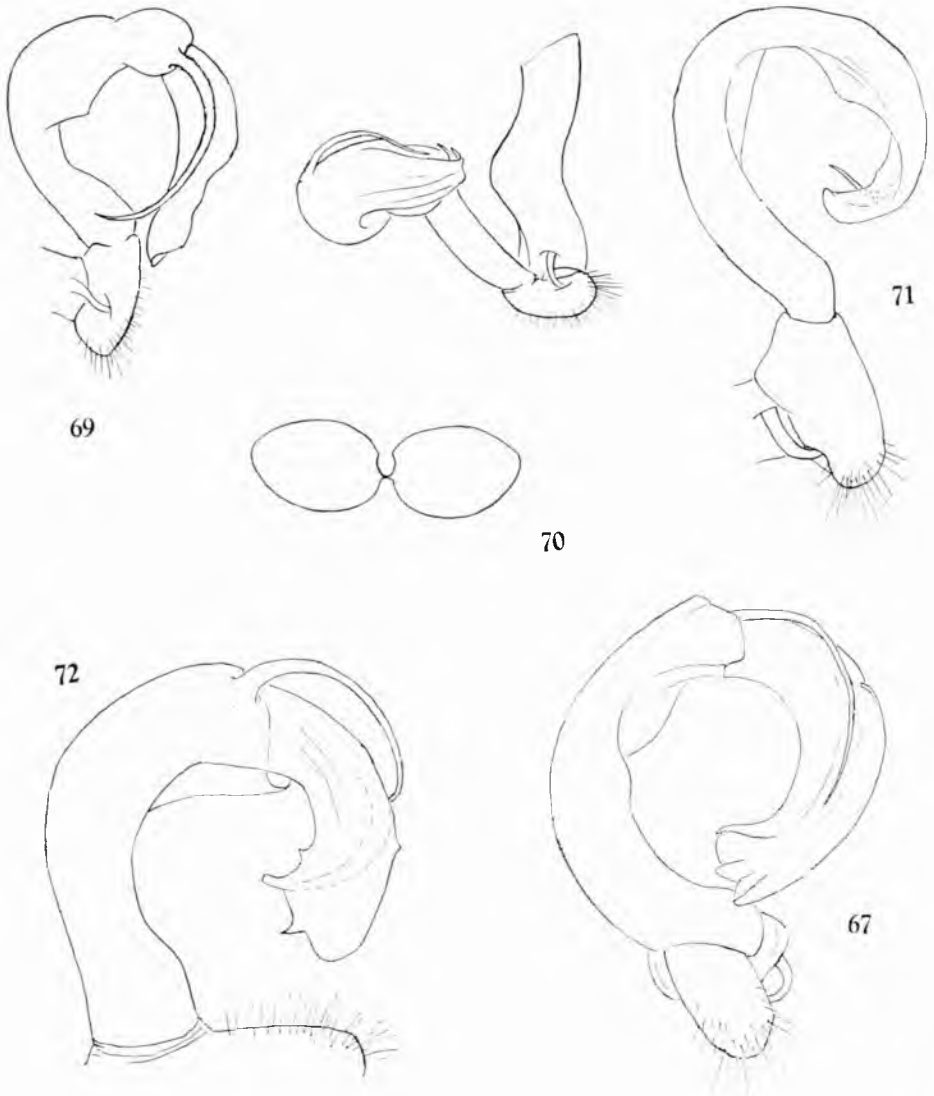
Fig. 77

Brown to chocolate colored with the keels bright yellow, the mid-dorsum a duller yellow and forming a moderately wide median longitudinal stripe or the light color may spread over entire dorsum in individuals not in full color.

Median sulcus of head deep, the surface smooth except for bearing throughout well separated, very fine short hairs or hair points, these closer

and somewhat longer in the clypeal area. The collum wide, the lower ends narrowly rounded, the anterior margin gently incurved at level of antennal sockets; surface clothed with hair points like those on the head.

