

THE MILLIPEDS OF CENTRAL AMERICA.

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This paper, like its predecessor on the centipeds of the same region, is primarily a report upon the material of the group existing in the collections of the United States National Museum, collections which have been enriched especially by the contributions of Drs. O. F. Cook and W. M. Mann. The collection of the Museum of Comparative Zoology has also been reviewed. In addition to the forms studied in these collections, it has been the intention to include all other species thus far described from Panama, Costa Rica, Nicaragua, Salvador, Honduras, British Honduras, and Guatemala.

The forms now known to occur are listed separately for the several countries below.

PANAMA.

- Stemmiulus bioculatus* Gervais.
- Orthoporus festae* (Silvestri).
- Diaporus culcabrae*, new species.
- Diaporus chiriquensis* (Pocock).
- Rhinocricus ferrugineus* (Daday).
- Rhinocricus hagedussii* (Daday).
- Rhinocricus ocraceus* Brölemann.
- Oxygyge varicolor* (Silvestri).
- Orthomorpha coarctata* (Saussure).
- Chondrodesmus panamensis*, new species.
- Alocodesmus dromeus*, new species.
- Cyrtodesmus granosus* (Gervais and Goudot).

COSTA RICA.

- Platydesmus lankesteri* Brölemann.
- Prostemmiulus tristani* Silvestri.
- Prostemmiulus picadoi* Silvestri.
- Epinannolene bicornis* Brölemann.
- Gymnostreptus pacificus*, new species.
- Orthoporus absconsus*, new species.
- Orthoporus confragosus* (Karsch).
- Diaporus palmensis* (Brölemann).

- Diaporus omalopyge* (Brölemann).
Diaporus typotopyge (Brölemann).
Rhinocricus whceleri, new species.
Rhinocricus centralis, new species.
Rhinocricus simulans, new species.
Rhinocricus rogersi Pocock.
*Rhinocricus aposematu*s Pocock.
Rhinocricus tristani Pocock.
Rhinocricus costaricensis Brölemann.
Rhinocricus nodosicollis Brölemann.
Rhinocricus biolleyi Brölemann.
Rhinocricus plesius Chamberlin.
Rhinocricus mucronatus Brölemann.
Spirostrophus musarum Cook.
Orthomorpha coarctata (Saussure).
Oxidus gracilis (Koch).
Tiroidesmus fimbriatus (Peters).
Nyssodesmus nigricaudus, new species.
Nyssodesmus tristani (Pocock).
Nyssodesmus limonensis (Attems).
Nyssodesmus fraternus (Carl).
Nyssodesmus biringatus (Carl).
Nyssodesmus riparius (Carl).
Nyssodesmus montivagus (Carl).
Nyssodesmus propinquus (Carl).
Nyssodesmus stenopterus (Brölemann).
Nyssodesmus antius (Chamberlin).
Nyssodesmus pococki (Brölemann).
Amplinus convexus (Carl).
Amplinus nitens, new species.
Aphelidesmus calverti Chamberlin.
Aphelidesmus intermedius Chamberlin.
Aphelidesmus glaphyros (Attems).
Chondrodesmus singularis, new species.
Chondrodesmus granosus (Carl).
?Chondrodesmus hoffmanni (Peters).
Phylactophallus stenomerus Pocock.
Aceratophallus lamellifer Brölemann.
Aceratophallus unicolor Carl.
Aceratophallus dux Chamberlin.
Eusphaeriodesmus stilifer (Pocock).
Colobodesmus biolleyi Brölemann.
Peridontodesmus clectus Chamberlin.

NICARAQUA.

- Rhinocricus nicaraguanus*, new species.
Rhinocricus rixi Pocock.
Rhinocricus marci Pocock.
Tiroidesmus fimbriatus (Peters).
Nyssodesmus mimus, new species.
Nyssodesmus nicaraguanus, new species.

SALVADOR.

None recorded.

HONDURAS.

Platydesmus interruptus, new species.
Platydesmus interruptus simplex, new variety.
Siphonophora telana, new species.
Siphonophora progressor, new species.
Prostemmiulus relictus, new species.
Prostemmiulus lombardiae, new species.
Cleidogona ceibana, new species.
Amplinus manni, new species.
Amplinus orphnius, new species.
Chondrodesmus tuberculifer, new species.
Chondrodesmus alidens, new species.
Schistides atopophallus, new species.
Holistophallus peregrinus Silvestri.
Sphaeriodesmus hondurasanus, new species.

BRITISH HONDURAS.

None recorded.

GUATEMALA.

Platydesmus triangulifer Pocock.
Platydesmus analis Pocock.
Platydesmus marmoreus Pocock.
Platydesmus perpictus Pocock.
Platydesmus polydesmoides Lucas.
Platydesmus guatemalae Brölemann.
Desmethus scitifer, new species.
Siphonophora barberi, new species.
Siphonophora fallens, new species.
Siphonophora globiceps, new species.
Prostemmiulus cooki, new species.
Cleidogona stollii Pocock.
Gymnostreptus lactus, new species.
Gymnostreptus vagans, new species.
Orthoporus discriminans, new species.
Orthoporus cobanus, new species.
Orthoporus rodriguezii (Brölemann).
Orthoporus rodriguezii coriaceus (Brölemann).
Parajulus stylifer Pocock.
Parajulus leucoclivus, new species.
Rhinocricus stollii Pocock.
Rhinocricus scobinatus Pocock.
Rhinocricus obesus Brölemann.
Oxyppygides mesites, new species.
Oxyppygides lapidicina, new species.
Oxypyge ferruginipes, new species.
Oxypyge confusa, new species.
Oxypyge socia, new species.
Oxypyge equalis, new species.
Spirobolus hoplomerus Pocock.

Spirobolus stollii Pocock.
Spirobolus eximius Porat.
Oxobolus virilis, new species.
Oxobolus cinctus, new species.
Oxobolus eratus, new species.
Oxobolus pictus, new species.
Allopocockia tylopus (Pocock).
Spirobolellus articulus Pocock.
Arolus purulanus, new species.
Orthomorpha coarctata (Saussure).
Oxidus gracilis (Koch).
Amplinus arcatus Pocock.
Amplinus nitidus (Brölemann).
Amplinus palicaudatus (Attems).
Amplinus orphnius, new species.
Polylepiscus stollii Pocock.
Polylepiscus actacon Pocock.
Polylepiscus heterosculptus (Carl).
Chondrodesmus montanus (Pocock).
Chondrodesmus rodriguezi (Brölemann).
Cyclorhabdus contortus Brölemann.
Eutyporachis tessellatus Pocock.
Eutyporachis oltramarci (Carl).
Atylophor rafaelanus, new species.
Tunodesmus orthogonus, new species.
Tunodesmus laminiger, new species.
Synthodesmus simulans, new species.
Rhysodesmus championi Pocock.
Rhysodesmus stollii Pocock.
Rhysodesmus violaceus (Brölemann).
Curodesmus guatemalensis, new species.
Holistophallus peregrinus Silvestri.
Sphaeriodesmus coriaceus Pocock.
Sphaeriodesmus medius Carl.
Eusphaeriodesmus angustus (Pocock).
Cylionus constrictus Pocock.
Peridotodesmus flagellatus Pocock.
Cynedesmus celatus (Pocock).
Cynedesmus perparvus (Pocock).
Glomeroides centralis, new species.
Glomeridesmus centralis, new species.

Suborder COLOBOGNATHA.

Family PLATYDESMIDAE.

Genus PLATYDESMUS Lucas.

1. PLATYDESMUS TRIANGULIFER Pocock.

Platydesmus triangulifer Pocock, Biol. Centr.-Amer., Diplom., 1903, p. 45, pl. 4, figs. 4-4e.

Locality.—Guatemala: Volcan de Acatenango.

2. *PLATYDESMUS ANALIS* Pocock.

Platydesmus analis Pocock, Biol. Centr.-Amer., Diplop., 1903, p. 46, pl. 4, figs. 3-3g.

Locality.—Guatemala:(?) Guatemala city.

3. *PLATYDESMUS MARMOREUS* Pocock.

Platydesmus marmoreus Pocock, Biol. Centr.-Amer., Diplop., 1903, pp. 48, 61, fig. 3.

Locality.—Guatemala: Cholluitz.

4. *PLATYDESMUS PERPICTUS* Pocock.

Platydesmus perpictus Pocock, Biol. Centr.-Amer., Diplop., 1903, p. 47, pl. 5, figs. 1-1j.

Locality.—Guatemala: Senahu, Cholluitz.

5. *PLATYDESMUS INTERRUPTUS*, new species.

Plate 1, figs. 1, 2.

Dorsum in general brown. A black median longitudinal band geminate with a median line which expands at intervals into quadrate areas, of which there are four, each of these bounded on each side by a quadrate black area about equal to itself in size. The surface paler in a longitudinal stripe between each two black quadrate spots and in an area laterad of each of the latter. Legs and ventral surface pale, the antennae typically darkened distad. Body very broad, three times longer than wide. Eyes present. First tergite produced forward beyond the head, thus completely covering the latter from above; the anterior border acutely notched at the middle, as shown in plate 1, figure 1. Of the two rows of tubercles on the tergites the anterior one extends laterad nearly to ends of keels, the posterior row not so far. Last tergite surpassed by keels of the preceding segment (pl. 1, fig. 2). Number of segments, mostly between 40 and 50. Length, 15 mm.: width, 5 mm.

Localities.—Honduras: San Juan Pueblo (type locality), eighteen specimens, and La Ceiba, one specimen (W. M. Mann).

Suggesting the Guatemalan *P. perpictus* Pocock, but different clearly in the color pattern, the greater width of the body, the more open median incision in the first tergite, etc.

Type.—Cat. No. 812, U.S.N.M.

6. *PLATYDESMUS INTERRUPTUS SIMPLEX*, new variety.

Agreeing with the preceding form closely in general structure, but differing in coloration. The dorsum has a sharply defined, narrow, evenly continuous, median, longitudinal, dorsal black stripe, else-

where brown, the half adjacent to the middorsal strip in each side paler than the ectal half.

Localities.—Honduras: La Ceiba (type locality), nine specimens, and San Juan Pueblo, one specimen (W. M. Mann).

Type.—Cat. No. 813, U.S.N.M.

7. **PLATYDESMUS POLYDESMOIDES** Lucas.

Platydesmus polydesmoides LUCAS, Ann. Soc. Ent. France, 1843, p. 52, pl. 3, figs. 1-8.—Pocock, Biol. Centr.-Amer., Diplop, 1903, p. 48.

Locality.—Guatemala.

8. **PLATYDESMUS GUATEMALAE** Brölemann.

Platydesmus guatemalae BRÖLEMANN, Mém. Soc. Zool. France, 1909, vol. 13, p. 112, pl. 7, figs. 78-82.

Locality.—Guatemala.

9. **PLATYDESMUS LANKESTERI** Brölemann.

Platydesmus lankesteri BRÖLEMANN, Ann. Soc. Ent. France, 1905, p. 354, pl. 9, fig. 15.

Locality.—Costa Rica: El Reventado.

DESMETHUS, new genus.

This genus differs from *Platydesmus* in that the tergites bear numerous closely arranged and setigerous tubercles over the entire surface instead of bearing only two rows of these, but the tergites each with a similar deep transverse furrow. It also differs in the last tergite, which does not surpass the valves and does not bear the caudal series of long setiferous cones, these being replaced by more ordinary tubercles. Sternites, broad. Eyes, none.

Genotype—*Desmethus setifer*, new species.

10. **DESMETHUS SETIFER**, new species.

Plate 1, figs. 3-8.

Outer half of keels yellow. The dorsum with a pale median longitudinal stripe, each side of which is a broader dark brown band, the region between this dark band and the marginal yellow of the keels being a lighter brown due to an elongate pale area or group of light dots on each tergite. Middle region of vertex and front of head brown, the lateral portions yellow, as is also the clypeal region. Venter yellow. Antennae and legs yellow, a little infuscated distally. Body broad, five times longer than wide. Head minutely granular, bearing numerous short setae. Gnathochilarium as shown in plate 1, figure 6. The first tergite is anteriorly widely emarginate, the keels being rounded and bent forward and thus leaving the head entirely uncovered. All tergites densely covered above over their entire surfaces out to the ends of the keels with small tubercles or

broader than the keels of the preceding segment, which surpass it a little. Its caudal margin convex. Surface covered with numerous setiferous granules as with the other tergites, with six tubercles along the caudal margin bearing long setae, but these tubercles much smaller than the corresponding cones characterizing *Platydesmus*; the tergite not surpassing the anal valves which are not granular but bear numerous short setae. The sternites are also all subdensely setose. Those in the middle region very broad, the width nearly equal to the combined length of the first two joints of the legs. In going forward and backward from the middle region the sternites become progressively narrower. Legs all shortly setose.

Gonopods of male as shown in plate 1, figures 7 and 8.

Length, 16 mm.; width, 3.2 mm.

Locality.—Guatemala: San Rafael, numerous specimens (O. F. Cook, June 4, 1914).

Type.—Cat. No. 814, U.S.N.M.

Family SIPHONOPHORIDAE.

Genus SIPHONOPHORA Brandt.

11. SIPHONOPHORA BARBERI, new species.

Plate 2, figs. 1-5.

Yellow, of a usually reddish cast, with dorsum dusky and typically showing a median longitudinal black line or stripe. Head rather narrow, widest at base. Beak about equal in length to the head, a little curved. The antennae are heavy and conspicuously clavately enlarged, obviously thicker distally than at middle. The antennae exceed the beak, the latter reaching to the middle of the sixth article (see pl. 2, fig. 1). The collum is subangularly widely excised in front, sides converging forward, as shown in the figure. Pleurites of anterior and of posterior regions as shown in plate 2, figures 2 and 3.

Gonopods as represented in plate 2, figures 4 and 5.

Number of segments, 68 to 82.

Length, up to 30 mm.; the corresponding width, 1.2 mm.

Locality.—Guatemala: Jocalo, many specimens (H. S. Barber).

Type.—Cat. No. 815, U.S.N.M.

12. SIPHONOPHORA TELANA, new species.

Plate 2, figs. 6-8.

Yellow, a little dusky, the head darker.

Differs obviously from the preceding species in its more globose head and much shorter rostrum, the latter shorter than the head, but longer than in the Guatemalan *S. globiceps* Pocock (pl. 2, fig. 6).

Antennae clavate. Collum with sides nearly straight, converging cephalad. Anterior margin widely incurved, not straight, as represented for *globiceps*, as shown in the figure. Anterior and posterior pleurites as shown in plate 2, figures 7 and 8.

Number of segments, female, 94.

Length, 25 mm.

Locality.—Honduras: Tela, one female (W. M. Mann).

Type.—Cat. No. 816, U.S.N.M.

13. SIPHONOPHORA FALLENS, new species.

Plate 3, figs. 1-4.

Yellow, with a series of small, lighter spots along the side. Head subglobose, with beak very short, as in *S. globiceps*. The antennae are more evenly clavate than in the latter species, the sixth article thickest, whereas in the other form the antenna is of nearly uniform width over middle and distal sections; rather abruptly much thicker than at base (see pl. 3, fig. 1). Anterior margin of collum widely and not deeply concave, as shown in the figure. Pleurites of anterior and posterior regions as shown in plate 3, figures 2 and 3.

Gonopods as represented in plate 3, figure 4.

Number of segments, male, 55 to 60.

Length, 15 mm.

Locality.—Guatemala: Joyabaj-Chiché, six specimens (O. F. Cook, May, 1906).

Type.—Cat. No. 817, U.S.N.M.

A much smaller species than *S. globiceps*, differing in form of antennae, as well as in gonopods, etc.

14. SIPHONOPHORA GLOBICEPS Pocock.

Siphonophora globiceps Pocock, Biol. Centr.-Amer., Diplop., 1903, p. 41, pl. 5, figs. 6-6a.

Locality.—Guatemala: Purula, Santa Rosa, five specimens (O. F. Cook, May, 1906).

These specimens agree with the original description and figures as to form of head, beak, and antennae. They are, however, decidedly broader in proportion to length. The largest specimen is 34 mm. long and 2 mm. wide, while a specimen 18 mm. long is 1.2 mm. wide. Pocock gives his type as 21 mm. long and 1 mm. wide. The specimens in hand are also much darker in color—dusky brown. However, since Pocock had but a single specimen and the present ones are from the same locality as his, I believe there is scarcely room for doubt that they represent the same species.

15. SIPHONOPHORA PROGRESSOR, new species.

Plate 3, figs. 5-7; plate 4, figs. 1, 2.

Dusky yellow, excepting at ends, which are clearer yellow and often of a weakly ferruginous cast. Head anteriorly rounded, only slightly conical at base of beak. Sides subparallel, flaring outward at extreme base. Beak as long as head, slender (pl. 3, fig. 5). Antennae exceeding beak by their sixth and seventh articles, or nearly that amount. Second article clavately widening, the remaining portion of antennae of nearly uniform width to the small last article (pl. 3, fig. 5). Collum with sides convex; anterior margin deeply incurved at middle, as shown in the figure. Body not keeled, uniformly and very shortly pilose. Pleurites of anterior and posterior region as shown in outline in plate 4, figures 1 and 2.

Gonopods of male as represented in plate 3, figures 6 and 7.

Number of segments in female, 137 to 173. A small male, thought to be the same species, has only 99 segments.

Length, female, 60 mm.; male, 26 mm.

Locality.—Honduras: Progreso, three females and one male (W. M. Mann).

Type.—Cat. No. 818, U.S.N.M.

Superfamily STEMMIULOIDEA.

Family STEMMIULIDAE.

Genus STEMMIULUS Gervais.

16. STEMMIULUS BIOCULATUS Gervais.

Julus (Stemmiulus) bioculatus GERVAIS, Ann. Soc. Ent. France, 1844, ser. 2, vol. 2, p. 28; Ann. Sci. Nat., 1844, p. 70, pl. 5, fig. 11; Ins. Apt., 1847, vol 4, p. 200.

Stemmiulus bioculatus Pocock, Biol Centr.-Amer., Diplop., 1909, p. 109.

Locality.—Panama: Punta Sabana, Darien.

Genus PROSTEMMIULUS Silvestri.

17. PROSTEMMIMULUS RELICTUS, new species.

Plate 4, figs. 3-12.

Body blackish above, becoming paler, fulvous, down the sides and yellow ventrally; a median dorsal longitudinal fulvous stripe which expands on each tergite; a row of light spots along each side above and also one just ectad of legs. Head with two ocelli on each side, of which the lower one is proportionately larger than it is in *P. cooki*, new species (pl. 4, fig. 3). Antennae long and slender, the

sixth article about twice as long as thick (pl. 4, fig. 8). Gnathochilarium of male as shown in plate 4, figure 7. Collum with three complete longitudinal ridges below and a fourth broader one crossing only the caudal border above these (pl. 4, fig. 3). The second and the immediately succeeding tergites strongly ridged beneath, the ridging becoming weaker in going caudad. The oblique striae across metazonites on median segments extend upon dorsum, the two series almost in contact anteriorly, leaving a triangular mid-dorsal area free from them posteriorly on each segment. Transverse sulcus sharply impressed, angulate at dorsal line.

The legs of first, second, and third pairs of male as shown in plate 4, figures 4, 5, and 6.

Gonopods of male as shown in plate 4, figures 11 and 12.

Sternites of ninth segment are represented in plate 4, figures 9 and 10.

Number of segments, 44.

Length, about 28 mm.; width, 2.2 mm.

Locality.—Honduras: La Ceiba, one male (W. M. Mann).

Type.—Cat. No. 819, U.S.N.M.

The gonopods of the specimen are broken.

18. PROSTEMMIULUS LOMBARDIAE, new species.

Plate 5, figs. 1-4.

Brown throughout, darker over dorsum, the usual two series of paler spots along each side visible under lens, but no trace of mid-dorsal pale line. Anal segment and collum not differently colored. Legs yellowish, the antennae brown. Head with two ocelli on each side, of which the lower or anterior is much the smaller. The antennae are slender, with the sixth article nearly uniformly cylindrical, scarcely thicker distally than proximally and a little more than twice as long as thick (pl. 5, figs. 1 and 2). Collum with three longitudinal striae across ventral end, these setting off two ridges much less elevated and sharp than the corresponding ones in *relictus*. No striae above the uppermost of these three (pl. 5, fig. 1). Second tergite striate beneath. Striae on succeeding tergites rising higher and higher and first reaching the middorsal region on the twelfth segment. Papillae of last segment 3+3, as usual, the setae moderate in length.

Sternites of form shown in plate 5, figures 3 and 4.