Other tergites with surface appearing smooth and shining but under magnification showing the same uniformly distributed fine short hairs or hair points arising from slightly impressed punctae. Metazonite with no distinct transverse sulcus. Keels rather wide, the margins strongly thickened as usual



Catharosoma contumum n.sp. Fig. 67. Right gonopod.
Catharosoma ethophor n.sp. Fig. 68. Right gonopod, mesal view.
Catharosoma flavius n.sp. Fig. 69. Left gonopod, mesal view.
70. Gonopodal openings.
Habrodesmus consocius n.sp. Fig. 71. Left gonopod.
Habrodesmus frater n.sp. Fig. 72. Gonopod.

and the posterior corners becoming gradually more and more produced on posterior segments. Cauda curving a little downward.

In the male no process from the fifth sternite. Legs more robust, the tibiae conspicuously crassate at distal end and there produced into a conspicuous pad projecting beneath the basal part of tarsus.

Gonopods with prefemoral spine and acropodite broad, lamelliform, the spine longer than the acropodite and curving beneath its end. Coxa extended distad on outer side in a broad, subtriangular lamella with distal angle rounded. No coxal spine (cf. fig. 77).

Width, 5 mm.

LOCALITY.—Peru: Tingo Maria, Rio Huallaga, in the "Cueva de Luchuzas," a cave inhabited by the bird *Steatormis caripensis*. (W.12.065).

Genus WATOPORUS, new

Composed of twenty segments of which only the fifth bears repugnatorial pores. Antennae long, bearing four sensory cones. Collum much wider than the head. Lateral keels of collum and of the other body segments wide and elevated, leaving the dorsum as a whole concave; caudal corners strongly and acutely produced, the margins dentate. Surface of metazonites, including the keels, densely and coarsely granular or tubercular, some of the tubercles specially enlarged. Repugnatorial pores on fifth segment located on the lateral margin of keels in front of the base of the smooth terminal process. Anal tergite produced beyond the valves. Anterior sternites of male without special processes. In the gonopods the coxa not produced or bearing a spine; prefemur small and distinct, bearing an elongate process; the telopodite elongate, bearing near middle of it length a simple process, divided near distal end into a short tibio-tarsal lobe and the slender solenomerite.

GENEROTYPE.—*Watoporus quechuanus* n.sp.

I nbody structure differing from *Biporodesmus* in the very conspicuously and acutely produced caudal corners of all the keels and in having the margins of the keels dentate. In the gonopods differing in bearing a lateral process on the acropodite and in the position of the solenomerite.

Watoporus quechuanus n.sp.

Fig. 82

Body and legs brown.

Head clothed evenly and throughout with short, well separated, hairs arising from small dark spots; not granular.

The collum about as wide as the following segments; dorsal surface covered with densely arranged, coarse granules and bearing on the anterior border between the keels four or five stout, conical and basally contiguous tubercles, and bearing on the caudal border four smaller rounded tubercles.

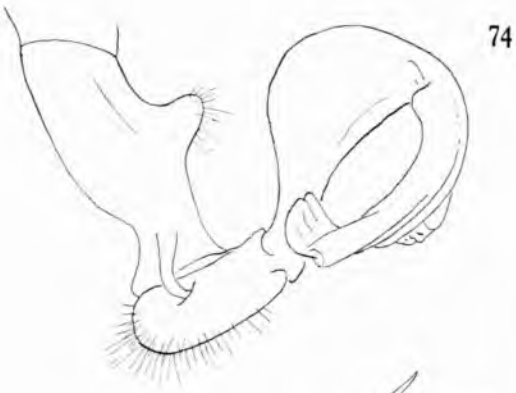
The prozonites long, leaving the keels of adjacent segments widely separated from each other, these keels strongly elevated. Posterior corners of keels acutely produced caudad, about the terminal half of the process smooth. In front of the smooth part of the processes the lateral and anterior margins bear teeth which decrease in size in the anterior part of the series, while the caudal

margin of the keel bears a series of mostly six or seven subconical teeth. The last tergite in dorsal view narrowly triangular, three separated setiferous tubercles along each side.

Gonopods of male as shown in fig. 82.

Width, 3.8 mm.

LOCALITY.—Peru: Rio Huallaga. El. 500 m. (W.12.191). One male taken in August, 1942.



Habrodesmus huallagae n.sp. Fig. 73. Gonopod.
Habrodesmus punae n.sp. Fig. 74. Left gonopod, mesal view.
Leptodesmus abancus n.sp. Fig. 75. Left gonopod, mesal view.
Leptodesmus oxapus n.sp. Fig. 76. Left gonopod.
Leptodesmus weyrauchi n.sp. Fig. 77. Left gonopod, mesal view.