Number of segments, 42.

Length, 12 mm.; width, 1 mm.

Locality.—Honduras: Lombardia, one female (W. M. Mann).

Type.—Cat. No. 820, U.S.N.M.

19. *PROSTEMMIULUS COOKI*, new species.

Plate 5, figs. 5-12.

Body in general dark brown or fuscous. A narrow, median, longitudinal stripe of fulvous or light orange color, the stripe constricted over the anterior portion of each segment. Collum and last segment also light orange in color, as is the lower part of face. Head with two ocelli on each side, of which the anterior is the smaller, as usual, but relatively larger than in, for example, the Costa Rican *P. picadoi* Silvestri (pl. 5, fig. 5). Antenna long and slender, the sixth joint about twice as long as thick. Collum typically with four longitudinal, deep striae on each side or with two complete and several shorter ones (see pl. 5, fig. 5). Second tergite deeply striate beneath, the striae on succeeding segments more numerous and extending farther dorsad, but in no case present in the median dorsal region.

The legs of first, second, and third pairs of the male as shown in plate 5, figures 6 to 8; leg of seventh segment in plate 5, figure 12.

Sternites as shown in plate 5, figures 9, 10.

Gonopods of male as represented in plate 5, figure 11.

Number of segments, 46 to 51.

Length, 28 mm.; width, 2 mm.

Locality.—Guatemala: Joyabaj, several males and females (O. F. Cook, May, 1906).

Type.—Cat. No. 821, U.S.N.M.

20. *PROSTEMMIULUS TRISTANI* Silvestri.

Prostemmiulus tristani SILVESTRI, Boll. Lab. Zool. Portici, 1916, vol. 10, p. 326, figs. xxxiv, 1-14.

Locality.—Costa Rica: La Estrella.

21. *PROSTEMMIULUS PICADOI* Silvestri.

Prostemmiulus picadoi SILVESTRI, Boll. Lab. Zool. Portici, 1916, vol. 10, p. 327, figs. xxxv, 1-4.

Locality.—Costa Rica: La Estrella.

Superfamily CHORDEUMOIDEA.

Family CRASPEDOSOMIDAE.

Genus CLEIDOGONA Cook and Collins.

22. *CLEIDOGONA CEIBANA*, new species.

Plate 6, figs. 1-6.

Lower part of sides, venter, and legs pale fulvous, the legs darkened distally. Upper part of sides and dorsum brown, with a series of paler areolated spots along each side. Upper part of head and

the antennae brownish over a pale background. Ocelli about 25 in five series; thus: 7, 6, 5, 4, 3. Segments with sides weakly elevated or longitudinally ridged on each side, the lateral setiferous tubercle arising from caudal end of the ridge. Caudal margin of segments gently sinuate, bulging convexly near or just below level of the lateral tubercle and concave just above and below this. In the ninth legs of the male the first joint is nearly as long as the second; it is thick proximally and bends a little and narrows just distad of the middle, being somewhat compressed in the dorsoventral direction; process on basal part small. The second joint is strongly clavate and is a little constricted near the middle. The tenth legs of the male have the usual coxal pouches, from which, in the type, conspicuous clavate processes are extruded (see pl. 6, fig. 1). The eleventh legs of the male have the usual coxal process, which is a little curved at the distal end, and the coxal pouches, which give rise to processes similar to those of the tenth legs, but smaller (pl. 6, fig. 2). The process from the sternite between the twelfth legs is large and is remarkable in being furcate anteriorly, the branches extending each side of the gonopods (see pl. 6, figs. 3 and 4).

The gonopods are represented in plate 6, figures 5 and 6.

Length, about 15 mm.

Locality.—Honduras: La Ceiba, one male (W. M. Mann).

Type.—Cat. No. 822. U.S.N.M.

23. CLEIDOGONA STOLLI Pocock.

Cleidogona stollii Pocock, Biol. Centr.-Amer., Diplop., 1903, p. 52, pl. 5, figs. 8-8c.

Locality.—Guatemala: Volcan de Agua.

Superfamily NANNOLENOIDEA.

Family NANNOLENIDAE.

Genus EPINANNOLENE Brölemann.

24. EPINANNOLENE PITTIERI Brölemann.

Epinannolene pittieri BRÖLEMANN, Ann. Soc. Ent. France, 1903, vol. 72, p. 136, pl. 50, figs. 3-7.

Locality.—Cocos Island.

25. EPINANNOLENE BICORNIS Brölemann.

Epinannolene bicornis BRÖLEMANN, Ann. Soc. Ent. France, 1905, vol. 74, p. 356, pl. 9, fig. 16.—Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 107.

Locality.—Costa Rica: Cariblanco.

Superfamily SPIROSTREPTOIDEA.

Family SPIROSTREPTIDAE.

Genus GYMNOSTREPTUS Brölemann.

26. GYMNOSTREPTUS LAETUS, new species.

Plate 6, figs. 7-9.

Dorsally the prozonite and anterior portion of metazonite olive or in part of a somewhat bluish tinge, the posterior part of metazonite banded with reddish brown or ferruginous. Legs light reddish yellow. Sulcus present across vertex of head. Head with irregularly impressed lines on each side adjacent to collum. Eyes transversely elongate, angled at mesal ends. Ocelli in six series, as 11, 10, 9, 7, 5, 3. Collum not inflexed beneath, the lower anterior corner less rounded than the lower posterior, the inferior margin weakly convex. Above lower margin a series of four striae, the limiting ridges of which end at the anterior marginal thickening, and typically a short stria between second and third that does not extend forward to the middle, or with three striae above and two or three shorter ones below them (pl. 6, fig. 7). The segments in general have the metazonites dorsally strongly punctate and further roughened with intervening anastomosing rugae. Prozonites also densely punctate, but the punctae smaller on the average and the rugae less developed. Metazonites longitudinally striate below pore, with the upper striae short, not extending far from sulcus. Pore small, well removed from sulcus. Anal tergite strongly roughened with punctae and a close network of rugae, without distinct transverse furrow. Anal valves exceeding the tergite; borders strongly compressed and elevated. Anal sternite or scale short and broad, the caudal side very obtusely angled (pl. 6, fig. 8).

Gonopods of male as shown in plate 6, figure 9.

Length, about 78 mm.; width, 5 mm.

Locality.—Guatemala: Joyabaj, one male and two females (O. F. Cook, May, 1906).

Type.—Cat. No. 823, U.S.N.M.

May readily be distinguished from *vagans* in having the tergites strongly punctate as well as rugose instead of being rugose only, in the greater distance of the segmental sulcus from the pore, in the different form of the collum, and in the structure of the gonopods.

27. GYMNOSTREPTUS VAGANS, new species.

Plate 6, fig. 10; plate 7, fig. 1.

The general color is grayish brown, with a caudal band of ferruginous. Legs fulvous. Head smooth. Sulcus present only across vertex. Eyes acutely angled at mesal ends, separated from each other

by a little more than their greatest diameter (once and a sixth); ocelli in six transverse, curving series, as 12, 11, 9, 7, 6, 3. Collum angled below on each side, corner behind angle obliquely excised and the anterior corner widely excised. Above lower angle a series of five longitudinal ridges uniting with the elevated margin anteriorly. The lower angle not inflexed (pl. 6, fig. 10). Segmental furrow deeply impressed across dorsum, its anterior face or wall subvertical, its posterior one widely slanting. Surface caudad of furrow roughened with densely arranged anastomosing rugae or ridges, which are chiefly longitudinal and part of which cross the furrow to its anterior edge. Surface in front of furrow similarly roughened, but the ridges much finer. Metazonite deeply striate below, the striae defined by ridges. Covered portion of prozonites marked with transverse encircling striae, as usual. Pores beginning on sixth segment. Last tergite caudally obtuse, much exceeded by the valves. Surface roughened with a dense network of fine rugae and crossed between caudal end and middle by a transverse furrow, a smaller furrow occurring also near the end. Mesal borders of anal valves strongly compressed and elevated, in profile weakly convex. Anal scale short and broad, caudally very obtusely angular, the surface densely punctate.

The gonopods as shown in plate 3, figure 1.

Number of segments, 59.

Length, 80 mm.; width, 5 mm.

Locality.—Guatemala: Candalaria Rocks, Scamay Estuary, one male, June, 1904; Trece Aguas, one lighter colored male, taken July, 1907.

Type.—Cat. No. 824, U.S.N.M.

28. GYMNOSTREPTUS PACIFICUS, new species.

Plate 7, figs. 2-4.

Olive, the caudal borders of segments ringed with fulvous or fulvo-ferruginous. Legs reddish brown. Head smooth and shining. The usual sulcus across vertex distinct. Eyes angled at mesal end, a little more than their diameter (about once and a sixth) apart. Ocelli in six or seven series, as 12, 11, 9, 7, 6, 4, 1. Collum a little inflexed below, with lower inferior corner moderately produced, in the male apically rounded. Above lower end with seven or eight striae, of which the uppermost is deepest, the others decreasing in depth or height of limiting ridge in going ventrad. The number of striae in the female fewer—five or six (pl. 7, figs. 2 and 3). Metazonites covered dorsally with a dense, close network of rugae, with meshes punctiform or but little elongate. Prozonites without distinct rugae, but punctate, the punctae fine. Pores small, remote from the sulcus,

but clearly in front of middle of metazonite. Striae immediately below pore weaker and incomplete. Anal tergite not covering valves, obtusely rounded behind; surface densely reticulo-rugose and punctate, with a shallow transverse depression in front of caudal end. Valves with margins compressed and elevated; surface densely finely punctate. Anal sternite very obtusely angled behind, wide, and short.

Gonopods shown in plate 7, figure 4.

Number of segments, 65 to 69.

Length, up to about 100 mm.; width, from 5 to 6 mm.

Locality.—Costa Rica: Santo Domingo de San Mateo, several males and females (W. R. Maxon, May 16, 1906).

Type.—Cat. No. 825, U.S.N.M.

May be distinguished from *G. laetus* in not having the rugae so sharply defined and not so dominantly longitudinal, as well as in the clearly different form of the gonopods. It is a larger and darker form, with legs dark reddish brown instead of light yellowish.

Genus ORTHOPORUS Silvestri.

29. ORTHOPORUS ABSCONSUS, new species.

Plate 7, figs. 5-8.

General color fuscous, with the paler annuli in the type not pronounced. A fine sulcus across vertex joining a transverse line between angles of eyes. No median sulcus below. The frontal and clypeal region roughened with coriarius impressions. Eyes separated by their longer diameter; mesal angle acute. Collum not truly inflexed below; on each side with six or seven striae, of which the uppermost is limited below by a pronounced ridge, the others with limiting lower edges weaker (pl. 7, fig. 5). Dorsal region of segments in general densely and strongly punctate, both in front of and behind the sulcus, the latter cross ribbed. Striae on sides and below sharply impressed across metazonite. Anal tergite not covering the valves; obtusely angled behind; surface densely coarsely punctate and puncto-rugose. The valves similarly roughened. Anal scale as shown in plate 7, fig. 6.

Most readily recognized by form of gonopods, as represented in plate 7, figures 7 and 8.

The number of segments is uncertain, as the type was broken into pieces mingled with those of other specimens; but it is probably near 69.

Width, 4 mm.

Locality.—Costa Rica: Santo Domingo de San Mateo, Pacific side, one male in vial with specimens of *G. laetus* (W. R. Maxon).

Type.—Cat. No. 826, U.S.N.M.

30. ORTHOPORUS DISCRIMINANS, new species.

Plate 8, figs. 1-4.

Body with the usual alternating bands, these of bluish tinge and brown or ferruginous, the bands of latter color about caudal region of segments. Legs reddish brown. Sulcus on head present only across vertex, weak, its anterior end lying in a depression. Head smooth. Eyes their longer diameter apart. Collum not inflexed below, the lower end on each side of the usual general form. Above margining sulcus three deep sulci limited each by a ridge below it (pl. 8, fig. 1). Segments in general minutely punctate in front of segmental sulcus dorsally, behind sulcus more coarsely punctate and with anastomosing rugae, particularly on more posterior portions, these fading out toward sulcus. The rugae less sharply defined than in, for example, *lactus*. Striate below level of pore, with the uppermost striae short and weaker. Anal tergite not covering the valves, rounded caudally; crossed in front of caudal end by a transverse depression or furrow; surface densely punctate, also with a network of weak, fine rugae. Valves punctate. Anal sternite broadly triangular, the apical angle obtuse (pl. 8, fig. 2).

Gonopods of male as shown in plate 8, figures 3 and 4.

Number of segments, near 56.

Length, about 65 mm.; width, 4 mm.

Locality.—Guatemala: Pancajche, one male, June, 1904.

Type.—Cat. No. 827, U.S.N.M.

Characterized by sculpturing and particularly by the form of the gonopods, the large process at distal end of the anterior pair extending cephalad of ectad across telopodite of posterior pair being a readily noted distinctive feature.

31. ORTHOPORUS COBANUS, new species.

Plate 8, figs. 5-7.

Segments each of a somewhat bluish brown color anteriorly and with a caudal, rather broad band of more reddish brown or ferruginous color, or sometimes fulvous, this caudal band often also encroaching on the prozonite of succeeding segment. Anal segment dark. Legs dark reddish brown. Head smooth. Sulcus present only on vertex, rather weak. The eyes small and widely separated, being twice their diameter apart. Ocelli in five series, as 9, 8, 7, 5, 2. Collum truncate at each end below, both the anterior and the posterior angles obtuse, the latter the more rounded. Above lower margin three long striae curving upward anteriorly and, typically, a short one above and one below the lowermost of these (pl. 8, fig. 5). Sulcus of segments deeply impressed throughout, over dorsum

crossed by fine and well separated ridges or ribs. Dorsal surface behind the sulcus densely punctate, in part with an obscure network of obsolete fine ridges. Longitudinal striae on metazonite begin just below the pore, the two or three uppermost of these on segments in middle region being short, the others complete. Dorsum in front of sulcus more finely punctate, the punctae disappearing anteriorly. Pores beginning on sixth segment, each well removed from the sulcus. Last tergite obtuse and rounded caudally, exceeded by the valves, densely finely punctate. Valves with mesal margins moderately compressed and elevated. Anal scale triangular, wider than long, the caudal angle rounded.

Gonopods as shown in plate 8, figures 6 and 7.

Number of segments in male, 63.

Length, about 57 mm.; width, 4.5 mm.

Localities.—Guatemala: Coban-Tache (type locality), two males and a female, May, 1904; Coban, coffee plantation, two males and a female, May, 1904; Sepaiuite, one female, May, 1904; Secanquim, several females of mostly larger size (G. P. Goll, December, 1905); Joyabaj, several males and females, May, 1906; Trece Aguas, one male, June, 1907.

Type.—Cat. No. 828, U.S.N.M.

32. ORTHOPORUS CONFRAGOSUS (Karsch).

Spirostreptus confragosus KARSCH, Zeits. Ges. Naturw., 1881, ser. 3, vol. 6, p. 44.

Spirostreptus (Scaphiostreptus) confragosus BRÖLEMANN, Ann. Soc. Ent. France, 1905, vol 74, p. 367, pl. 9, fig. 20; pl. 10, fig. 21.

Orthoporus confragosus POCOCK, Biol. Centr.-Amer., Diplop., 1909, p. 101.

Locality.—Costa Rica: San José.

33. ORTHOPORUS FESTAE (Silvestri).

Plusioporus festae SILVESTRI, Boll. Mus. Torino, 1896, vol. 11, No. 254, p. 3.

Orthoporus festae POCOCK, Biol. Centr.-Amer., Diplop., 1909, p. 102.

Locality.—Panama: Isthmus of Darien, Punta Sabana.

34. ORTHOPORUS RODRIQUEZI (Brölemann).

Spirostreptus rodriguezi BRÖLEMANN, Mém. Soc. Zool. France, 1900, vol. 13, p. 104, pl. 6, fig. 47; pl. 7, fig. 58.

Orthoporus rodriguezi POCOCK, Biol. Centr.-Amer., Diplop., 1909, p. 103.

Locality.—Guatemala.

35. ORTHOPORUS RODRIQUEZI CORIACEUS (Brölemann).

Spirostreptus rodriguezi coriaceus BRÖLEMANN, Mém. Soc. Zool. France, 1900, vol. 13, p. 106.

Orthoporus rodriguezi, var. *coriaceus* POCOCK, Biol. Centr.-Amer., Diplop., 1909, p. 103.

Locality.—Guatemala.

Genus *DIAPORUS* Silvestri.36. *DIAPORUS CULEBRAE*, new species.

Plate 8, figs. 8, 9; plate 9, fig. 1.

Brown or olive brown about caudal and cephalic borders of segments, with the middle band ferrugino-testaceous. Collum olive brown, with borders bright ferrugino-testaceous. Legs a somewhat reddish yellow. Head smooth, with sulcus across vertex fine. Eyes angled at mesal end, about once and a third their longer diameter apart. Ocelli in six or seven series, as 11, 11, 10, 9, 5, 2. Collum moderately inflexed below, the inflexed portion limited above by a strong ridge, which is swollen into a large rounded tubercle at the caudal edge and curves mesad anteriorly, fading out toward dorsum. Below and parallel with this ridge are five or six deep striae (pl. 8, fig. 8). Segments with the encircling sulcus deep and complete. Surface in general densely but finely punctate, at most weakly or obscurely rugose. Striate beneath and on lower part of sides, the striae not extending up to level of pore, or with a few short striae between pore and uppermost complete stria. The anal tergite very obtusely angled behind; the caudal end abruptly depressed and sharply set off from the main part of plate; surface densely punctate and a little roughened with a fine network of weak or obscure rugae. The anal valves exceeding the tergite; mesal borders compressed and elevated; densely finely punctate. Anal sternite very wide and short, the caudal margin nearly straight, being only slightly angled at the middle (pl. 8, fig. 9).

The gonopods of the male most resemble those of *D. chiriquensis* (Pocock); but the telopodite of the anterior pair does not have the terminal portion crescentic, the distal process long, and the distal end of the posterior gonopod is different in form (pl. 9, fig. 1).

Number of segments, 57.

Length, about 67 mm.; width, 5 mm.

Locality.—Panama: Culebra, Canal Zone, one male (W. M. Wheeler, November, 1911).

Type.—Cat. No. 5,016, M.C.Z.

37. *DIAPORUS PALMENSIS* (Brölemann).

Spirostreptus (*Scaphiostreptus*) *typotopyge palmensis* BRÖLEMANN, Ann. Soc. Ent. France, 1905, vol. 74, p. 362, pl. 9, fig. 18.

Orthoporus palmensis Pocock, Biol. Centr.-Amer. Diplop., 1909, p. 96.

Locality.—Costa Rica: La Palma.

38. *DIAPORUS CHIRIQUENSIS* (Pocock).

Orthoporus chiriquensis Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 97, pl. 8, fig. 2.

Locality.—Panama: Volcan de Chiriqui.

39. **DIAPORUS OMALOPYGE** (Brölemann).

Spirostreptus (*Scaphiostreptus*) *omalopyge* BRÖLEMANN, Ann. Soc. Ent. France, 1905, vol. 74, p. 365, pl. 9, fig. 19.

Orthoporus omalopyge Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 103.

Locality.—Costa Rica: La Palma, Carillo, Caché.

40. **DIAPORUS TYPOTOPYGE** (Brölemann).

Spirostreptus (*Scaphiostreptus*) *typotopyge* BRÖLEMANN, Ann. Soc. Ent. France, 1905, vol. 74, p. 359, pl. 9, fig. 17.

Orthoporus typotopyge Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 95.

Localities.—Costa Rica: La Palma; Sururbres, near San Mateo; Caché, Cariblanco.

Superfamily JULOIDEA.

Family PARAJULIDAE.

Genus **PARAJULUS** Humbert and Saussure.41. **PARAJULUS STYLIFER** Pocock.

Parajulus stylifer Pocock, Biol. Centr.-Amer., Diplop., 1903, p. 57, pl. 5, figs. 11, 11a.

Locality.—Guatemala.

42. **PARAJULUS LEUCOCLIUS**, new species.

Plate 9, figs. 2-8.

General color fuscous, of bluish cast, paler around caudal border of each segment. Collum and the three following tergites and the lower and lateral portions of head fulvous, contrasting sharply with the following region of body, these lighter tergites under lens showing a network of dark lines. Anal valves and at least the lateral region of preceding one or two tergites also fulvous. Small dark spots (over repugnatorial glands) visible along sides, at least in posterior region. Segmental suture deeply impressed, slightly excurved opposite core, the curving portion long. Pore on middle segments at least its diameter from the suture. Anal tergite produced much beyond the valves, straight to the slender tip, which is distally slightly curved upward (pl. 9, figs. 3, 4). In the male the cardo of the mandible is broadly produced and extends in two angles, as shown in plate 9, figure 2. The collum of the male is long, as usual. Both lower angles are well rounded, but the anterior one more widely so than the posterior. Above the margin are two longitudinal striae, of which the upper one is the more distinct (pl. 9, fig. 2). First legs of male strongly swollen, the tibia flattened on mesal side, much broader than the femur, its anterior side convex, its caudal side straight. Penult segment much more slender, narrowing distad. Second legs of male with median processes, as shown as

plate 9, figure 5. The anterior gonopods have the inner processes unusually broad proximally, narrowing distally, the ectodistal angle rounded, and the mesodistal one acute. Posterior gonopods as shown in the figures (see pl. 9, figs. 6-8).

Number of segments 42 to 46.

Length, 25 mm.

Locality.—Guatemala: Actele, two males and a young female (O. F. Cook, May 2, 1906); Tectic, Santa Rosa, two females (O. F. Cook, 1906).

Type.—Cat. No. 829, U.S.N.M.

Superfamily SPIROBOLOIDEA.¹

Genus RHINOCRICUS Karsch.

43. RHINOCRICUS NICARAGUANUS, new species.

Plate 9, figs. 9-11.

Anterior region of segments light olive, with a pinkish band just back of suture and the caudal border banded with deep red or reddish black. Collum olive, with anterior and posterior borders deep red. Legs fulvous. Head smooth. Sulcus widely interrupted in frontal region, the upper end of its lower division lying in a depression. Sensory cones of antennae very numerous. Collum smooth, widely rounded below. Second tergite extending much below level of collum, not excavated, the anterior edge beneath collum oblique. Sulcus complete. Sulci on following tergites also complete, but becoming obscure on the last several segments, a little curved opposite the pore, which is well removed. Tergites smooth and shining, striate only beneath. Scobina with anterior impression transversely elliptic, the posterior striate area pointed behind, the scobina widely separate from each other (pl. 9, fig. 11). Anal tergite bluntly rounded behind, much exceeded by the valves. Anal sternite short and wide, broadly trapeziform, the caudal-margin straight, the posterior angle rounded (pl. 9, figs. 9, 10).

Number of segments, 43.

Length, 100 mm.; width, 12 mm.

Locality.—Nicaragua: Chontales Camoapa, one female (W. R. Richardson).

Type.—Cat. No. 5,017, M.C.Z.

¹The family names under Spiroboloidea have been purposely omitted because of the present unsettled classification, due largely to lack of detailed morphological knowledge of a considerable number of genera.

44. RHINOCRICUS WHEELERI, new species.

Plate 10, figs. 1-3.

Black above, fulvous over lower part of sides and venter. Legs yellow. Head smooth. The sulcus continuous across vertex and down to labral margin. Collum without striae excepting a fine longitudinal one at level of eye on each side, extending across anterior border only.

This form differs from other Central American species in having an anterior or secondary sulcus deeply impressed across dorsum, whereas the primary sulcus is obliterated above. The secondary sulcus takes its origin above the pore and lies in front of the level of the latter. In this respect it is like the Mexican *R. omilteme* Pocock, but may be distinguished from the latter in having the scobina present back as far as the thirty-sixth segment instead of ceasing at the fifteenth. The scobina consist of a deeply impressed concentric pit at the anterior edge, followed by a posteriorly pointed area of fine cross striae. Sides of segments obliquely striate below level of pore, as usual, the uppermost of these striae curving dorsad in front of the pore.

Anal tergite obtuse behind, the angle rounded, exceeded by the valves. Valves compressed moderately, but not margined. Anal scale triangular, the caudal angle narrowly rounded (see pl. 10, figs. 1, 2).

In the form of the telopodite of the posterior gonopods also suggesting *R. omilteme*, but this longer, and the branches differing in form, as represented in plate 10, figure 3.

Number of segments, 43 to 45.

Length, 42 mm.; width, 3.5 mm.

Locality.—Costa Rica: Port Limon, three specimens (W. M. Wheeler, November, 1911).

Type.—Cat. No. 5,018, M.C.Z.

45. RHINOCRICUS CENTRALIS, new species.

Plate 10, figs. 4-6.

Segments olive brown, encircled caudally with band of reddish brown or rust color. Legs yellow. Head smooth. Sulcus sharply impressed, interrupted in frontal region. Antennae with sixth joint large, the last bearing very numerous sensory cones. Collum widely rounded below. A margining sulcus below, which extends a short distance up the anterior border. Surface with coriarius impressed lines, which are coarser and more numerous at level of eye and a little below it on each side, where the surface is typically depressed. Sec-

ond tergite as in *nicaraguanus*, or nearly so. Sulcus obscure in mid-dorsal region. The tergites in general smooth, with striae only beneath. Sulcus complete, but not deep across dorsum. The scobina with anterior impression widely and narrowly elliptic; the striate area wider anteriorly than the elliptic impression, narrowing caudad. Scobina present back to the fifth or sixth segment from caudal end, but the most posterior ones lacking the anterior impression. Caudal process of last tergite acute in general outline, but rounded at end. The anal valve broadly subtrapeziform, but the caudal side very obtusely angular, thus giving in reality five sides (see pl. 10, fig. 4).

Gonopods as shown in plate 10, figures 5 and 6.

Number of segments in male type, 45.

Length, about 88 mm.; width at middle 11 mm., at penult segment 7 mm., anteriorly 9.5 mm.

Locality.—Costa Rica, one male (Bergdorf and Schild), Acc. 38, 962.

Type.—Cat. No. 830, U.S.N.M.

Resembles *R. tristani* Pocock, but differs in larger size, coloration, form of telopodite of posterior gonopods, and in form of scobina.

46. RHINOCRICUS SIMULANS, new species.

Plate 10, figs. 7-10.

Through long preservation with drying the type does not show the original coloration clearly. It seems, however, to have been a shade of olive, with a caudal ferruginous border on each segment narrower than that of *centralis*. Legs and antennae yellowish. Sensory cones of antennae numerous. Ocelli in six transverse series in each eye, about 32 in number. The collum of the usual general form, smooth. Margining sulcus not extending at all up anterior margin. Second tergite produced below, as in the preceding species. The sulcus obscure dorsally. Sulcus on the following tergites complete. Surface smooth, with the usual striation beneath. Scobina formed nearly as in *centralis* (see pl. 10, fig. 8); present back to eighth from last segment. The anal tergite extending over valves above, or nearly so. The last sternite differing conspicuously from those of the preceding two species in being strictly triangular, the sides straight, or nearly so, and meeting in a slightly obtuse angle behind (pl. 10, fig. 7).

Gonopods as shown in plate 10, figures 9 and 10.

Number of segments, 45.

Length, about 85 mm.; width, 10 mm.

Locality.—Costa Rica (C. Bergdorf and P. Schild), U.S.N.M. Acc. 38,962.

Type.—Cat. No. 831, U.S.N.M.

47. RHINOCRICUS STOLLI Pocock.

Rhinocriscus stolli Pocock, Biol. Centr.-Amer., Diplop., 1907, p. 62, pl. 6, fig. 2.

Localities.—Guatemala: Chalhuitz; Coban, Samac coffee plantation, one male (O. F. Cook, May, 1904).

The type was a female from Chalhuitz.

48. RHINOCRICUS ROGERSI Pocock.

Rhinocriscus rogersi Pocock, Biol. Centr.-Amer., Diplop., 1907, p. 61, pl. 5, figs. 12-12b.

Locality.—Costa Rica.

49. RHINOCRICUS APOSEMATUS Pocock.

Rhinocriscus aposematus Pocock, Biol. Centr.-Amer., Diplop., 1907, p. 63, pl. 6, figs. 4-4c.

Locality.—Costa Rica: Santa Clara.

50. RHINOCRICUS TRISTANI Pocock.

Rhinocriscus tristani Pocock, Biol. Centr.-Amer., Diplop., 1907, p. 63, pl. 6, figs. 5a-5d.

Locality.—Costa Rica: Santa Clara.

51. RHINOCRICUS RIXI Pocock.

Rhinocriscus rixi Pocock, Biol. Centr.-Amer., Diplop., 1907, p. 64, pl. 6, figs. 6a-6e.

Locality.—Nicaragua: Chontales copper mine.

52. RHINOCRICUS SCOBINATUS Pocock.

Rhinocriscus scobinatus Pocock, Biol. Centr.-Amer., Diplop., 1907, p. 65, pl. 6, figs. 9-9e.

Locality.—Guatemala: Retalhuleu.

53. RHINOCRICUS MARCI Pocock.

Rhinocriscus marci Pocock, Biol. Centr.-Amer., Diplop., 1907, p. 66, pl. 6, fig. 11.

Locality.—Nicaragua: San Marcos.

54. RHINOCRICUS FERRUGINEUS (Daday).

Spirobolus ferrugineus DADAY, Term. füzetek, 1889, vol. 12, p. 130.

Rhinocriscus ferrugineus Pocock, Biol. Centr.-Amer., Diplop., 1907, p. 70.

Locality.—Panama.

55. RHINOCRICUS HAGEDUSSII (Daday).

Spirobolus hagedussii DADAY, Term. füzetek, 1889, vol. 12, p. 130

Locality.—Panama.

56. RHINOCRICUS OBESUS Brölemann.

Rhinocricus obesus BRÖLEMANN, Mém. Soc. Zool. France, 1900, p. 107, pl. 7, figs. 59-65.

Locality.—Guatemala.

57. RHINOCRICUS COSTARICENSIS Brölemann.

Rhinocricus costaricensis BRÖLEMANN, Ann. Soc. Ent. France, 1905, p. 375, pl. 10, figs. 26-28.

Locality.—Costa Rica: Cariblanco.

58. RHINOCRICUS NODOSICOLLIS Brölemann.

Rhinocricus nodosicollis BRÖLEMANN, Ann. Soc. Ent. France, 1905, p. 372-374.

Locality.—Costa Rica: Cariblanco.

59. RHINOCRICUS OCRACEUS Brölemann.

Rhinocricus ocraceus BRÖLEMANN, Mém. Soc. Zool. France, 1900, p. 124, pl. 8, figs. 115-119.

Locality.—Isthmus of Panama: Obispo.

60. RHINOCRICUS BIOLLEYI Brölemann.

Rhinocricus (Eurhinocricus) biolleyi BRÖLEMANN, Ann. Soc. Ent. France, 1903, p. 132, pl. 50, figs. 1-6; 1904, p. 371, pl. 10, fig. 22.

Localities.—Costa Rica: San José, Caché; Cocos Island.

61. RHINOCRICUS PLESIUS Chamberlin.

Rhinocricus plesius CHAMBERLIN, Trans Amer. Ent. Soc., 1914, vol. 40, p. 187, pl. 2, fig. 2.

Locality.—Costa Rica: Rio Oro Valley, near Caché.

62. RHINOCRICUS MUCRONATUS Brölemann.

Rhinocricus mucronatus BRÖLEMANN Bull. Soc. Ent. France, 1911, p. 120.

Locality.—Costa Rica: Caché.

OXYPYGIDES, new genus.

Differing from *Oxygge* in having a prominent ridge on corner of second tergite below and a deep and characteristic pit caudad of the mesal end of this ridge; also in having the anal tergite rounded behind instead of acute, this exceeded by the anal valves. Processes of anal valves remote from edge of tergite instead of in contact with it. The anterior impressions of the scobina are wide in all the known species.

Genotype.—*Oxygydes mesites*, new species.

This and related genera may conveniently be placed in a group Oxygyginae, characterized superficially by having a prominent, acute, caudally directed process from each anal valve. All have the collum widely, semicircularly rounded below, and all ordinary segments from the second caudad with deeply impressed and complete segmental sutures. In the known species scobina are present on all but the first few and the last few segments, and the gonopods are of the general pattern of those of *Rhinocricus*.

63. OXYGYGIDES MESITES, new species.

Plate 10, figs. 11, 12; plate 11, figs. 1, 2.

The segments are black above, or nearly so, caudad of the suture and lighter, fulvous to chestnut, in front of it, the dark color fading out down the sides in the male type, but not so much so in the large female paratype. Head smooth. Sulcus distinct across vertex and below, but obsolete at upper level of antennae. Distal joint of antennae with four sensory cones. Collum widely rounded below in the ordinary manner. A distinct sulcus above lower margin on caudal half, but this not extending to anterior corner. Second tergite produced below the collum. On its ventral, horizontal portion a submarginal ridge runs mesocaudad from the anterior corner. The furrow on caudal side of this ridge ends mesally in a deep pit. Segmental sulcus represented on lower part of side by a somewhat pitted or cross-marked furrow, behind which the segment is longitudinally straight, the furrow continuing as a clearly defined sulcus entirely across dorsum. On the following segments the sulcus is also complete and sharply defined. Striae are present only below. The pore is contiguous with the sulcus, which is not at all excurved at its level. The scobina are of characteristic form. The deep anterior impression of each is very wide, the two being separated by but little more than their width, but becoming smaller in going caudad. The posterior region of scobina short, being only about twice as long as the anterior impression, narrowed caudad. The scobina are present back to about the fifth segment from the caudal end. Anal tergite obtusely angular behind, exceeded by the valves, depressed transversely across middle of length. Anal valves moderately compressed, produced at upper angles of mesal borders into the usual pointed processes; these weakly curved and well removed from the tergite (pl. 10, fig. 11).

Anal scale as shown in plate 10, figure 12.

Gonopods as represented in plate 11, figures 1 and 2.

Number of segments, about 50.

Length, about 75 mm.; width, 6.8 to 7 mm.

Locality.—Guatemala: Cacao, a male and two females, April, 1906 (probably collected by O. F. Cook).

Type.—Cat. No. 832, U.S.N.M.

54. OXYPYGIDES LAPIDICINA, new species.

Plate 11, figs. 3-7.

Segments black in front of the suture, behind which they are ferruginous or ferrugino-fulvous, with border commonly paler. Legs and antennae brown. Head smooth and shining, a few very fine oblique striae on each side of vertex and frons. Sulcus distinct across vertex and down clypeus, interrupted in frontal region. The collum is widely rounded below in the usual manner. A margining sulcus below and usually a little way up the caudal corner, but not extending about the anterior corner. Second tergite extending much below level of collum, as in *mesites*. A prominent ridge extends from the anterior lower corner ventrad and then caudomesad on ventral surface, a deep pit lying caudad of its mesal end. Segmental sulcus deep entirely across dorsum, passing below on each side into a shallow furrow marked with impressed pits and short lines. Segments in general striate only ventrally. Sulcus deep and continuous across dorsum, as well as down sides, straight opposite pores. The pores high up. Scobina with anterior impression wide and weakly curved, the ends not bent back, the indicated outline narrowly elliptic; the striate posterior portion short, scarcely exceeding the anterior part (pl. 11, fig. 5). The anal tergite bluntly rounded behind, much exceeded by the valves. Anal valves with mesal margin strongly elevated. The caudal process well removed from caudal end of tergite, rather short, distally narrowly rounded (pl. 11, fig. 3).

Anal scale as shown in plate 11, figure 4.

Gonopods of male much shorter and smaller than in *mesites*, not or but little extruded and not crossing each other. Telopodite of form very different from that of genotype (pl. 11, figs. 6 and 7).

Number of segments, 52 to 54.

Length, male, 53 mm.; width, 5.5 mm.

Locality.—Guatemala: Candalaria Rocks, Scamay Estuary, one adult male and an immature male and female (O. F. Cook, June, 1904).

Type.—Cat. No. 833, U.S.N.M.

Two other females from the same locality may be the same species, apparently differing in no respect excepting in materially greater size, the length of the larger of the two being 83 mm., with a width of 8.5 mm. A similarly large female agreeing with these two was taken at Semacoch, Guatemala, by G. P. Goll, April, 1905.

Genus OXYPYGE Silvestri.

65. OXYPYGE VARICOLOR Silvestri.

Oxypyge varicolor SILVESTRI, Bull. Mus. Torino, 1896, vol. 11, No. 254, p. 4.

Locality.—Panama: Isthmus of Darien, Punta Sabana, and forest near Lago de Pita.

66. OXYPYGE FERRUGINIPES, new species.

Plate 11, figs. 8-12.

On each typical segment the color in front of the suture is from olive black to blue, the latter color more evident ordinarily toward the border, while behind the suture, dorsally, the color is olive black, running into brown, and then fulvous caudally, while below the pore the fulvous color extends forward to the suture and tends to be more ferruginous, excepting along the caudal border. Legs ferruginous. Anal tergite and valves olive black, excepting the caudal borders of the former and the mesal borders and caudal processes of the latter, which are ferruginous. Head smooth and shining. The sulcus widely interrupted at middle, the upper end of the lower section of sulcus more deeply impressed, beginning in a punctiform impression. Ocelli in the usual circular patch, not sharply differentiated. Antennae with four sensory cones. The collum evenly rounded below, the anterior margining sulcus extending entirely across the lower end and about the anterior corner, the border narrowing caudad. The second tergite extending a little below level of collum. The horizontal ventral portion strongly striate, with the striae bending out transversely on anterior portion as in *socius*, as in which also there is no trace of the prominent ridge and pit characteristic of species of *Oxypygides*. Segmental sulcus complete, not pitted. Only one or two longitudinal striae visible on side below in lateral view of the segment. On the following segments the segmental sulci are similarly complete and strongly marked, a little and narrowly curved about the caudal side of the pore, which is there contiguous with it. The scobina are larger than in *socius*, but much smaller than in *Oxypygides mesites* and are less than twice their width apart on the middle segments of the body. The striate area is not fully as long as the width of the anterior impression, equaling the latter in width anteriorly, but narrowing caudad, its caudal end rounded (see pl. 11, fig. 10). Scobina present back to about fourth from last segment, inclusive. The anal tergite is long and acutely pointed behind, the tip a little decurved and surpassing the valves exclusive of the processes. Processes of valves at extreme upper angle, as usual upcurved at tip. Valves with mesal borders

sharply differentiated and elevated, subvertically wrinkled or furrowed over middle portion (pl. 11, fig. 8).

Anal scale is shown in plate 11, figure 9.

Gonopods as represented in plate 11, figures 11 and 12.

Number of segments, 50.

Length, about 50 mm.; width, 4 mm.

Locality.—Guatemala: Cacao, two males (O. F. Cook, April, 1906).

Type.—Cat. No. 834, U.S.N.M.

67. *OXYPYGE CONFUSA*, new species.

Plate 12, figs. 1, 2.

Coloration as described for *ferruginipes*, but with the ferruginous bands of the segments beneath apparently more pronounced.

The structure throughout closely approximating that of the preceding species. The two forms are most readily to be distinguished from each other by differences in the scobina. On a segment of the middle region the scobina are farther removed from the anterior margin, and the anterior impressions are much narrower and more strongly curved, the ends more reflexed, and the area they limit much less narrowly elliptic in the present species than in *ferruginipes*. They are about twice their diameter apart (see pl. 12, fig. 1). The anal tergite and valves are similar, but the valves are less compressed, the border less elevated and less sharply set off, and they are wholly smooth, whereas in *ferruginipes* each one is conspicuously subvertically wrinkled across its middle region.

Unfortunately the posterior gonopods have been broken off in the type. The median plate of the anterior gonopods, etc., is shown in plate 12, figure 2.

Number of segments, 56.

Length, about 58 mm.; width, 5 mm.

Locality.—Guatemala: Cacao, one male (O. F. Cook, April, 1906).

Type.—Cat. No. 835, U.S.N.M.

68. *OXYPYGE SOCIA*, new species.

Plate 12, figs. 3-6.

This form is also black above, but the dark color covering entire segment excepting a narrow plate caudal border. Below the pore the dark color does not extend caudad of the suture, the posterior portion being brown or fulvous. Anal valves dusky fulvous, lighter on caudal borders. Legs lighter fulvous or a little ferruginous. Head smooth. Sulcus widely interrupted in the middle. Antennae with four sensory cones. Ocelli in a subcircular patch, as in the preceding species. Collum evenly rounded below, on each side a short longitudinal sulcus just above lower margin, this at anterior corner, not

behind middle, as it is, for example, in *O. mesites*. The second tergite only slightly produced below lower level of collum. Its horizontal ventral portion strongly striate, with some of the striae bending outward to the anterior corner on its anterior portion, but with no ridge or pit. Sulcus deep and complete, not pitted below. A few longitudinal sulci behind this sulcus on lower part of sides. On the following tergite the segmental sulcus is also deep and complete, curved opposite the pore which is close to it. The scobina contrast sharply with those of *mesites*, etc., of the preceding genus, the anterior impressions deep, crescentic, separated by four or five times their diameter; the posterior portion of scobina narrower than the anterior impression (see pl. 12, fig. 3). Scobina present back to fifth segment from last, inclusive. Anal tergite longer than in *mesites*, caudally acute, equaling valves proper and touching bases of processes. Processes of anal valves at extreme superior angle (pl. 12, fig. 4).