Genus YANADESMUS, new

Body composed of twenty segments of which pores are borne on keels of 5, 7, 9, 10, 12 and 15-19. Repugnatorial pores on prominently protruding lobes. Metazonites bearing tubercles; a transverse sulcus present. Tarsi slender, much longer than the tibiae, without special modification in the male. None of the sternites modified or bearing processes in the male. Coxae of the male gonopods not produced distally and bearing no spine on anterior margin; a prefemoral branch or process present, this long, expanded at distal end. Acropodite distinct from the prefemur, elongate, with a definite suture dividing the femur from the tibio-tarsus.

GENEROTYPE.—*Yanadesmus chusgonus* n.sp.

The principal character on which this genus is based is the distinct separation off of the femur in the gonopods. It is at present represented by the two species described below.

Yanadesmus chusgonus n.sp.

Fig. 79

Black when in full color, with the keels and the tip of the cauda yellow. Legs chestnut or reddish. Antennae chestnut brown, tending toward black distally.

Head smooth. Median sulcus normal. Collum with lateral and anterior margins forming an even curve.

Transverse furrow of metazonites distinct throughout. In front of sulcus a series of mostly six well separated conical tubercles and behind it normally two series of larger rounded tubercles in addition to a series of small rugae which may show adjacent to the keels. The keels have the margin smooth except for a denticle at the anterior corner and the protruding poriferous lobe; the poriferous lobe shifting to the caudal, projecting corner on the more posterior segments. Last tergite abruptly narrowed to the projecting cauda.

Gonopods of male as drawn (fig. 79).

Width, 5 mm.

LOCALITY.—Peru: Rio Chusgon. El. 2,300 m. Males and females taken in Feb., 1942.

Yanadesmus celendinus n.sp

Fig. 78

Very close in color and color pattern to *chusgonus*, the dorsum being chocolate colores, the keels yellow and the legs and antennae brown of a light chestnut tinge. Also close in the form of the keels and sculpturing of the tergites, there being on the latter a series of tubercles in front of the sulcus, two series behind it with tips of those of the second row tending to be spinous, the surface between tubercles finely rugose.

Differing from *chusgonus* especially in the gonopods as shown by figs. 78 and 79.

Width, 4 mm.

LOCALITY.—Peru: Celendin, near Cajamarca. El. 2,650 m. One male taken in March, 1942. (W.11.136).

CRYPTODESMIDAE

Tridesmus perucola n.sp.

Color brown, without special markings.

Collum with ten lobes of which, however, that at each end of the series is partially subdivided, giving ten major and two minor lobes.

Lateral margins of keels mostly trilobed but those of the segments 16-19 four-lobed, with the fourth lobe on the sixteenth only partially set off; posterior margin with four simple lobes or others mesad of these appearing as extension of posterior row of granules or tubercles; anterior margin with three broader lobes of which the median is distally furcate.

The transverse series of coarse granules well developed and the tubercles of the two longitudinal series prominent.

Length, 16 mm.; width, 4 mm.

LOCALITIES.—Peru: Chironos, in affluent system of the Marañon. El. 1,800 m. Female holotype taken in Aug., 1948. (W.11.130A).

River Namballe, on the Ecuadorean border, savanna forest. El. 900 m. Female paratype taken in Aug., 1948. (W.11.130).

Differing from *T.serratus* S. and *cognatus* S. of Venezuela in larger size, in having the keels of the fifteenth segment three-lobed instead of four-lobed and in having three lobes instead of two on the caudal margin of the keels, as well as in the lobation of the other keels.

STRONGYLOSOMIDAE

Catharosoma contumum n.sp.

Fig. 67

Dorsum dark chocolate colore to nearly black, becoming more chestnut below on the sides. Legs light brown or yellowish brown. Antennae chestnut.

Tergites in general smooth and shining, but tergites of more posterior segments showing weak longitudinal rugae. The lateral carinal swellings set off by a sulcus above, the posterior corners of none acutely produced. Last tergite of the usual form, produced behind in a straight cauda the truncate tip of which bears the usual long setae.

Gonopods as shown in fig. 67.

Width, 2.3 mm. in male to 3 mm. in female.

LOCALITY.—Peru: Contumaza. West Andean region near Trujillo. El. 2,850 m.