Gonopods of male as shown in plate 12, figures 5 and 6.

Number of segments, 45.

Length, about 55 mm.; width, 5 mm.

Locality.—Guatemala: Cacao, one male (O. F. Cook. April, 1906).

Type.—Cat. No. 836, U.S.N.M.

69. OXYPTYGE EQUALIS, new species.

Plate 12, figs. 7-10; plate 15, fig. 3.

Segments black dorsally excepting a narrow caudal border, on the sides and below black only in front of the suture, behind which they are fulvous. Anal valves dusky fulvous. Legs pale ferruginous. Head smooth and shining. Sulcus widely interrupted in the middle region. Eyes large and circular, the ocelli not convex and in part appearing poorly differentiated. Antennae as usual. The collum widely semicircularly rounded on each side below. A short marginal sulcus on each side. Second tergite extending below lower margin of collum, its ventral part forming a distinct, slightly obtuse angle with the lateral region. Anterior margin of ventral transverse portion bent down, as in other species of the genus. Striate below in the ordinary manner. Sulcus deep and complete across dorsum. Segmental sulcus on the following tergites also sharply marked and complete, a little curved forward about dorsocaudal edge of the contiguous pore, striate only beneath. Scobina very small; anterior impressions smaller than in *socia* and more convex, much more nearly semicircular. The anterior margin of segment between scobina is not convex, or less so than in *socia*. The anal tergite elongate and acutely produced, the tip of the cauda surpassing the valves proper and almost equaling the

processes of the latter. Anal smooth or but little roughened in caudal portion. The processes short, their apices acute and upturned (pl. 12, fig. 7).

Anal scale as shown in plate 12, figure 8.

Gonopods as represented in plate 12, figures 9 and 10.

Number of segments, 50.

Length, 4 mm.; width, 4 mm.

Locality.—Guatemala: Trece Aguas, 1 male (O. F. Cook, June 7, 1907).

Type.—Cat. No. 837, U.S.N.M.

Genus SPIROBOLUS Brandt.

70. SPIROBOLUS HOPLOMERUS Pocock.

Spirobolus hoplomerus Pocock, Biol. Centr.-Amer., Diplop., 1908, p. 76, pl. 7, fig. 5.

Locality.—Guatemala.

71. SPIROBOLUS STOLLI Pocock.

Spirobolus stollii Pocock, Biol. Centr.-Amer., Diplop., 1908, p. 77, pl. 7, figs. 3-3e, 4,

Locality.—Guatemala: Pachuta.

72. SPIROBOLUS EXIMIUS Porat.

Spirobolus eximius PORAT, Ann. Soc. Ent., Belg., 1888, vol. 32, p. 248.

Locality.—Guatemala.

OXOBOLUS, new genus.

Body large and robust, typically about eight times longer than thick, narrowing a little forward and more strongly caudad. Clypeal foveolae 2+2 or 2+3. Collum acutely narrowed down each side, the angle narrowly rounded. Anterior border raised as far dorsad as level of lower edge of eye, opposite which the margin is sinuate. Repugnatorial pore above middle of side and lying in front of the principal sulcus or suture. No scobina present. Anal valves strongly compressed. Anal scale transverse, the caudal edge straight or nearly so.

In the male the seventh legs have the coxae much enlarged and these flattened antero-caudally, carrying the legs conspicuously farther ventrad than in the more anterior pairs; the coxae and the three following joints strongly compressed ventrally, their mesal edges forming a more strongly chitinous ridge. The sixth legs in male with similar chitinous ridges. Coxae of fourth and fifth legs strongly compressed antero-caudally and produced ventrad; the coxae of third legs similarly extended ventrad but scarcely compressed.

The posterior gonopods of the male characterized by having the coxae extended ectad at right angles to the telopodite; the tracheal stalk attached at its end along its dorsal edge and to the telopodite and extending ectodorsad from end of coxa. The telopodite is biramous, with the inner piece exceeding the outer piece in length and especially in stoutness, both divisions consisting of two joints fused but showing suture plainly. At base the telopodite is produced mesad and then distad in a process united by membrane with main body of telopodite. Ventral plate of anterior gonopods small, leaving coxae wholly uncovered, or nearly so, the middle part distadly pointed. Tracheal stalks stout, in line with axis of telopodite. Coxae completely fused with femuroid at middle, broadly in contact at middle line. Telopodite clearly biarticulate; the femuroid extended completely about posterior gonopod on its caudal side; the distal joint with a process from its distomesal corner; this process blunt, a little curved ectad.

Genotype.—*Oxobolus virilis*, new species.

Distinct from other genera in the structure of the posterior gonopods. In the unusual form of the anal sternite or scale like the West Indian *Thyroproctus*; but the latter genus has gonopods of the *Rhinoericus* type.

73. *OXOBOLUS VIRILIS*, new species.

Plate 12, figs. 11, 12; plate 13, figs. 1-3.

The body of the type is light olive brown on each segment in front of the pore and dark olive caudad of it. The legs are red, the antennae a darker red. The head is irregularly furrowed between antennae and below them, in the latter region also coarsely, irregularly punctate. The sulcus is complete and deeply impressed excepting for a short distance at level of antennae. Eyes comparatively small, circular, consisting of about 23 ocelli in five vertical series. Last joint of antennae with four sensory cones. Collum with anterior margin angled or convexly bowed forward just below level of eye. From this level to lower angle a margining sulcus is present, this leaving a rather broad border. In the type a longitudinal sulcus extends from eye level caudad to posterior border, where it meets a deep transverse sulcus extending dorsad but not crossing dorsum. this latter sulcus nearly obsolete in the paratype. Second tergite extending below level of collum and excavated or depressed at lower end for reception of the angle of the latter, its lower border extending much ventrad of the transverse ventral portion. The portion left uncovered below on each side shows two principal longitudinal sulci, an upper straight one and a lower curved one which bends up dorsad

at or under the edge of the collum. In the depression for end of collum are several vertical sulci, the ends of which extend out on the free surface below.

On the typical segments of the middle region the segmental suture is clearly detectable only ventrally and on lower part of sides, very vague or wholly absent dorsally, the vague trace of suture at level of pore angled. Segments striate only beneath, excepting the covered zone of prozonite, which is encircled by striolations; the striae of metazonite longitudinal, those on middle zone just in front of suture oblique. One or two deep transverse furrows setting off distal end of the anal tergite. Anal valves smooth, strongly compressed, much exceeding the tergite. Anal scale short and proportionately very broad, with the caudal edge straight and the anterior one convex (pl. 12, fig. 12).

Gonopods as represented in plate 13, figures 1, 2, and 3.

Seventh leg of male as shown in plate 12, figure 11.

Number of segments, male, 40.

Length, 97 mm.; width, 12.5 mm.

Locality.—Guatemala: Samoc, Coban (6,000 feet), two males (O. F. Cook, May, 1906).

Type.—Cat. No. 838, U.S.N.M.

74. OXOBOLUS CINCTUS, new species.

Plate 13, figs. 4-7.

A field note says that the segments in life are gray, of a slight yellowish cast, with a posterior band of black edged with light brown. In the preserved specimen there is a slight olive tinge to the light-colored part of the segments. Anal tergite black at tip, elsewhere pale. Anal valves of the light color. Legs and antennae ferruginous. Head smooth. Sulcus fine, interrupted at middle. Eyes less circular than in *virilis*, longer transversely. Ocelli about 21, in four transverse series. Sensory cones of antennae four in number. Collum and second tergite of form described for *virilis*. The second tergite has one or two sharply marked longitudinal sulci a little above level of lower end of collum.

Differing from *virilis* in that the segmental sulcus, though nowhere deep, is continuous as a fine line entirely across dorsum. The dorsum caudad of the suture marked with numerous, essentially longitudinal, impressed lines, which toward the suture are more numerous and anastomose more as they do caudad of the suture. Anal scale with caudal margin less straight, weakly obtusely angled behind at middle (pl. 13, fig. 4). Anterior legs of male modified, as in *virilis*. The chitinous ventral edges on sixth and seventh legs more elevated.

Gonopods as shown in plate 13, figures 5, 6, and 7.

Number of segments, male, 42.

Length, about 105 mm.; width, 13 mm.

Locality.—Guatemala: Trece Aguas, one male, June 6, 1907.

Type.—Cat. No. 839, U.S.N.M.

75. *OXOBOLUS CRATUS*, new species.

Plate 13, fig. 8.

Segments chestnut about middle, blackish anteriorly and in a narrow posterior band in front of the usual pale caudal edge. Legs and antennae chestnut. Eyes angled above. Ocelli about 24, in five transverse series. Sulcus on head interrupted in middle region. Head smooth above, but roughened on each side of face below antenna with punctae and vertical rugae. Differing from the two preceding species in having the clypeal foveolae 3+3. General form of first three tergites as in *cinctus*. Segments with principal sulcus fine, but complete across dorsum. Striate only below and on lower part of sides, the striae in front of sulcus oblique, those behind it longitudinal. The dorsal surface under lens shows numerous coriaceous impressed fine lines and dots. Anal tergite transversely depressed, but not distinctly cross-furrowed. Anal sternite angled behind about as in *cinctus* (pl. 13, fig. 8).

Number of segments, female, 43.

Length, 140 mm.; width, 16 mm.

Locality.—Guatemala: "On road to Los Pinales," one female (G. P. Goll, April 29, 1907).

Type.—Cat. No. 840, U.S.N.M.

76. *OXOBOLUS PICTUS*, new species.

Plate 13, fig. 9.

A dark, olive-black band across each typical segment posteriorly, and a broader one anteriorly near and beneath edge of preceding segment. The posterior dark band bows forward in middle region to merge in characteristic way with the anterior dark band. The intermediate portion of segment and the posterior border chestnut. These bands all fade below into a lighter olive or dull-greenish color. The dark bands become more extensive on posterior segments. Collum with a broad olive band across its middle and a much narrower band along caudal edge and in middle part of anterior edge of same color; elsewhere chestnut. Head of dark-olive color above, chestnut below. Legs chestnut (noted as being pink in life). Eyes narrowing at mesal end. Ocelli 25 or 26, in five transverse (vertical) series. Sulcus interrupted as usual. Face roughened below, as in *cratus*.

Clypeal foveolæ 2×2 . First three tergites in general form as in the other three species here described, the lateral and ventral portions of the second and third prominently angled, the two portions evenly rounding together on the fourth and following segments. The segmental suture absent or obscure above, though showing more traces than in *virilis*. The ridges limiting striae beneath not projecting in spinous points behind, as they do, for example, in *virilis* and *cratus*. The sides of the sternites anteriorly only weakly divergent. Caudal end of last tergite depressed, under lens seen to be more strongly and densely coriariouly roughened than the anterior portion. Last sternites very obtusely angled behind (pl. 13, fig. 9).

Number of segments, female, 41.

Length, about 96 mm.; width, 12.5 mm.

Locality.—Guatemala: Coban. Samac coffee plantation, one female, May, 1904.

Type.—Cat. No. 841, U.S.N.M.

This species suggests *O. virilis*, the types of which come from the same locality. It differs in color and color pattern in not having the ventral ridges of segments spinous-pointed behind, in having the last tergite strongly coriariouly roughened behind and transversely sulcate.

Genus SPIROBOLELLUS Pocock (an sen. str.?).

77. SPIROBOLELLUS ATRICULUS Pocock.

Spirobolellus articulus Pocock, Biol. Centr.-Amer., Diplop., 1908, p. 88, pl. 7, figs. 9-9c.

Locality.—Guatemala: Volcan de Agua.

Genus ALLOPOCOCKIA Brölemann.

78. ALLOPOCOCKIA TYLOPUS (Pocock).

Spirobolellus tylopus Pocock, Biol. Centr.-Amer., Diplop., 1908, p. 87, pl. 7, figs. 8-Sd.

Allopocockia tylopus BRÖLEMANN, Ann. Soc. Ent. France, 1914, p. 34.

Locality.—Guatemala: Tecpam.

AROLUS, new genus.

Collum triangularly narrowed down each side, the angle narrowly rounded below. Median plate of anterior gonopods (coleopods) of male reduced in size, slenderly triangular; coxæ broad, meeting over median plate and with mesodistal angles produced; telopodite deeply bifid, as in *Allopocockia*. Tracheal stalk from posterior gonopod very long, broad (see pl. 14, fig. 2). Anterior legs of male, particularly of third to seventh pairs, inclusive, strongly swollen beyond coxæ to second tarsal joint, which narrows conically distad. No special tubercle on first tarsal joint of any of the legs. Third to sixth legs

in male with ventrally directed processes from the coxæ. Two strongly chitinous, forward-curving processes from sternum of fourth segment. Anal valves smooth, weakly margined.

Genotype.—*Arolus purulanus*, new species.

Closely related to *Allopocockia*. From this readily distinguishable by the sternal processes of the fourth segment, the marked inflation of the third to the seventh legs between coxæ and second tarsal joint, and the absence of papilla from first tarsus of third legs, as well as by the characteristic structure of the gonopods.

79. *AROLUS PURULANUS*, new species.

Plate 13, figs. 10, 11; plate 14, figs. 1-7.

In general dark brown to nearly black, the caudal borders of segments paler, and the sides often lighter from the inclusion of groups of minute pale dots. Vertex of head, collum, and second tergite lighter in color, dusky fulvous to fulvous, under the lens showing a network of dark lines. Head dark between the eyes and antennæ down to a pale clypeal border, with a light included area just mesad of each eye and a small light spot on median line. In one specimen three segments in front of the last are also paler in color. Legs yellow. Sulcus across vertex and particularly deep over lower part of clypeus, absent in intermediate region. Face transversely wrinkled above lower sulcus and longitudinally furrowed on each side of it. Clypeal foveolæ 3+3. Antennæ short, the terminal joint with four sensory cones. Eyes subcircular, each composed of about 18 ocelli, in five series. Collum narrowed down each side, with the lower end rounded and a little inflexed, margined below and with a short longitudinal stria or sulcus above the margining one, or this obsolete (pl. 14, fig. 7). Second tergite not produced below, a little exceeded by the collum. Striate below. The ordinary segments are encircled by a very weak furrow or constriction marked with impressed circular or horseshoe-shaped impressions, with the pore lying well behind it. The area in front of it is also marked across dorsum with similar impressions, but beginning a little below level of the pore these are replaced with deep, curved striae. Anal tergite covering and slightly exceeding the valves, very obtusely angular behind. Mesal borders of valves but little elevated. Anal sternite transverse, the caudal margin obtusely angled (pl. 13, fig. 10). Legs of first two pairs in male only a little enlarged, but the third to seventh pairs are strongly inflated between coxæ and second tarsal joint, the latter conically narrowing distad. Coxæ of third, fourth, and fifth legs with prominent soft processes, which in place lie against the sternal processes. The coxæ of sixth legs but little produced and those of seventh not at all (see pl. 14, figs. 3 to 6).

Gonopods as shown in plate 13, figure 11, and plate 14, figures 1 and 2.

Number of segments, male, 38.

Length, about 20 mm.; thickness, 2 mm.

Locality.—Guatemala: Purula, one male and an immature female. June, 1906.

Type.—Cat. No. 842, U.S.N.M.

Genus **SPIROSTROPHUS** Saussure and Zehntner.

80. **SPIROSTROPUS MUSARUM** (Cook).

Glosselus musarum COOK, Proc. U. S. Nat. Mus., vol. 40, 1911, p. 165.

Locality.—Costa Rica: La Colombiana.

Superfamily **POLYDESMOIDEA**.

Family **STRONGYLOSOMIDAE**.

Genus **ORTHOMORPHA** Bollman.

81. **ORTHOMORPHA COARCTATA** (Saussure).

Polydesmus coarctata SAUSSURE, Mém. Myr. Mex., 1860, p. 39, fig. 18.

Orthomorpha coarctata POCKOCK, Ann. mus. civ. Genoa, 1895, ser. 2, vol. 14, p. 809.

Localities.—Costa Rica: Port Limon, several males and females (W. M. Wheeler); Guatemala: Puerto Barrios, male and females (W. M. Wheeler, January 15, 1921); Panama: Ancon, Canal Zone, many specimens (W. M. Wheeler, November, 1911).

Genus **OXIDUS** Cook.

82. **OXIDUS GRACILIS** (Koch).

Fontaria gracilis C. L. KOCH, Syst. d. Myr., 1847, p. 142.

Orthomorpha gracilis BRÖLEMANN, Mém. Soc. Zool. France, 1905, p. 341.

Oxidus gracilis COOK, Proc. U. S. Nat. Mus., 1911, vol. 40, p. 628.

Localities.—Guatemala: San Lucas Toliman, several specimens (W. M. Wheeler, January, 1912); Costa Rica: San José.

Family **PLATYRACHIDAE**.

Genus **TIRODESMUS** Cook.

83. **TIRODESMUS FIMBRIATUS** (Peters).

Polydesmus (Stenonia) fimbriatus PETERS, Mon. Ber. Akad. Wiss., Berlin, 1864, p. 543.

Platyrrhacus biolleyi CARL, Rev. Suisse Zool., 1902, vol. 10, p. 658, pl. 11, figs. 67, 68.—BRÖLEMANN, Ann. Soc. Ent. France, 1905, vol. 74, p. 341.

Tirodesmus fimbriatus COOK, Brandtia, 1896, vol. 12.

Localities.—Costa Rica: Three females and one male, collected by C. Bergdorf and P. Schild (Acc. 38,962, U.S.N.M.); Nicaragua: San Juan del Norte, a female, collected by J. F. Le Baron and compared with the type in Berlin Museum by O. F. Cook; also Machucha, one male, collected by Dr. J. E. Bransford.

Carl separates his species *biollyi* from *fibriatus* because the type of the former does not show polygonal areas on the metazonites. These were also not evident on some of the specimens listed above when they were dry, but in all they became distinct when thoroughly clean or when in liquid. The gonopods are as figured by Carl for *biollyi*, and it is likely that this form is the same species as *fibriatus*.

Genus NYSSODESMUS Cook.

Nyssodesmus COOK, Brandtia, vol. 12, 1896, p. 53.

The original diagnosis of this genus was based upon specimens in the Berlin Museum of a species as yet undescribed, though listed as the genotype under the name *N. albolatus*. While it seems impossible to identify this Nicaraguan species from the facts included in the generic diagnosis, the latter applies clearly to the three new species here described and probably equally well to the others here listed. *Nyssodesmus* is used in preference to *Platyrachus* because of the indefiniteness of our present knowledge concerning the real characters of the latter in any restricted sense.

84. NYSSODESMUS NIGRICAUDUS, new species.

Plate 15, figs. 4-8.

In coloration very similar to *N. bivirgatus* (Carl), the keels and a broad dorsal band being yellow, while a narrower stripe along each side just within bases of keels is dark brown or blackish. The entire last tergite is black, as is also the caudal border of the preceding segment, whereas the caudal process in *bivirgatus* is yellow. The head is blackish and lacks the yellow patch on vertex that is present in *bivirgatus*. Legs and antennae dark brown. Vertex of head roughened, with a rounded elevation on each side of the median furrow, having at its summit a large, transversely elongate, smooth tubercle, prominent ridge along mesocaudal border of antennal socket. Collum broader than head, its anterior margin over middle region weakly convex; side lobes bluntly triangular, the anterior margin adjacent to angle with two or three tubercles or rounded teeth projecting forward and several obsolete ones mesad of these. Dorsal surface densely granulo-roughened, the anterior row of tubercles evident, but the posterior one obsolete in the type (see pl. 15, fig. 4). Keels broader than long. The pores are located far outside

the middle of the keel, the pore body lying less than once and a half from the margin between teeth, often scarcely more than its diameter (see pl. 15, fig. 5). Tubercles of sternites of normal form. The anal valves are strongly margined, the elevated rims being smooth. The setigerous tubercles are of moderate size, the anterior the larger, and are contiguous with but both distinct from the marginal rim. Margin of sides of last tergite scarcely elevated into a true tubercle to bear the upper lateral seta (see pl. 15, fig. 6). Tubercles of anal scale large, distally truncate (pl. 15, fig. 7). The gonopods when in place cross each other and fit into the depression on the sixth segment, as usual. The accessory branch is broad, but is narrower than the middle part of gonopod, distally rounded (pl. 15, fig. 8).

Length, 78 mm.; width, 13.5 mm.

Locality.—Costa Rica: One male (C. Bergdorf and P. Schild. Acc. 38,962, U.S.N.M.)

Type.—Cat. No. 843, U.S.N.M.

85. *NYSSODESMUS MIMUS*, new species.

Plate 15, figures 9-11.

This species differs from the other two here described in having the dorsum between the keels uniform brown, the keels entirely yellow. Head brown, without a yellow area above. Last tergite brown at base above, with distal half of the caudal process yellow. Head less elevated each side of the vertigial furrow than in the preceding species and the antennal ridge less developed. Lateral margins of collum with six or seven low, nearly uniform, blunt crenations. Surface depressed transversely between anterior and posterior borders and across base of keel. Surface in general densely granular; a series of small tubercles across anterior border; the nongranular, somewhat elevated marginal thickening of the posterior border divided into tuberclelike segments by longitudinal furrows or depressions. The granulation of the surface of metazonites more pronounced and uniform than in *nicaraguanus*. The posterior border divided into areas by longitudinal sulci, as in the latter species. Anterior margin of keels oblique in about same degree as in that species; lateral margins weakly undulate, excepting notch at middle, which is deeper than in *nicaraguanus*: caudal processes of posterior region a little less acute. The pore body is a little nearer the margin at the median notch, mostly a little more than once and a half, but less than twice its diameter removed (pl. 15, fig. 9).

As in *nicaraguanus*, the caudal tubercle of the anal valves is fused with the marginal elevated rim, the larger anterior one remaining distinct. Anal scale with tubercles large, the caudal margin between them angled; lateral margin concave instead of a little convex (pl. 15, fig. 10).

The gonopods cross each other when in place. They resemble those of the preceding species. The accessory branch is more elongate than in *N. tristani* (Pocock), distally more narrowed, and the gonopod is narrower at level of origin of style, as shown in plate 15, figure 11.

Length, 70 mm.; width, 12.5 mm.

Locality.—Nicaragua: One male.

Type.—Cat. No. 5,020, M.C.Z.

86. NYSSODESMUS NICARAGUANUS, new species.

Plate 16, figures 1-4.

The type of this species is nearly the same as *nigricaudus* in coloration excepting that the caudal tergite is entirely yellow instead of black. The head much as in *nigricaudus*; the ridge mesad of the antennal socket larger. All metazonites have the posterior border crossed by longitudinal sulci, visible to the naked eye, which set off a transverse series of longitudinally oblong areas. The keels of the middle and posterior regions have their anterior margins obviously more oblique and the lateral margins less acutely dentate, the margins being typically simply undulate. The pore body is smaller and is farther removed from the margin, being mostly from two and a quarter to two and a half times its diameter from the nearest point of the margin (pl. 16, fig. 1). The anal valves have the anterior tubercle separated from the marginal rim but the posterior one is merged with the rim, so that its seta appears to be borne directly by the latter. The upper seta of lateral part of last tergite carried on a more distinct tubercular elevation. The tubercles of anal scale are more rounded than in *nigricaudus* (see pl. 16, fig. 2).

In the type of this species the gonopods do not cross each other, being less twisted than usual, but lie with their convexities in contact. Accessory branch proximally broad, with sides parallel, but distally acuminate as shown in plate 16, figures 3 and 4.

Length, male, 83 mm.; width, 13.5 mm.

Locality.—Nicaragua: Machucha, a male and female (Dr. J. E. Bransford).

Type.—In collection of Philadelphia Academy of Science.

87. NYSSODESMUS TRISTANI (Pocock).

Platyrrhacus tristani Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 141, pl. 10, figs. 6-6b.

Locality.—Costa Rica: La Palma.

88. NYSSODESMUS LIMONENSIS (Attems).

Platyrrhacus limonensis ATTEMS, Denks. Acad. Wiss. Wein, vol. 63, p. 344, pl. 14, fig. 319.

Locality.—Costa Rica: Port Limon.

89. NYSSODESMUS FRATERNUS (Carl).

Platyrhachus fraternus CARL, Rev. Suisse Zool., 1902, vol. 10, p. 655, pl. 11, fig. 71.

Localities.—Costa Rica: La Palma, Caché, Atlantic slope, San José, Port Limon.

90. NYSSODESMUS BIVIRGATUS (Carl).

?*Polydesmus* (*Odontodesmus*) *python* PETERS, Mon. Ber. Berlin Akad., 1864, p. 543.

Platyrhachus bivirgatus CARL, Rev. Suisse Zool., 1902, vol. 10, p. 652, pl. 11, fig. 65.

Platyrachus bivirgatus Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 142.

Localities.—Costa Rica: La Palma, San José, Carrillo.

91. NYSSODESMUS RIPARIUS (Carl).

Platyrhachus riparius CARL, Rev. Suisse Zool., 1902, vol. 10, p. 642, pl. 12, fig. 83.—Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 143.

Localities.—Costa Rica: Rio General, Pacific slope.

92. NYSSODESMUS MONTIVAGUS (Carl).

Platyrhachus montivagus CARL, Rev. Suisse Zool., 1902, vol. 10, p. 662, pl. 12, figs. 84-88.—BRÖLEMANN, Ann. Soc. Ent. France, 1905, 74, p. 342.

Platyrachus montivagus CHAMBERLIN, Trans. Amer. Ent. Soc., 1914, vol. 40, p. 189.

Localities.—Costa Rica: Carrillo, La Palma, Volcan de Turrialba, Reventazon Valley.

93. NYSSODESMUS PROPINQUUS (Carl).

Platyrhachus propinquus CARL, Rev. Suisse Zool., 1902, vol. 10, p. 665, pl. 12, figs. 80-82.

Localities.—Costa Rica: Las Delicias, Santa Clara.

94. NYSSODESMUS STENOPTERUS (Brölemann).

Platyrhachus stenopterus BRÖLEMANN, Ann. Soc. Ent. France, 1905, p. 343.

Platyrachus stenopterus Pocock, Biol. Centr.-Amer. Diplop., 1909, p. 145, pl. 10, figs. 8-8c.

Locality.—Costa Rica: Rancho Redondo.

95. NYSSODESMUS ANTIUS (Chamberlin).

Platyrachus antius CHAMBERLIN, Trans. Amer. Ent. Soc., 1914, vol. 40, p. 189, pl. 2, figs. 4, 5.

Locality.—Costa Rica: Juan Viñas, Reventazon Road.

96. NYSSODESMUS POCOCCI (Brölemann).

Platyrhachus pococki BRÖLEMANN, Bull. Soc. Ent. France, 1911, p. 14.

Locality.—Costa Rica: Cuesta del Tablazo.

Family EURYURIDAE.

Genus AMPLINUS Attems.

97. AMPLINUS AREATUS Pocock.

Amplinus areatus Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 151, pl. 11, figs. 4-4f.

Localities.—Guatemala: La Tortuga, Petalhuleu, Livingston, two males collected by H. Wilson in 1885.

98. AMPLINUS NITIDUS (Brölemann).

Platyrhacus nitidus BRÖLEMANN, Mém. Soc. Zool. France, 1900, vol. 13, p. 97, pl. 6, figs. 18-20.

Pachyurus nitidus CARL. Rev. Suisse Zool., 1902, vol. 10, p. 638.

Amplinus nitidus Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 149, pl. 11, fig. 3.

Locality.—Guatemala.

99. AMPLINUS PALICAUDATUS (Attems).

Pachyurus palicaudatus ATTEMS, Mitt. Mus. Hamb., 1901, vol. 18, p. 98, pl. 50, fig. 8.—CARL, Rev. Suisse Zool., 1902, vol. 10, p. 638.

Amplinus palicaudatus Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 150, pl. 11, figs. 1-1c.

Localities.—Guatemala: Quetzaltenango, Chalhuitz.

100. AMPLINUS CONVEXUS (Carl).

Pachyurus convexus CARL, Rev. Suisse Zool., 1902, vol. 10, p. 633, pl. 11, fig. 57.

Amplinus convexus Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 150.

Locality.—Costa Rica.

101. AMPLINUS FLAVICORNIS Pocock.

Amplinus flavicornis Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 151, pl. 11, figs. 2-2f.

Locality.—Central America.

102. AMPLINUS MANNI, new species.

Plate 16, figs. 5-7.

Prozonites, so far as normally exposed, black to dark chestnut. The metazonites light brownish yellow to brown, the anterior border darker, the darker color extending out along anterior edge of keels also. Outer part of keels bright yellow. Last tergite distally yellow, proximally becoming dark chestnut or blackish. Legs yellow of a dilute brownish tinge. The antennae similar excepting the sixth article, which is blackish. Collum with four rows of polygonal areas, which are indistinct in middle region; areas smaller on base of keel and more or less merged on outer part. Keels of following tergites with

anterior corners rounded; margin smooth, wholly without teeth or serration. The lateral margin of second and third keels doubly sinuous, the median portion bowing out a little convexly. Posterior angles of second and third keels only weakly produced, those of the following keels more distinctly produced, more and more so in going caudad. Margins of keels strongly thickened. Dorsal surface of metazonites in general with three transverse rows of polygonal areas, these well developed entirely across dorsum excepting on second and third plates where they are weaker in the middle region. The areas more elevated on the keels as usual. On the nineteenth tergite the polygonal areas of the caudal row are strongly marked entirely across the width, those of the middle row weaker, while those of the anterior row are obsolete in the middorsal region. Sides of metazonites granular, the under surface of the keels smooth.

Anal scale as shown in plate 16, figure 5.

Gonopods of the male with inner distal branch much more slender than the outer and conspicuously curved. Outer branch flattened, blade-like, distal end obliquely truncate, with acute point at one angle. See further plate 16, figures 6 and 7.

Length, 50 to 60 mm.; width 8 mm. in female, 7 mm. in male.

Locality.—Honduras: La Ceiba (type locality), four specimens; Lombardia, one specimen (W. M. Mann).

Type.—Cat. No. 844, U.S.N.M.

103. *AMPLINUS ORPHNIUS*, new species.

Plate 16, fig. 8.

Dorsum black, with the two posterior rows of areas on each metazonite a little lighter; black of a somewhat chestnut tinge. Keels yellow excepting at base. Last tergite black across base, elsewhere yellow. Legs and antenna brown. The collum with the usual four transverse series of polygonal areas, of which the anterior and posterior series continue across dorsum, while the areas of the two intervening series are there obliterated. On the other metazonites there are three transverse rows of stringly differentiated polygonal areas, these being more elevated and pronounced than in the preceding species. On the nineteenth tergite the areas of the anterior series are obliterated, while those of the two posterior ones are conspicuously developed, those of the more anterior of these rows being shorter and more tubercle-like. Marginal thickening of keels in general less pronounced than in *manni*. In the gonopods the outer branch is relatively more slender and less blade-like than in *manni* and is distally gradually and acutely acuminate. Both branches curve ventrad at distal end (see pl. 16, fig. 8).

Length, 44 to 60 mm.; width of male 7.2 mm., of female, 9 mm.

Localities.—Honduras: La Ceiba (type locality), a male and female (W. M. Mann); Guatemala: Livingston, one male (W. Wilson, February, 1885).

Type.—Cat. No. 845, U.S.N.M.

The male from Guatemala is larger than the type and has the margins of the posterior keels a little more oblique. The tip of the outer processes of the gonopods appear to have been broken off (Cat. No. 5021, M.C.Z.).

104. *AMPLINUS NITEUS*, new species.

Plate 16, fig. 9.

This is a large form readily distinguishable in having the polygonal areas obsolete in the middle region of all the tergites, the median region to the naked eye appearing smooth and shining. Under the lens, however, the areas are seen to be vaguely outlined and become normally developed in the lateral regions where they form the usual three series, these extending out to the marginal thickening of the keels. The nineteenth tergite is entirely smooth, no polygonal areas at all being developed. The posterior angles of keels from the fourth caudad are a little produced and even in the most posterior the processes are of but moderate length. The anal valves present a smooth, low, rounded swelling over middle region, this leaving a longitudinal furrow at ectal border and one along mesal marginal thickening. Anal scale of usual form.

Gonopods as shown in plate 16, figure 9.

The type has apparently become bleached from long preservation, so that the original coloration can not be given.

Length, male, about 65 mm.; width, 10 mm.

Locality.—Costa Rica: Basin of San Juan River (P. Biolley).

Type.—Cat. No. 846, U.S.N.M.

Genus POLYLEPISCUS Pocock.

105. *POLYLEPISCUS STOLLI* Pocock.

Polylepiscus stollii Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 155, pl. 12, figs. 3-3d.

Locality.—Guatemala: Chohuitz.

106. *POLYTEPISCUS ACTAEON* Pocock.

Polylepiscus actaeon Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 155, pl. 12, figs. 2-2c.

Locality.—Guatemala.

107. POLYLEPISCUS FURCIFER Pocock.

Polylepiscus furcifer Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 156, pl. 12, figs. 1-1h.

Locality.—(?) Guatemala.

108. POLYLEPISCUS HETEROSCULPTUS (Carl).

Pachyurus heterosculptus CARL, Rev. Suisse Zool., 1902, vol. 10, p. 635, pl. 12, figs. 73-75.

Polylepiscus heterosculptus Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 157,

Locality.—Guatemala.

Genus APHELIDESMUS Brölemann.

109. APHELIDESMUS CALVERTI Chamberlin.

Aphelidesmus calverti CHAMBERLIN, Trans. Amer. Ent. Soc., 1914, vol. 40, p. 191, pl. 2, figs. 6, 7.

Localities.—Costa Rica: La Emilia; Port Limon. Two males and a female taken at the latter locality in November, 1911, by W. M. Wheeler.

110. APHELIDESMUS INTERMEDIUS Chamberlin.

Aphelidesmus intermedius CHAMBERLIN, Trans. Amer. Ent. Soc., 1914, vol. 40, p. 192, pl. 2, figs. 8-10.

Locality.—Costa Rica: Juan Vinas.

111. APHELIDESMUS GLAPHYROS (Attems).

Euryurus glaphyros ATTEMS, Denks. Akad. Wiss. Wien, 1900, vol. 68, p. 279, pl. 7, figs. 163, 164.

Aphelidesmus glaphyros Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 158.

Localities.—Costa Rica: Carrillo; Cuesta de Tablazo.

Family LEPTODESMIDAE.

Genus CHONDRODESMUS Silvestri.

112. CHONDRODESMUS SINGULARIS, new species.

Plate 16, figs. 10-13.

Light chestnut above, with outer part of keels yellow. The sides and venter pale. The collum with anterior and lateral margins together forming an evenly convex curve; the caudal margin arcuate, the lateral portions bending forward. In the second tergite the an-

terior corner of the keel is rounded, the posterior one more narrowly so, a little obtuse. In the third and fourth keels the posterior angle is more obtuse. On the keels from the second to the fourth there is a slight lateral tooth at the anterior corner. The keels of the middle and posterior regions of the body in particular are very narrow. In the nonpore-bearing keels both corners are rounded and the margins are bent up uniformly all around excepting a slight raised angle or tubercle at the caudal corner; both anterior and posterior margins convex. The porigerous keels are similar with the addition of the sharply set-off, protruding, pore-bearing process, which is in cross section a little elliptic and projects laterad from the margin. Anteriorly the pore body is near the middle of the side, but shifts farther and farther back in going caudad and is at the caudal corner on the seventeenth segment, though projecting only slightly caudad. Only on the eighteenth and nineteenth keels are the posterior angles produced, but the processes are slight. In these most posterior keels the pore swelling is less sharply set off and does not project out laterad (see further pl. 16, figs. 10, 11, and 12).

Anal scale as shown in plate 16, figure 13.

Length, about 32 mm.; width, 4.5 mm.

Locality.—Costa Rica: Port Limon, one female (W. M. Wheeler, November, 1911).

Type.—Cat. No. 5022, M.C.Z.

While only the female of this species was secured, the form of the keels is so characteristic that there will probably be no difficulty in its recognition.

113. CHONDRODESMUS TUBERCULIFER, new species.

Plate 17, figs. 1-6.

Chocolate brown above, the prozonites sometimes black, with outer portion of keels yellow. Legs and antennae fulvous, the former sometimes in part tinged with brown. Anterior and lateral margins of collum forming an even and broadly convex curve. Caudal margin arcuate, a little concave toward each end, so that the caudolateral angles are a little acute, not at all rounded. First, second, and third keels as broad as the fourth and fifth. Anterior corners of the keels rounded, and on the first ones with a small tooth at the lateral edge. Caudal corners of second to fourth keels rectangular (pl. 17, fig. 1). On the porigerous keels the caudal corner appears to be angularly excised behind the pore swelling, the outer edge of the posterior expansion beginning at caudal edge of swelling (pl. 17, fig. 2). On the fifteenth keels the angle of posterior margin extends caudad the same distance as the outer process, but on the sixteenth the latter

obviously exceeds it (pl. 17, fig. 3). On the segments of the middle region of the body the pore swelling is obviously behind the middle of length of keel, as shown in the figures. Dorsal surface of metazonites densely granular, with two transverse series of distinct, larger tubercles behind the middle. Sternites broad, without processes excepting a low, pointed tubercle at base of each posterior leg and a less distinct one at base of anterior leg on posterior segments. On the last two sternites these processes are more developed.

Anal scale broad, mesally extended into an acute process between the two setae (pl. 17, fig. 4).

Proportions of points of legs as represented in plate 17, figure 6.

The gonopods of the male are characterized by having the accessory blade broad and abruptly narrowed below the distal end, thus appearing shouldered on the mesal side, with the apical portion shaped something like a bird's head in outline (see further pl. 17, fig. 5).

Length, about 52 mm.; width, 7.2 mm.

Locality.—Honduras: La Ceiba, two males (W. M. Mann).

Type.—Cat. No. 847, U.S.N.M.

114. *CHONDRODESMUS ALIDENS*, new species.

Plate 17, figs. 7-9.

Chocolate brown, with outer part of keels and a narrow band across caudal border of metazonites yellow. Legs and antennae fulvous. The keels are narrower and a little more depressed than in the preceding species and differ conspicuously in form. The angular extensions of the caudal margin of keels is more pronounced. On the pore-bearing segments of the middle region of the body the pore swelling is obviously farther forward, being near the middle of the length of keel, as shown in plate 17, figure 7. The posterior corners of fifteenth keels is still excavated instead of being carried into a process caudad of posterior margin. The production is also much less developed on the sixteenth keels, where the angulation of the caudal margin extends as far caudad as the caudal process proper (pl. 17, fig. 8). The dorsal surface is densely finely granular, but quite lacks the series of tubercles as shown in the preceding species.

The anal scale is proportionately broader, with the caudal angle more abruptly produced (pl. 17, fig. 9).

Width, 7 mm.

Locality.—Honduras: La Ceiba, two females (W. M. Mann).

Type.—Cat. No. 857, U.S.N.M.

115. *CHONDRODESMUS PANAMENUS*, new species.

Plate 17, fig. 10; plate 18, figs. 1-3.

Chestnut in color, with the keels and a narrow, interrupted median longitudinal stripe along the prozonites and on the anterior part of

metazonites yellow. Cauda yellow distally and along middle. Head smooth. The sulcus across vertex sharply impressed. Anterior margin of collum less convex at sides than in the middle. Anterior corner rounded as usual, the posterior one nearly rectangular. Caudal margin convex each side of the weakly and widely concave median portion, the lateral portions*straight. Dorsal surface transversely depressed behind the middle part of anterior border, this border thus appearing elevated. Second, third, and fourth keels with posterior angles subrectangular, the anterior ones rounded, smooth, with no lateral tooth. None of the keels have the posterior angles more than slightly produced until those of the seventeenth segment. Those of eighteenth a little more acute. Those of nineteenth small, with keel in front of pore swelling essentially obliterated (pl. 18, figs. 1 and 2). Caudal margin of keels normally with two teeth, but sometimes with only one. The lateral margin of the pore-bearing keels indented in front of the pore swelling excepting on seventeenth, eighteenth, and nineteenth segments. The surface of all the metazonites, including the collum, is strongly roughened, with numerous small and irregularly polygonal, weakly elevated areas. The areas are larger in two caudal transverse rows on the last segments, a caudal series of areas less distinctly indicated on others.

Last tergite and anal scale as shown in plate 17, figure 10. and plate 18, figure 3.

Length, about 58 mm.; width, 9 mm.

Locality.—Panama: One female.

Type.—Cat. No. 5023, M.C.Z.

Also a number of dried and broken specimens labeled "Panama. Dauro" represent this species.