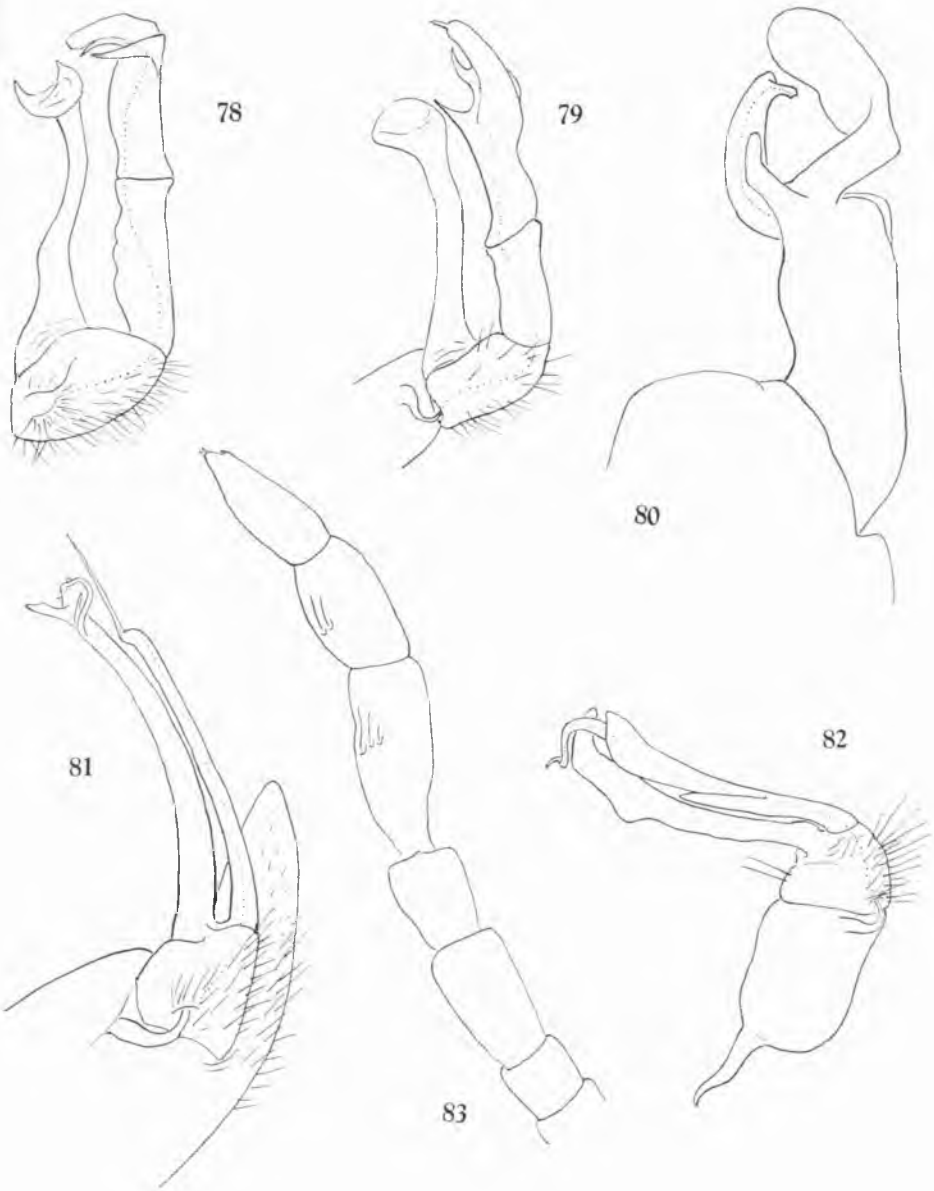
Catharosoma ethophor n.sp.

Fig. 68

Mahogany to nearly black, with the furrow between the zonites reddish. Legs yellow, some tinged with pink. Antennae brown.

Collum with anteroventral corners widely rounded, the posterior more narrowly rounded, margining as usual.