116. CHONDRODESMUS MONTANUS (Pocock).

Dirhabdophallus montanus Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 163, pl. 12, figs. 4-4g; pl. 13, fig. 2.

Locality.—Guatemala: Volcan de Agua.

117. CHONDRODESMUS GRANOSUS (Carl).

Leptodesmus plataleus granosus Carl, Rev. Suisse Zool., 1902, vol. 10, p. 602, pl. 10, fig. 27.

Dirhabdophallus granosus Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 164, pl. 12; figs. 5-5b.

Localities.—Costa Rica: La Uruca; San José.

118. CHONDRODESMUS RODRIGUEZI (Brölemann).

Leptodesmus rodriguezii Brölemann, Mém. Soc. Zool. France, 1900, vol. 13, p. 103, pl. 6, figs. 43-46.

Dirhabdophallus rodriguezii Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 164.

Locality.—Guatemala: Purula.

119. (?) *CHONDRODESMUS HOFFMANNI* (Peters).

Rhacophorus hoffmanni PETERS, Mon. Ber. Akad. Wiss. Berlin, 1864, p. 537.
Dirhabdophallus hoffmanni Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 165.

Locality.—Costa Rica.

Genus *CYCLORHABDUS* Brölemann.120. *CYCLORHABDUS CONTORTUS* Brölemann.

Cyclorhabdus contortus BRÖLEMANN, Mém. Soc. Zool. France, 1900, vol. 13,
 p. 98, pl. 6, figs. 21–25.

Locality.—Guatemala.

Genus *PHYLACTOPHALLUS* Pocock.121. *PHYLACTOPHALLUS STENOMERUS* Pocock.

Phylactophallus stenomerus Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 166,
 pl. 12, figs. 3–3h.

Locality.—Costa Rica: Irazu.

Genus *EUTYPORACHIS* Pocock.122. *EUTYPORACHIS TESSELLATUS* Pocock.

Eutyporachis tessellatus Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 169,
 pl. 13, figs. 4–4c.

Locality.—Guatemala: Senahu in Alta Vera Paz.

123. *EUTYPORACHIS OLTRAMAREI* (Carl).

Leptodesmus oltramarei CARL, Rev. Suisse Zool., 1909, vol. 10, p. 600, pl.
 10, fig. 34.

Eutyporachis oltramarei Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 170.

Locality.—Guatemala.

Genus *ALOCODESMUS* Silvestri.124. *ALOCODESMUS DROMEUS*, new species.

Plate 18, figs. 4–7.

As the type specimen of this species had gone dry, the original coloration is largely lost. It appears to have been brown, with the keels, or at least their processes, yellow. Legs fulvous. Antennae brown. Collum with posterior angles acute and a little produced caudad. Dorsal surface densely finely granular, smoother anteriorly, with some larger smooth tubercles along caudal border and behind middle. Setae normal (pl. 18, fig. 4). From the fourth or fifth segment caudad the metazonites crossed by a distinct transverse furrow, in front of which are two setae. The surface densely granular, with two transverse series of larger tubercles behind the sulcus, the numerous granules crowded between the tubercles. The prozonites more

finely granular or shagreened. All keels from second segment caudad, with posterior angles conspicuously acutely produced, those of the posterior region becoming smaller than those of middle region. Spines of sterna short but distinct, those of last segment not especially enlarged.

Anal scale as shown in plate 18, figure 5.

Legs, long.

The gonopods of the male resemble those of *A. angustatus* Silvestri; but the lesser blades of the femoral process are unequal and curve distally in the direction opposite to the curve of the principal blade. The main lamina of the principal branch is more finely and regularly toothed, etc. (see pl. 18, figs. 6 and 7).

Locality.—Panama: Canal Zone, Culebra (type locality), numerous specimens "taken under bushes in garden" (A. H. Jennings, April 30, 1909); also one male in the Museum of Comparative Zoology collection, taken at Irenao, in the Canal Zone.

Type.—Cat. No. 848, U.S.N.M.

ATYLOPHOR, new genus.

Body composed of head and 20 segments. Head densely clothed in front, with mostly short setae, bearing finer and longer setae above. Vertigial sulcus well developed. Antennae moderately long and slender, increasing a little in thickness distad to end of sixth article. Sixth article typically a little longer than the fifth. Collum semi-circular in outline, the lateral and anterior margins forming an even arc; as wide as second tergite; dorsal surface with series of setae. Keels high, the second at the same elevation as the others. Anterior keels well developed, those caudad of the fifth more weakly so, only a little projecting over the sides and with anterior portions largely appearing as a simple swelling of the segment as in many craspedosomids. Keels strongly margined, the lateral border more thickened, especially about the pores. Posterior angles produced on all or nearly all segments, though the processes are all typically short. Metazonites with a well-marked transverse sulcus. Typically with surface bearing low setiferous tubercles. Pleural keels present. Ventral plates much wider than long, without either longitudinal or transverse furrows and without processes in the male. Last tergite conical, with tip truncate. Anal scale subtriangular. Legs slender, the anterior pairs not thickened or otherwise modified in the male and bearing no tarsal pads. Last joint long, typically as long as the two preceding joints taken together. Coxa of gonopods with a hook. Telopodite deeply divided, having a dorsal (caudal), distally laminate and more or less lobed division and a slender, distally acuminate, tibial branch which exceeds the other in length and is typically in part supported by the latter.

Genotype.—*Atylophor rafaellanus*, new species.

This genus is related to *Trichomorpha*, a genus represented by numerous species in Colombia and Ecuador. It differs from this genus in having the anterior legs of the male without tarsal pads and otherwise without special modification. The tarsus has a greater proportionate length in all the legs. The keels are more weakly developed, as are also in particular the processes of their posterior angles. It also suggests the Guatemalan *Eutyporachis*, but differs in the form of the gonopods and in the smaller proportionate length of the sixth article of the legs.

125. ATYLOPHOR RAFAELANUS, new species.

Plate 18, figs. 8-11; plate 19, figs. 1-3.

Brown, with keel borders fulvous, area narrow in correspondence with reduction of keels. Dorsum arched. Keels high, narrow, especially in median and posterior regions, where consisting of simple bulgings of the segments, which are, however, deeply margined anteriorly and laterally. The pore-bearing region of keels strongly thickened and distinctly set off from the anterior portion of border, the thickening elliptic in outline as seen from the side, Margin setigerous. The slight caudal margin of keels not dentate. Tooth at anterior corner obsolete (see pl. 18, figs. 10, 11). Metazonites with a transverse sulcus, behind which there are typically two rows of tubercles or elevated areas, of which those of the posterior row are the larger, these areas setigerous. In front of the sulcus the surface is nearly smooth, being rather obscurely set off into six larger areas, each of which bears a seta, the setae forming a single transverse series. Caudal end of body represented in plate 18, figure 8. Sides of body granular, more strongly so in anterior region. Pleural keels present back to the eighth segment. Ventral plates about twice as wide as long in the female, narrower in the male. All wholly lacking furrows and special processes in the male. Legs slender, with tarsus proportionately long and the two preceding joints short, as shown in plate 18, figures 10 and 11. Last ventral plate broadly subtriangular, with the sides convex, a little notched on each side opposite base of seta (pl. 18, fig. 9). Anal valves with mesal borders very strongly elevated; surface longitudinally rugose.

Gonopods of male as represented in plate 19, figures 1-3.

Length, male, about 21 mm.; width, 2 mm. Length of a female, about 25 mm.; width, 2.5 mm.

Locality.—Guatemala: San Rafael, one male and two females (O. F. Cook, June 4, 1914).

Type.—Cat. No. 849, U.S.N.M.

SCHISTIDES, new genus.

Composed of head and twenty segments. Head with a distinct sulcus across vertex. Antennae long, not much increasing in thickness distad; the second to sixth articles long, not much differing in length. Collum semicircular, the anterior margin more straight in middle region than laterally; anterior corners of keels rounded, the caudal corners acute; nearly as wide as second tergite; setiferous. Keels of the following tergites produced caudad, as in *Trichomorpha*. Also the tergites are similarly impressed with deep transverse sulcus, behind which are typically two series of tubercles. Sternites in male without processes. Anal tergite triangular, truncate at tip. Anal scale somewhat triangular, acute, behind, the sides convex. Legs slender. None of them modified in the male. No tarsal pads.

In the gonopods of male the coxa is thick and cylindrical. In the telopodite the femur is distinctly separated, narrow, the mesal side with a pit lined with hairs. Tibia deeply divided into two branches of which the dorsal (caudal) is broader and more plate-like and curves about the other distally; the ventral or anterior division expanded into more lamellar form distally and giving rise at distal end to a slender style which in the genotype is geniculate.

Genotype.—*Schistides atopophallus*, new species.

In general structure nearest *Trichomorpha*, but differing especial in the characters of the gonopods, such as in the distinct segmentation of the telopodite, the narrow femur, the deeper division of the tibia, the different seminiferous process, etc. Also differing in lacking any secondary modifications of the legs and sternites of the male.

126. SCHISTIDES ATOPOPHALLUS, new species.

Plate 19, figs. 4-9.

Dorsum chocolate brown or almost black, the caudal angles of the keels yellow. Antennae chocolate brown. Legs brownish yellow. Dorsum weakly arched. Keels high, a little bent upward. Posterior angles of keels strongly produced, the processes becoming longer in the posterior region, the ends not at all curved. Anterior angles of keels rounded. On second, third, and fourth keels the outer margin presents a small anterior tooth followed by two larger teeth or crenations. On the pore-bearing keels there is but one distinct marginal tooth, this large and immediately in front of porigerous thickening. In the nonpore-bearing keels caudad of the fourth there are mostly only two serrations or crenations, the third being obsolete (pl. 19, fig. 5). Dorsal surface of prozonites wholly smooth. Metazonites with a deep transverse sulcus, behind which there are two rows of

tubercles, typically six or five in an anterior row and seven to nine more elongate ones in the posterior row. In front of the sulcus the surface is smooth excepting for two small and well-separated tubercles on each side at the anterior border. Some tubercles at least are setigerous, but most setae are lost in the type. Basal portion of keel somewhat convexly swollen and bearing usually two or three tubercles. None of the sternites in the male have processes and none of the legs present secondary modifications. No metatarsal pads. Processes of the second coxae in the male short, erect.

Gonopods of the male as shown in plate 19, figures 8 and 9.

Length, about 21 mm.; width, 2.5 mm.

Locality.—Honduras: San Juan Pueblo, one male (W. M. Mann).

Type.—Cat. No. 850, U.S.N.M.

TUNODESMUS, new genus.

Body composed of head and twenty segments. Antennae long and slender. Collum much broader than the head and only slightly narrower than second tergite, the lateral ends acutely angular. Dorsum convexly arched. Metazonites without distinct transverse sulcus, and wholly smooth. Keels high, large, wider than long, a little depressed; posterior angles of keels acute, the angles becoming more and more produced caudad in going from anterior to posterior end of body; anterior and posterior margins of keels wholly smooth, as is also the lateral margin, excepting for the small anterior tooth; margins of keels not thickened. Pores on segments 5, 7, 9, 10, 12, 13, and 15-19; on posterior portion of keel opening above a little mesad of margin. Last tergite triangularly narrowed caudad, apically truncate. Ventral plates broader than long. At base of each posterior leg a conical process which is directed caudad and is more elongate in posterior region and less developed or absent in the anterior. Less developed tubercles may also occur at bases of anterior legs of segment. Legs not granular or spined and without special lobes or other modifications in the male, excepting that the second tarsal joints bear pads beneath. Coxal processes of second legs in the male directed caudad, slender.

In the gonopods of the male the coxae are long, thick, and erect and typically not much out of line with the telopodite. Coxal hooks present. Telopodite with two principal distal branches, an ectal one which is broad and laminate and may be lobed and which protects a slender branch on its mesal side. On caudal side, lower down, the telopodite angularly produced in a conical or laminate process of varying length.

Genotype.—*Tunodesmus orthogonus*, new species.

127. *TUNODESMUS ORTHOGONUS*, new species.

Plate 19, fig. 10; plate 20, figs. 1-9; plate 21, figs. 1, 2.

Dorsum brownish, most metatergites fuscous caudally and across keels mesad of the caudolateral corners and processes, which are pale ferruginous. A series of narrow light spots form a median longitudinal line on dorsum. Venter and legs paler, brownish yellow. Head dark over vertex and frons, elsewhere pale. Antennae fuscous, the last joint pale. Head with a fine sulcus across vertex and two principal setae each side of it. Collum convexly arched, the keels continuing nearly the same arc as the dorsum and descending down on each side of the head, which they greatly exceed. Anterior margin straight across middle region, laterally curving back around anterior corners of keels. Posterior margin arcuate, being concave at middle and convex each side of middle (pl. 20, figs. 1, 2). Surface of all segments wholly smooth. Caudal angles of keels of second and third segments subrectangular. Posterior angles of other keels acute, becoming more and more produced in going caudad. Anterior margins of keels bowed convexly; anterior corners rounded; a single small serration on lateral margin; posterior margin also convex at base, wholly smooth (pl. 20, figs. 3, 4). Sternal processes or tubercles present both at base of anterior and of posterior legs, the latter the larger. These tubercles present forward to fifth or sixth segment, but of reduced size in the anterior region. Tubercles densely pilose. Posterior tubercles of last two or three segments more elongate and slender (pl. 20, fig. 5).

Anal scale somewhat triangular, but caudally rounded and notched on each side near level of seta, the sides also convex (pl. 19, fig. 10).

A leg of male is shown in outline in plate 20, figure 7.

Gonopods represented in plate 20, figure 9, and plate 21, figures 1, 2.

Length, male, 21 mm.; width, 4.8 mm.

Locality.—Guatemala: San Rafael, one male (O. F. Cook, June 4, 1914).

Type.—Cat. No. 851, U.S.N.M.

128. *TUNODESMUS LAMINIGER*, new species.

Plate 21, figs. 3-5.

Coloration in general as in the preceding species, but the light area of keels not extending so far forward, typically restricted to the caudal process. The keels are similar to those of *orthogonus*, but the anterior margin curves more strongly forward, while the posterior margin is proximally more strongly convex (pl. 21, fig. 3).

The species is most readily distinguishable by the structure of the gonopods of the male. The anteriorly directed end of the distal

lamina is emarginate, and presents thus two teeth or angles, the corresponding margin in *orthogonus* being entire. A pronounced difference is in the caudal process at base of tibial division, this being very much smaller in the present species and having ectad of it a low, but broad laminate process (pl. 21, figs. 4 and 5).

This species is a smaller form than the preceding, the male type being 18 mm. long and 4 mm. wide.

Locality.—Guatemala: San Rafael, one male and one female (O. F. Cook, June 4, 1914).

Type.—Cat. No. 852, U.S.N.M.

SYNTHODESMUS, new genus.

A genus closely related to *Tunodesmus*, as above described, excepting in the structure of the gonopods, which differ conspicuously. In these the telopodite, which is bent forward at right angles to the coxa, is proximally stout, but in the tibial region is abruptly slender. It is straight and terminates in two short and slender processes, of which the mesal one conducts the seminal canal.

Genotype.—*Synthodesmus simulans*, new species.

129. SYNTHODESMUS SIMULANS, new species.

Plate 21, figs. 6-9; plate 22, figs. 1, 2.

Dorsum brown excepting a pale median dorsal line of narrow marks, which may be connected in the posterior region. Under the lens small light dots, separated by a network of dark lines, show on each side, particularly in an area at and above base of keel. Venter and legs fulvous. The first two and the last two articles of antennae commonly pale, the intervening ones fuscous. Anterior and lateral margins of collum together forming an even arc, with the median region somewhat flattened. Caudal margin only slightly arcuate, being nearly straight (pl. 21, fig. 6). General form of other keels as in *Tunodesmus orthogonus*. Posterior angles of fourth keels nearly rectangular. Posterior angles of fifth and succeeding keels acute and produced more and more strongly in going caudad. Margins of keels a little bent up, but not thickened. Pores caudad of middle, opening well mesad of the margin (pl. 21, fig. 7). Sternites with processes near bases of posterior pair of legs on segments of middle and posterior regions of body, those of posterior segments best developed, conical, shorter than in the species of *Tunodesmus* previously described (pl. 22, fig. 1).

Anal scale pentagonal, the caudal end being obtusely angular, as shown in plate 21, figure 8.

An anterior leg of male is represented in plate 21, figure 9.

Gonopods as represented in plate 22, figure 2.

Length, male type, about 17 mm.; width, 3.4 mm.

Locality.—Guatemala: San Rafael, five specimens (O. F. Cook, June 4, 1914).

Type.—Cat. No. 853, U.S.N.M.

Family XYSTODESMIDAE.

Genus RHYSODESMUS Cook.

130. RHYSODESMUS CHAMPIONI Pocock.

Rhysodesmus championi Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 198.

Locality.—Guatemala: Zapote, Pacific slope.

131. RHYSODESMUS STOLLI Pocock.

Rhysodesmus stolli Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 198, pl. 15, figs. 3-3b.

Locality.—Guatemala: Retalhuleu.

132. RHYSODESMUS VIOLACEUS (Brölemann).

Fontaria violaceus BRÖLEMANN, Mém. Soc. Zool. France, 1900, vol. 13, p. 101, pl. 6, figs. 33-36.

Locality.—Guatemala.

Family RHACODESMIDAE.

CURODESMUS, new genus.

Related to the Mexican genus *Neoleptodesmus* of Carl, with which it agrees in the general form and structure of the body, but from which it differs in the structure of the gonopods. In these the telopodite is similarly trilobed distally; but the laminate lobe bearing the seminal channel is short and is on the inner side, the other two being ectad of it, the median one the smaller, the ectal one rounded. Telopodite rather short, distally bent into a half cylinder, with open side caudoectad (ventroectad); seminal fossa at base on mesal side large, extending openly distad, densely lined with setae.

Genotype.—*Curodesmus guatemalensis*, new species.

133. CURODESMUS GUATEMALENSIS, new species.

Plate 22, figs. 3-6; plate 23, figs. 1-4.

Brown or greyish brown, the outer portions of keels fulvous. Venter, legs, and antennae fulvous or yellow. In addition to the two longer setae each side of the vertigial sulcus above, the head bears numerous setae, especially over the frontal and clypeal regions. Antennae long, not enlarged distad (pl. 23, fig. 1). The collum

much exceeding the head in width and as wide as the second tergite. As long at base of keels as at middle. Anterior margin weakly convex, with anterolateral corners of keels rounded evenly and caudal corners subrectangular or slightly acute. Caudal margin concave at middle, convex each side of this, and then straight or a little concave at each end (pl. 22, fig. 3). Keels in general high on body, horizontal or a little raised. Keels of second, third, and fourth segments longer than median region of metatergites. Margins of keels raised in front and behind as well as laterally; the lateral margins more thickened, the thickened greatest about coxae, which are sunk in the lateral edge, the thickening decreasing gradually each way from this. All anterior corners rounded. The posterior corners rectangular back to the fourteenth segment, inclusive. Caudal corners of fifteenth and sixteenth keels a little broadly produced, those of seventeenth more produced, and those of eighteenth strongly so, while those of the nineteenth are much smaller and narrower, though also strongly produced (see pl. 22, figs. 4 and 5). Margins wholly smooth. Metatergites with only a very shallow transverse depression; the entire surface finely granular, with a series of well-separated, larger granules along caudal margin and one of a few, much more widely separated granules across anterior border. Anal tergite triangular, distally narrowly truncate, and on truncate surface bearing four setae. Anal valves margined; surface a little rugose and with fine granules like those of dorsum (pl. 22, fig. 5).

Anal scale triangular, the caudal angle a little rounded (pl. 22, fig. 6).

Legs very long, extending widely beyond the sides of the body. Proportions of joints as shown in plate 23, figure 2.

Gonopods as represented in plate 23, figures 3 and 4.

Length, 24 mm.; width, 3.6 mm.

Locality.—Guatemala: San Rafael, five males (O. F. Cook, June 4, 1914).

Type.—Cat. No. 854, U.S.N.M.

Genus ACERATOPHALLUS Carl.

134. ACERATOPHALLUS UNICOLOR Carl.

Aceratophallus unicolor CARL, Rev. Suisse Zool., 1902, vol. 10, p. 609, pl. 2, figs. 35, 36.—BRÖLEMANN, Ann. Soc. Ent. France, 1905, vol. 74, p. 345, pl. 8, figs. 6, 7.—POCOCK, Biol. Centr.-Amer., Diplop., 1909, p. 182, pl. 14, fig. 2.

Localities.—Costa Rica: San José, La Uruca.

135. ACERATOPHALLUS LAMELLIFER Brölemann.

Aceratophallus unicolor lamellifer BRÖLEMANN, Ann. Soc. Ent. France, 1905, vol. 74, p. 346, pl. 8, figs. 1-5.

Aceratophallus lamellifer POCOCK, Biol. Centr.-Amer., Diplop., 1909, p. 183.

Locality.—Costa Rica: San José.

136. ACERATOPHALLUS DUX Chamberlin.

Aceratophallus dux CHAMBERLIN, TRANS. Amer. Ent. Soc., 1914, vol. 40, p. 193, pl. 2, fig. 11.

Locality.—Costa Rica: Juan Viñas.

Genus HOLISTOPHALLUS Silvestri.

137. HOLISTOPHALLUS PEREGRINUS Silvestri.

Plate 23, figs. 5-9; plate 24, figs. 1-4.

Holistophallus peregrinus SILVESTRI, Boll. Mus. Zool. ed. Anat. comp. Torino, 1909, vol. 24, No. 615, p. 4, fig. III, 1-3.

Localities.—Guatemala: Quirigua, one male (W. M. Wheeler); Cacao Trece Aguas, one male (G. P. Goll, March, 1907); Honduras: Progreso, one male; San Juan Pueblo, two males (W. M. Mann).

This species was originally described from Tabasco, Mexico. The several specimens now studied agree in all essentials with the description of the type, though presenting considerable variations among themselves in some details. Variations in the form of the anal scale are shown in the figures (pl. 23, figs. 8, 9; pl. 24, figs. 1, 2).

Family SPHAERIODESMIDAE.

Genus SPHAERIODESMUS Peters.

138. SPHAERIODESMUS HONDURASANUS, new species.

Plate 14, figs. 8-10; plate 15, figs. 1, 2.

The general color in the types is pale greenish yellow; but in some the body appears ferruginous because of a closely adherent layer of foreign material, which gives it a dull, lusterless appearance. The surface itself, however, when cleaned is shining, though marked irregularly with coriarius impressions. Collum wider than the head, acutely narrowing laterad on each side, narrowly rounded at apices of angles; posterior margin convex, the anterior margin more nearly straight. The second plate much shorter than the third; both second and third plates crescentic, the keels narrowed distad. Fourth plate with keels much wider, though only slightly wider distally than proximally; the anterior margin weakly convex, the posterior one weakly concave; anterior angle widely rounded, the posterior one more narrowly rounded, its general outline subrectangular. Keel of fifth segment much narrower than that of fourth, a little narrowed distad, being broader across base than across distal end; posterior angle more widely rounded than the anterior. Sixth and immediately succeeding plates with keels strongly narrowed

distad, in posterior region again becoming broader distally (see pl. 14, figs. 8 and 9). Hairs of legs rather sparse, shorter on dorsal than on ventral surface. In the male, the first leg is scarcely thickened and the femur has no node or process below.

The socket of the gonopods is limited behind and laterally by a continuous elevated rim; the socket not fully extending to the tubercle on each side. Distance between bases of legs about equalling the length of the seventh segment of the leg. Coxa of gonopod stout. Telopodites extending forward parallel to each other, distally curving upward and then caudad, uncate, pointed and undivided; on dorsal side near middle a long straight process as shown in the figures (see pl. 15, figs. 1 and 2).

Length, near 17 mm.; width, 5.5 mm.

Localities.—Honduras: San Juan Pueblo (type locality), seven specimens; Lombardia, three specimens (W. M. Mann).

Type.—Cat. No. 855, U.S.N.M.

139. *SPHAERIODESMUS CORIACEUS* Pocock.

Sphaeriodesmus coriaceus Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 125, pl. 9, figs. 4-4h.

Locality.—Guatemala: San Juan in Alta Vera Paz.

140. *SPHAERIODESMUS MEDIUS* Carl.

Sphaeriodesmus medius CARL, Rev. Suisse Zool., 1902, vol. 10, p. 675, pl. 12, figs. 105, 106.

Locality.—Guatemala.

141. *SPHAERIODESMUS DIGITATUS* Pocock.

Sphaeriodesmus digitatus Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 124, pl. 9, figs. 3-3d.

Locality.—Guatemala: Volcan de Agua.

Genus *EUSPHAERIODESMUS* Brölemann.

142. *EUSPHAERIODESMUS ANGUSTUS* (Pocock).

Sphaeriodesmus angustus Pocock, Biol. Centr.-Amer., Diplop., p. 123, pl. 9, figs. 1-1g.

Locality.—Guatemala: Senahu in Alta Vera Paz.

143. *EUSPHAERIODESMUS STILIFER* (Pocock).

Sphaeriodesmus stilifer Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 124, pl. 9, figs. 2-2c.

Locality.—Costa Rica: Irazu.

Genus **CYLIONUS** Cook.144. **CYLIONUS CONSTRICTUS** Pocock.

Cylionus constrictus Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 127, pl. 9, figs. 5-5f.

Locality.—Guatemala: Volcan de Agua.

Genus **COLOBODESMUS** Brölemann.145. **COLOBODESMUS BIOLLEYI** Brölemann.

Colobodesmus biolleyi BRÖLEMANN, Ann. Soc. Ent. France, 1905, vol. 74, p. 350, pl. 8, figs. 8-12; pl. 9, figs. 13, 14.

Locality.—Costa Rica: San José, Caché, Cariblanco.

Family **POLYDESMIDAE**.Genus **PERIDONTODESMUS** Silvestri.146. **PERIDONTODESMUS FLAGELLATUS** Pocock.

Peridontodesmus flagellatus Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 136, pl. 10, figs. 4-4g.

Locality.—Guatemala: Chalhuitz.

147. **PERIDONTODESMUS ELECTUS** Chamberlin.

Peridontodesmus clectus CHAMBERLIN, Trans. Amer. Ent. Soc., 1914, vol. 40, p. 188, pl. 2, fig. 2.

Locality.—Costa Rica: Juan Viñas, Cartago, many specimens taken in December, 1911 (W. M. Wheeler).

Family **CRYPTODESMIDAE**.Genus **CYNEDESMUS** Cook.

This genus was proposed primarily for a species from Grand Canary; but as that species was not described the Cuban *Cryptodesmus ornamentatus* Karsch, which was included, must stand as the genotype. While in the absence of a knowledge of the gonopods of *C. ornamentatus* the matter can not be wholly certain, there is little doubt that this species is congeneric with certain other West Indian species, as for example the Haitian *caribbeanus* Chamberlin and *granulofrons* Chamberlin, which were described under *Treseolobus*. These species do not seem to be generically distinct from the Mexican and Central American species described by Pocock under *Lophodesmus* in the Biologia. *Cynedesmus* is, in consequence, here adopted.

148. **CYNEDESMUS CELATUS** (Pocock).

Lophodesmus cclatus Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 133, pl. 10, figs. 2-2a.

Localities.—Guatemala: Volcan de Agua, Joyabaj, three specimens (O. F. Cook, May, 1906).

149. *CYNEDESMUS PERPARVUS* (Pocock).

Lophodesmus perparvus Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 133, pl. 10, figs. 3-3a.

Locality.—Guatemala: Volcan de Agua.

Genus *CYRTODESMUS* Gervais.150. *CYRTODESMUS GRANOSUS* (Gervais and Goudot).

Polydesmus granosus GERVAIS and GOUDOT, Ann. Soc. Ent. France, ser. 2, 1844, vol. 2, p. 28.

Cyrtodesmus granosus GERVAIS, Ins. Apt., vol. 4, 1847, p. 93.

Oncodesmus granosus Pocock, Biol. Centr.-Amer., Diplop., 1909, p. 116.

Locality.—Panama.

Suborder ONISCOMORPHA.

Family GLOMERIDAE.

GLOMEROIDES, new genus.

Body strongly pigmented, composed of head and twelve segments. The last tergite large, greatly exceeding the eleventh in size, not furrowed or otherwise roughened. Antennae and ocelli as in *Glomeris*. Second tergite cleft below from caudal margin, the hypochismal portion of plate concealed in dorsal view. Telopodite of male gonopods with a stout, distally directed process on mesal side of tibia, the femur lacking processes; without setigerous cones or papillae or setae. Seventeenth legs of male greatly reduced, with only three joints beyond coxa; clawless. Eighteenth legs of male with coxae separated by a distinct suture at middle; six-jointed; the tarsus about twice as long as the tibia.

Genotype.—*Glomeroides centralis*, new species.

Differs from *Glomeris* and resembles *Onychoglomeris* in form of gonopods in male, but differs from the latter in the reduced, clawless seventeenth legs, etc.

151. *GLOMEROIDES CENTRALIS*, new species.

Plate 24, figs. 5-8; plate 25, figs. 1-4.

Typically black or bluish black above, with a median longitudinal fulvous line running caudal from collum. This expands triangularly on anterior portion of each tergite and forms a broader band on the twelfth tergite. Also typically a series of vertically elongate, pale spots along each side, each spot with a network of fine dark lines visible under lens. Collum with a yellow caudal margin bordered in front with a dark band, the plate paler in front of this. Pleurites fulvous, the sternites and legs often a little darker. An-

tennae brown. Head fulvous below, brownish above. Collum with caudal and lateral margins forming an evenly convex curve, margined all around. The more caudal of the two transverse sulci a little in front of middle, nearer to the second sulcus than the latter is to the anterior margin (pl. 25, fig. 3). Second tergite margined below and entirely across anterior border. Behind margining sulcus with numerous parallel striae, much as in *G. multistriatus* (C. Koch) (pl. 24, fig. 5). In the following tergites the keels acutely narrowed ventral, with lower ends rounded. The anterior field on these tergites is narrow, less than half the width of the posterior, and without sulcus, as shown in plate 24, figure 5.

Seventeenth, eighteenth, and nineteenth (gonopodal) legs of male as shown in plate 24, figures 7 and 8, and plate 25, figures 1 and 2.

A pleurite from middle region is shown in plate 25, figure 4.

Length of female, 10 mm.; width, 6.5 mm. Length of male, 7 mm.; width, 4 mm.

Locality.—Guatemala: Trece Aguas (O. F. Cook, July 6, 1907).

Type.—Cat. No. 856, U.S.N.M.

The median dorsal fulvous stripe appears not to be developed as a rule in young specimens.

Suborder LIMACOMORPHA.

Family GLOMERIDESMIDAE.

Genus GLOMERIDESMUS Gervais.

152. GLOMERIDESMUS CENTRALIS, new species.

Plate 25, figs. 5, 6.

The general color above is brownish black, sometimes lighter. Head yellowish at sides and over lower part of clypeus, elsewhere dark but with an angular yellow mark between antennae, and above this a pair of yellow spots. Dorsum with a median longitudinal series of yellow spots, which are often divided, and a series on each side of this. A row of yellow spots below on each side.

In general structure and details of head, tergites, legs, and pleurites so closely corresponding to *G. porcellus* Gervais and Goudot of Colombia and Venezuela that a redescription is unnecessary. The form of the angles of the posterior tergites is shown in plate 25, figure 5.

This species seems obviously distinct from *porcellus* in the form of the penes. In *porcellus* the extended penes in all specimens examined are long and comparatively slender, with a marked tendency to curve, the curvature commonly more pronounced in one than in

the other. In the present species the penes are shorter and notably stouter and are straight. The penes are similarly longitudinally channeled and encircled by wrinkles, but the latter are less pronounced. The two posterior channels end farther proximad from tip, the distal end of the ridge between them forming a notch well removed from the free end, which is conically rounded (see pl. 25, fig. 6).

Length, 7 to 8 mm.

Locality.—Guatemala: Actele, many specimens (O. F. Cook, May 2, 1906).

Type.—Cat. No. 862, U.S.N.M.

Three young females taken in June, 1907, may be this species, but can not be determined with certainty.

EXPLANATION OF PLATES.

Drawn by the author.

PLATE 1.

Platydesmus interruptus, new species.

- FIG. 1. Anterior end in outline, dorsal view $\times 22.5$.
2. Posterior end in outline, dorsal view $\times 22.5$.

Desmethus setifer, new species.

3. Anterior end, dorsal view $\times 22.5$.
4. Head, anterior view $\times 22.5$.
5. Posterior end, dorsal view $\times 22.5$.
6. Gnathochilarium $\times 27$.
7. Right posterior gonopod, anterior view $\times 77$.
8. Left anterior gonopod, anterior view $\times 77$.

PLATE 2.

Siphonophora barberi, new species.

- FIG. 1. Anterior end, dorsal view $\times 47.5$.
2. Pleurite, from anterior region $\times 100$.
3. Pleurite, from posterior region $\times 100$.
4. Gonopod of anterior pair $\times 200$.
5. Gonopod of posterior pair $\times 200$.

Siphonophora telana, new species.

6. Anterior end, dorsal view $\times 47.5$.
7. Pleurite, from anterior region $\times 100$.
8. Pleurite, from posterior region $\times 100$.

PLATE 3.

Siphonophora fallens, new species.

- FIG. 1. Anterior end, dorsal view $\times 47.5$.
2. Pleurite of one of most anterior segments $\times 100$.
3. Pleurite from a posterior segment $\times 100$.
4. An anterior gonopod $\times 225$.

Siphonophora progressor, new species.

5. Anterior end, dorsal view $\times 47.5$.
6. Anterior gonopod $\times 200$.
7. Posterior gonopod $\times 200$.

PLATE 4.

Siphonophora progressor, new species.

- FIG. 1. Pleurite of anterior region $\times 100$.
 2. Pleurite of posterior region $\times 100$.

Prostemmiulus relictus, new species.

3. Head and first tergites, lateral view $\times 19.5$.
4. First leg of male $\times 33$.
5. Second legs of male $\times 33$.
6. Third leg of male $\times 33$.
7. Gnathochilarium $\times 33$.
8. Antenna.
9. Anterior sternite of ninth segment $\times 33$.
10. Posterior sternite of ninth segment $\times 33$.
11. Gonopods, anterior view (tips of outer processes broken off) $\times 48$.
12. Gonopods, posterior view $\times 48$.

PLATE 5.

Prostemmiulus lombardiae, new species.

- FIG. 1. Head and first tergites, lateral view $\times 33$.
 2. Antenna $\times 48$.
 3. Anterior sternite of tenth segment $\times 77$.
 4. Posterior sternite of tenth segment, legs omitted $\times 77$.

Prostemmiulus cooki, new species.

5. Head and first tergites, lateral view $\times 19.5$.
6. First leg of male $\times 33$.
7. Second leg of male $\times 33$.
8. Third leg of male $\times 33$.
9. Anterior sternite of tenth segment $\times 33$.
10. Posterior sternite of tenth segment $\times 33$.
11. Gonopods of male, anterior view $\times 48$.
12. Posterior legs of seventh segment of male $\times 33$.

PLATE 6.

Cleidogona ceibana, new species.

- FIG. 1. Tenth leg of male $\times 33$.
 2. Eleventh leg of male $\times 33$.
 3. Twelfth leg of male $\times 33$.
 4. Process from between twelfth legs, ventral view $\times 48$.
 5. Gonopods, anterior view $\times 48$.
 6. Left gonopod, lateral view, with membranous appendage caudad of it $\times 48$.

Gymnostreptus lactus, new species.

7. Collum of male, lateral view $\times 19.5$.
8. Anal scale $\times 19.5$.
9. Gonopods of male, anterior view $\times 19.5$.

Gymnostreptus vagans, new species.

10. Collum of male, lateral view $\times 19.5$.

PLATE 7.

Gymnostreptus vagans, new species.

FIG. 1. Gonopods of male, type, anterior view $\times 19.5$.

Gymnostreptus pacificus, new species.

2. Collum of female, lateral view $\times 19.5$.
3. Collum of male, lateral view $\times 19.5$.
4. Gonopods of male, anterior view $\times 19.5$.

Orthoporus absconsus, new species.

5. Collum of male, lateral view $\times 19.5$.
6. Anal scale $\times 19.5$.
7. Gonopods of male, anterior view $\times 19.5$.
8. Left gonopod, lateral view $\times 19.5$.

PLATE 8.

Orthoporus discriminans, new species.

FIG. 1. Collum of male, lateral view $\times 19.5$.

2. Anal scale $\times 19.5$.
3. Left gonopod of male, anterior view $\times 19.5$.
4. Left gonopod of male, ectal view $\times 19.5$.

Orthoporus cobanus, new species.

5. Collum of male, lateral view $\times 19.5$.
6. Gonopods of male, anterior view $\times 19.5$.
7. Right gonopod of male, ectal view $\times 19.5$.

Diaporus culebrae, new species.

8. Collum of male, lateral view $\times 19.5$.
9. Anal scale $\times 19.5$.

PLATE 9.

Diaporus culebrae, new species.

FIG. 1. Gonopods of male, anterior view $\times 19.5$.

Parajulus leucoclius, new species.

2. Collum, mandible, and first leg of male, lateral view $\times 19.5$.
3. Caudal end of male, dorsal view $\times 19.5$.
4. Caudal end of male, lateral view.
5. Second legs of male, with processes $\times 19.5$.
6. Gonopods in situ, ventral view $\times 27.5$.
7. Gonopods, caudal view $\times 27.5$.
8. Left gonopods in situ, ectal view $\times 27.5$.

Rhinocricus nicaraguanus, new species.

- FIG. 9. Upper part of caudal end, lateral view $\times 8$.
 10. Anal scale $\times 10$.
 11. Scobina of segment of middle region of body $\times 19.5$.

PLATE 10.

Rhinocricus wheeleri, new species.

- FIG. 1. Caudal end, lateral view $\times 19.5$.
 2. Anal scale $\times 19.5$.
 3. Gonopods of male, anterior view (the right posterior omitted) $\times 27.5$.

Rhinocricus centralis, new species.

4. Anal scale $\times 9.5$.
 5. Gonopods of male, anterior view $\times 8$.
 6. Telopodite of posterior gonopod $\times 19.5$.

Rhinocricus simulans, new species.

7. Anal scale $\times 9.5$.
 8. Scobina from segment of middle region of body $\times 19.5$.
 9. Gonopods of male, anterior view $\times 9.5$.
 10. Telopodite of posterior gonopod $\times 19.5$.

Oxyppygides mesites, new species.

11. Caudal end, lateral view $\times 9.5$.
 12. Anal scale $\times 16$.

PLATE 11.

Oxyppygides mesites, new species.

- FIG. 1. Gonopods of male, anterior view $\times 16$.
 2. Telopodite of posterior gonopod $\times 39$.

Oxyppygides lapidicina, new species.

3. Caudal end, lateral view $\times 9.5$.
 4. Anal scale $\times 19.5$.
 5. Scobina of segment of anterior region $\times 19.5$.
 6. Anterior gonopods, anterior view $\times 19.5$.
 7. Posterior gonopod $\times 48.5$.

Oxypyge ferruginopes, new species.

8. Caudal end, lateral view $\times 9.5$.
 9. Anal scale $\times 19.5$.
 10. Scobina of segment of middle region of body $\times 48.5$.
 11. Gonopods of male, anterior view $\times 19.5$.
 12. Telopodite of posterior gonopod $\times 48.5$.

PLATE 12.

Oxyppyge confusa, new species.

- FIG. 1. Scobina of segment of middle region of body $\times 48.5$.
 2. Gonopods of male, anterior view $\times 19.5$.

Oxyppyge socia, new species.

3. Scobina $\times 48.5$.
 4. Caudal end, lateral view $\times 19.5$.
 5. Gonopods, anterior view $\times 19.5$.
 6. Telopodite of posterior gonopod.

Oxyppyge equalis, new species.

7. Caudal end, lateral view $\times 19.5$.
 8. Anal scale $\times 19.5$.
 9. Gonopods of male, anterior view $\times 19.5$.
 10. Telopodite of posterior gonopod $\times 48.5$.

Oxobolus virilis, new species.

11. Seventh leg of male, caudal view $\times 8$.
 12. Anal scale $\times 8$.

PLATE 13.

Oxobolus virilis, new species.

- FIG. 1. Anterior gonopods of male, anterior view $\times 8$.
 2. Posterior gonopod, caudal view $\times 9.5$.
 3. Posterior gonopod, anterior view $\times 9.5$,

Oxobolus cintus, new species.

4. Anal scale $\times 8$.
 5. Gonopods of male, anterior view $\times 8$.
 6. Right posterior gonopod, anterior view $\times 8$.
 7. Right posterior gonopod, posterior view.

Oxobolus cratus, new species.

8. Anal scale $\times 8$.

Oxobolus pictus, new species.

9. Anal scale $\times 9$.

Arolus purulanus, new species.