Both prozonites and metazonites in general smooth, but the metatergites behind the sulcus showing usually some weak, narrow and close-set longitudinal rugae. Metatergite laterally extended into keel-like swellings set off above by



Yanadesmus celendinus n.sp. Fig. 78. Left gonopod.
Yanadesmus chusgonus n.sp. Fig. 79. Left gonopod, mesal view.
Detodesmus tingonus n.sp. Fig. 80. Gonopod.
Incodesmus urubambae n.sp. Fig. 81. Left gonopod, mesal view.
Watoporus quechuanus n.sp. Fig. 82. Left gonopod, mesal view.
Oroxenus quebradanus n.sp. Fig. 83. Antenna.

a definite furrow; caudal end of keel mostly rectangular but on the more posterior becoming slightly acute and produced. Cauda straight and rather long.

In the male the third joint of the third legs moderately crassate and bearing from middle a small, short cylindrical process (extrusion from gland?); a slight nodule in similar position on fourth legs. A short setose process from sternite between sixth legs.

Gonopods as shown in fig. 68.

Width, 3 mm.

LOCALITY.—Peru: Oxapampa. Subtropical rain forest. El. 1,600 m. One male taken in Oct., 1941. (W.11.151).

Catharosoma flavius n.sp.

Figs. 69, 70

Light chestnut with caudal border of metatergites yellow and a series of mid-dorsal of pink or reddish spots. Antennae light chestnut and legs yellow.

Metazonites with keels prominent and sharply set off by a sulcus above; caudal angle rounded or on more posterior segments rectangular but none acutely produced.

In the male the sternites and legs seem to present no special modifications aside from the short process of the sixth sternite.

Cauda straight and rather short.

Gonopods of male as shown in figs. 69 and 70.

Width, 1.7 mm.

LOCALITY.—Peru: Between Abancay and Rio Pampas at Puna. El. 4,000 m.(?). (W.11.145).

Habrodesmus consocius n.sp.

Fig. 71

General color chestnut, with some of the metatergites irregularly darker. Legs yellow and antennae light chestnut.

Prozonites but slightly less in diameter than the metazonites. Transverse sulcus of metatergites bordere and in part crossed and interrupted by short longitudinal striae. The keels narrow swellings set off by a longitudinal sulcus.

Cauda straight and of medium length.

In the male the sixth sternite presenting two low, subconical and setiferous processes, the other sternites without processes excepting one on the fifth sternite.

Gonopods of the male as shown in fig. 71.

Width of female, 4 mm.; of male, 3 mm.

LOCALITY.—Peru: Velle Chanchamayo. Tropical rain forest. El. 800 m.

Males and females taken in 1939. (W.11.116).

On the basis of the presence of processes on sixth sternite this species might be referred to *Catharosoma* rather than to *Habrodesmus* but in the character of the gonopods agreeing more closely with the latter.

Habrodesmus frater n.sp.

Fig. 72

Dark chocolate colored, with the prozonites sometimes verging to chestnut; the lower part of sides and sometimes the keels lighter, yellow, the cauda also usually of the lighter color. Legs yellow and the antennae chestnut.

Prozonites a little narrower than the metazonites. Keels narrow but set off clearly by a sulcus above. Transverse sulcus on metatergite smooth. Surface of tergites smooth.

Cauda nearly straight, slightly curved downward.

Fifth sternite in male with a pair of short conical processes, the other sternites without processes.

Gonopods shown in fig. 72.

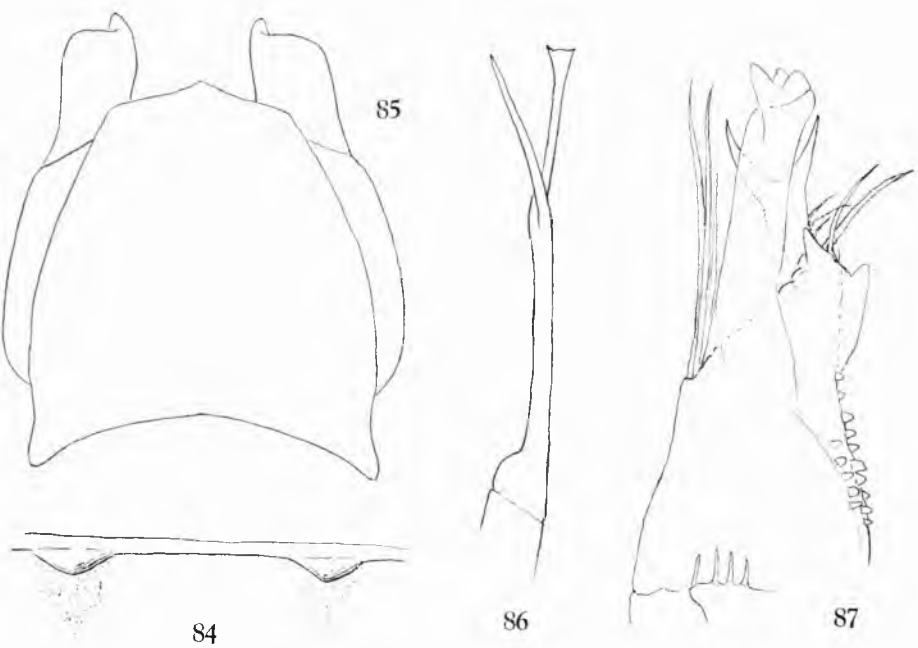
Width of female, 2.8 mm.; of male, 2 mm.

LOCALITY.—Peru: Valle Chanchamayo. Tropical rain forest. El. 800 m. Two males and two females taken in 1939. (W.11.116).

Habrodesmus huallagae n.sp.

Fig. 73

Color chocolate, with a conspicuous series along mid-dorsal line of white or yellowish marks of deltoid shape, one spot on each tergite with apex forward; the cauda also of the light color. Legs pale yellow or in part almost colorless and the antennae of the chocolate color.



Eurhinocricus tarmanus n.sp. Fig. 84. Scobina, with darker tissue showing through from beneath surface. *Lissocricus retrus* n.sp. Fig. 85. First gonopods, anterior view. 86. A posterior gonopod. *Epinannolene machucus* n.sp. Fig. 87. A gonopod.

Keels very narrow but well set off above. Sulcus across metatergite well impressed. Surface in general smooth and shining. Cauda straight.

In the male no processes detected on any sternite.

Gonopods as shown in fig. 73.

Width, 2.5 mm.

LOCALITY.—Peru: River Huallaga. El. 500 m. Male and female taken in Aug., 1947. (W.12.181).

Habrodescus punae n.sp.

Fig. 74

Dorsum from chestnut to chocolate colored, the color deepest along caudal border of metazonites.

Collum with a median longitudinal sulcus, the surface in general granular.

Metatergites with keels well set off above by the usual furrow caudal corner of keels on posterior segments rectangular, not acutely produced. Entire surface of tergites densely finely granular or shagreened. Cauda straight.

Sternites and legs of male not specially modified.

Gonopods of male as shown in fig. 74.

Width, 2.2 mm.

LOCALITY.—Peru: Puna, above Tarma. El. 3,500 to 3,800 m. Males and females. (W.12.202).

ONISCODESMIDAE

Detodesmus tingo n.sp.

Fig. 80

Dark or dusky brown over the keels, the middorsal part of dorsum lighter. Legs yellow and antennae red.

Collum with anterior margin straight, convex behind, the general outline semicircular.

A little larger than *D.aurantiacus* of Colombia which it resembles in having areas marked off along the caudal border of the metatergite by means of longitudinal sulci which are much longer on the keels than in the middorsal region, the sulci narrowly bordered by or lying in white. The portion of the metatergite behind the transverse sulcus short; the sulcus curving forward and outward at base of keels.

Anal tergite subtrapeziform, the caudal margin gently convex. Anal scale triangular.

Differing from *aurantiacus* in color and conspicuously in the gonopods, one of which is drawn (cf. fig. 80).

Width, 4.5 mm.

LOCALITY.—Peru: Tingo Maria, Rio Huallaga. El. 670 m. One male. (W.11.132).

POLYXENIDA

POLYXENIDAE

Genus OROXENUS, new

Fig. 83

A genus close to the Argentinian *Hypogexenus* but apparently differing especially in having minute sensory cones at the tip of the eighth article of the antennae. The generotype, *O.quebradanus,* n.sp., is a white colored species about 3 mm. in length. In this form the eighth article of the antennae is fully equal in length to the seventh but is more slender and is conically narrowed distad. The proportions of the adjacent articles are as shown in fig. 83. Ocelli are lacking as in *Hypogexenus.* There are on each side three conspicuous trichobothria. The legs of the claws evenly curved, curving over the supporting terminal pustule but with no basal spines. A complete description is deferred.

LOCALITY.—Peru: Quebrada Verde, near Lima. El. 300 m. (W.11.150).