10. Anal scale $\times 48.5$.
 11. Gonopods of male, anterior view $\times 33$.

PLATE 14.

Arolus purulanus, new species.

- FIG. 1. Telopodite of anterior gonopod, caudal view $\times 72$.
 2. Posterior gonopod, mesal view $\times 72$.
 3. Fourth leg of male, with ends of sternal processes $\times 48.5$.
 4. Fifth leg of male $\times 48.5$.
 5. Sixth leg of male $\times 48.5$.
 6. Seventh leg of male $\times 48.5$.
 7. Collum, lateral view $\times 33$.

Sphaeriodesmus hondurasanus, new species.

8. Anterior tergites, lateral view $\times 9.5$.
 9. Caudal end, lateral view $\times 9.5$.
 10. Caudal ventral margin of eighth segment $\times 9.5$.

PLATE 15.

Sphaeriodesmus hondurasanus, new species.

- FIG. 1. Gonopods of male, ventral view $\times 48.5$.
 2. Gonopod, mesal view $\times 48.5$.

Oxypyge equalis, new species.

3. Scobina $\times 48.5$.

Nyssodesmus nigricaudus, new species.

4. Lateral portion of collum in outline, dorsal view $\times 8$.
 5. Twelfth right keel $\times 8$.
 6. Caudal end in outline, dorsal view $\times 8$.
 7. Anal scale $\times 16$.
 8. Left gonopod in situ, ventral view $\times 16$.

Nyssodesmus minus, new species.

9. Twelfth keel, male type, in outline $\times 8$.
 10. Anal scale $\times 16$.
 11. Right gonopod, caudoventral view $\times 16$.

PLATE 16.

Nyssodesmus nicaraguensis, new species.

- FIG. 1. Twelfth right keel $\times 8$.
 2. Anal scale $\times 16$.
 3. Left gonopod, ventral view $\times 16$.
 4. Right gonopod, ectal view $\times 16$.

Amplinus manni, new species.

- FIG. 5. Anal scale $\times 19.5$.
 6. Gonopods, ventral view $\times 19.5$.
 7. Gonopods, ectal view $\times 19.5$.

Amplinus orphnius, new species.

8. Gonopods $\times 19.5$.

Amplinus niteus, new species.

9. Gonopods $\times 19.5$.

Chondrodesmus singularis, new species.

10. Fifth and sixth keels $\times 16$.
 11. Tenth and eleventh keels $\times 16$.
 12. Seventeenth and eighteenth keels $\times 16$.
 13. Anal scale $\times 19.5$.

PLATE 17.

Chondrodesmus tuberculifer, new species.

- FIG. 1. Third keel $\times 9.5$.
 2. Eighth and ninth keels $\times 9.5$.
 3. Fifteenth and sixteenth keels $\times 9.5$.
 4. Anal scale, setae missing $\times 19.5$.
 5. Gonopods of male, caudoventral view $\times 33$.
 6. Leg of eighth segment, hairs omitted $\times 9.5$.

Chondrodesmus alidens, new species.

7. Tenth keel $\times 9.5$.
 8. Fifteenth and sixteenth keels $\times 9.5$.
 9. Anal scale $\times 19.5$.

Chondrodesmus panamensis, new species.

10. Last tergite, dorsal view, in outline, setae omitted $\times 9.5$.

PLATE 18.

Chondrodesmus panamensis, new species.

- FIG. 1. Tenth and eleventh keels $\times 9.5$.
 2. Seventeenth, eighteenth, and nineteenth keels $\times 9.5$.
 3. Anal scale $\times 16$.

Alocodesmus dromeus, new species.

4. Collum $\times 9.5$.
 5. Anal scale $\times 33$.
 6. Gonopods of male, ventral view $\times 33$.
 7. Gonopods, distal portion, dorsal view $\times 33$.

Atylophor rafaolanus, new species.

- FIG. 8. Caudal end of body, dorsal view $\times 19.5$.
 9. Anal scale $\times 33$.
 10. Leg of fifth segment, male $\times 19.5$.
 11. Leg of seventeenth segment $\times 19.5$.

PLATE 19.

Atylophor rafaolanus, new species.

- FIG. 1. Left gonopod of male, ventral view $\times 48.5$.
 2. Left gonopod, ectal view $\times 48.5$.
 3. Left gonopod, mesal view $\times 48.5$.

Schistides atopophallus, new species.

4. Antenna $\times 19.5$.
 5. Eighth tergite $\times 19.5$.
 6. Anal scale $\times 33$.
 7. Leg of sixth segment of male $\times 19.5$.
 8. Gonopods, ventral view $\times 33$.
 9. Right gonopod, ectal view $\times 33$.

Tunodesmus orthogonus, new species.

10. Anal scale $\times 31$.

PLATE 20.

Tunodesmus orthogonus, new species.

- FIG. 1. Head and collum, anterior view $\times 16$.
 2. Head and collum, dorsal view $\times 16$.
 3. Tenth left keel $\times 19.5$.
 4. Caudal end, dorsal view $\times 16$.
 5. Sternites of last two pediferous segments $\times 33$.
 6. Antenna $\times 19.5$.
 7. Seventh leg of male $\times 19.5$.
 8. Leg of posterior region of male $\times 19.5$.
 9. Right gonopod, anterior view $\times 48.5$.

PLATE 21.

Tunodesmus orthogonus, new species.

- FIG. 1. Right gonopod, ectal view $\times 48.5$.
 2. Right gonopod, posterior view.

Tunodesmus laminiger, new species.

3. Tenth keel $\times 19.5$.
 4. Gonopod, posterior view $\times 48.5$.
 5. Right gonopod, lateroectal view $\times 48.5$.

Synthodesmus simulans, new species.

6. Collum $\times 19.5$.
 7. Tenth keel $\times 33$.
 8. Anal scale $\times 48.5$.
 9. Seventh leg of male $\times 48.5$.

PLATE 22.

Synthodesmus simulans, new species.

- FIG. 1. Sternites of last two pediferous segments $\times 48.5$.
 2. Gonopods of male, ventral view $\times 77$.

Curodesmus guatemalensis, new species.

3. Collum $\times 19.5$.
 4. Tenth keel $\times 19.5$.
 5. Caudal end of body, dorsal view $\times 19.5$.
 6. Anal scale $\times 48.5$.

PLATE 23.

Curodesmus guatemalensis, new species.

- FIG. 1. Antenna $\times 27.5$.
 2. Leg from middle region of body $\times 27.5$.
 3. Gonopods, caudoventral view $\times 48.5$.
 4. Right gonopod, ectal view $\times 48.5$.

Holistophallus peregrinus Silvestri.

5. Collum, specimen from Guatemala $\times 9.5$.
 6. Ninth keel of same $\times 16$.
 7. Caudal end $\times 9.5$.
 8. Anal scale $\times 19.5$.
 9. Anal scale of another specimen from Guatemala $\times 19.5$.

PLATE 24.

Holistophallus peregrinus Silvestri.

- FIG. 1. Anal scale, specimen from Honduras $\times 19.5$.
 2. Anal scale, another specimen from Honduras $\times 19.5$.
 3. Leg of ninth segment, specimen from Guatemala $\times 16$.
 4. Gonopods, anterior view, specimen from Honduras $\times 33$.

Glomeroides centralis, new species.

5. Anterior end, lateral view, female $\times 19.5$.
 6. Caudal end, lateral view, female $\times 19.5$.
 7. Seventeenth leg of male $\times 48.5$.
 8. Nineteenth leg of male, lateral view $\times 98.5$.

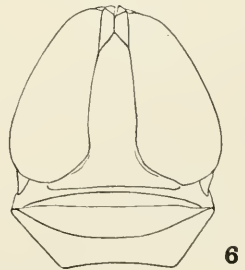
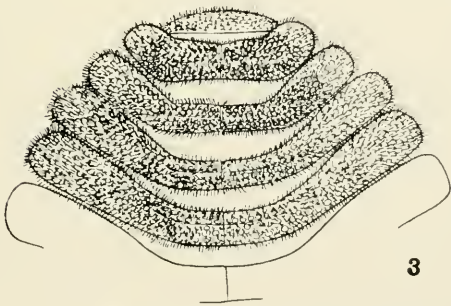
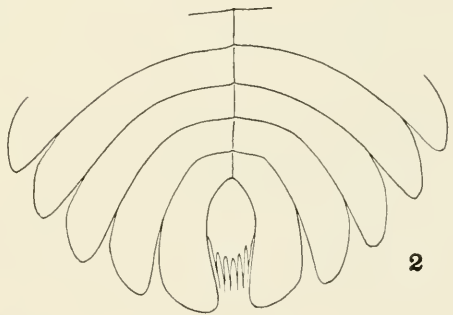
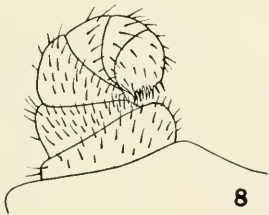
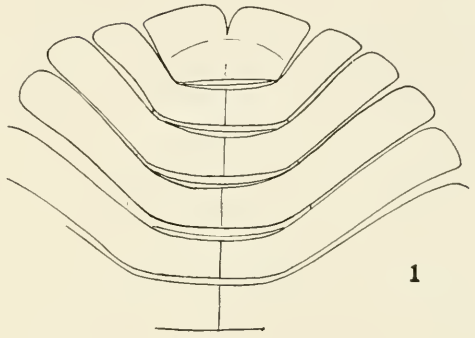
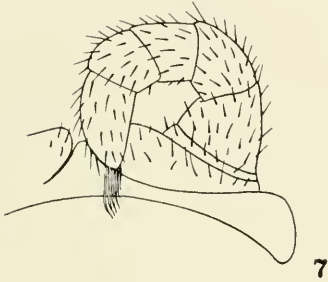
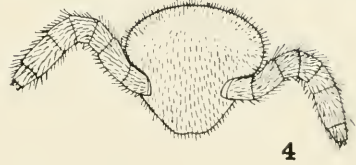
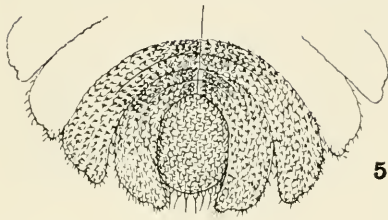
PLATE 25.

Glomeroides centralis, new species.

- FIG. 1. Eighteenth leg of male $\times 98.5$.
 2. Nineteenth leg and sternite of male $\times 98.5$.
 3. Collum, female $\times 19.5$.
 4. Pleurite from middle region of body, female $\times 48.5$.

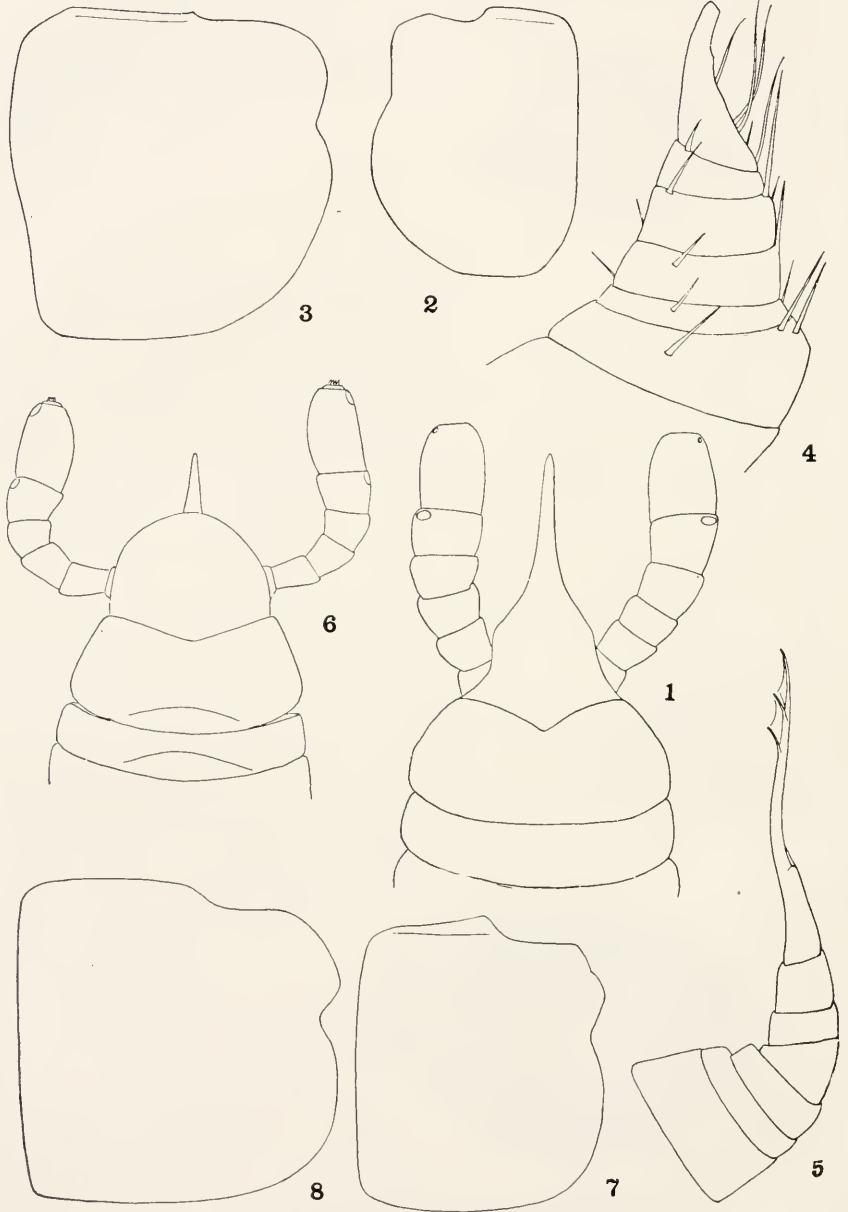
Glomeridesmus centralis, new species.

5. Caudal end, lateral view.
 6. Penes of male, with legs, anterior view $\times 48.5$.



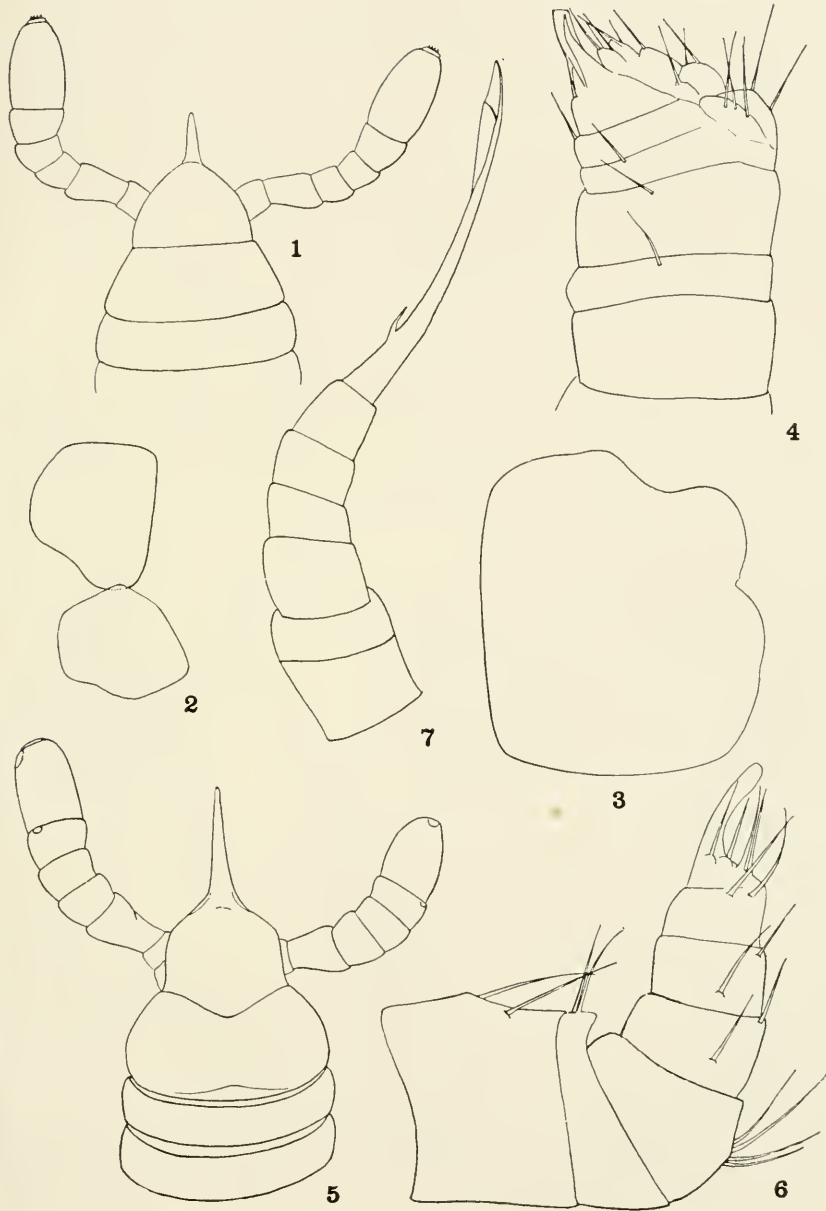
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FOR EXPLANATION OF PLATE SEE PAGE 63.



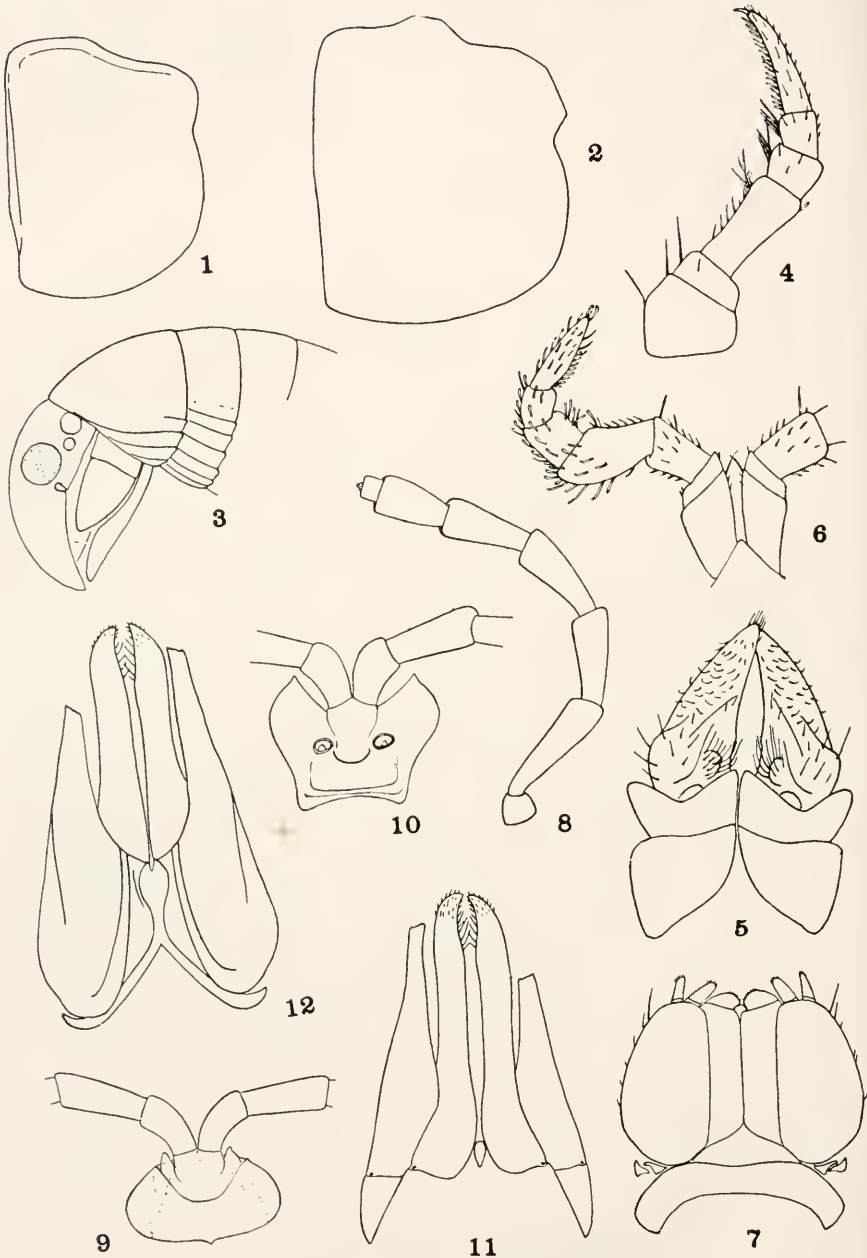
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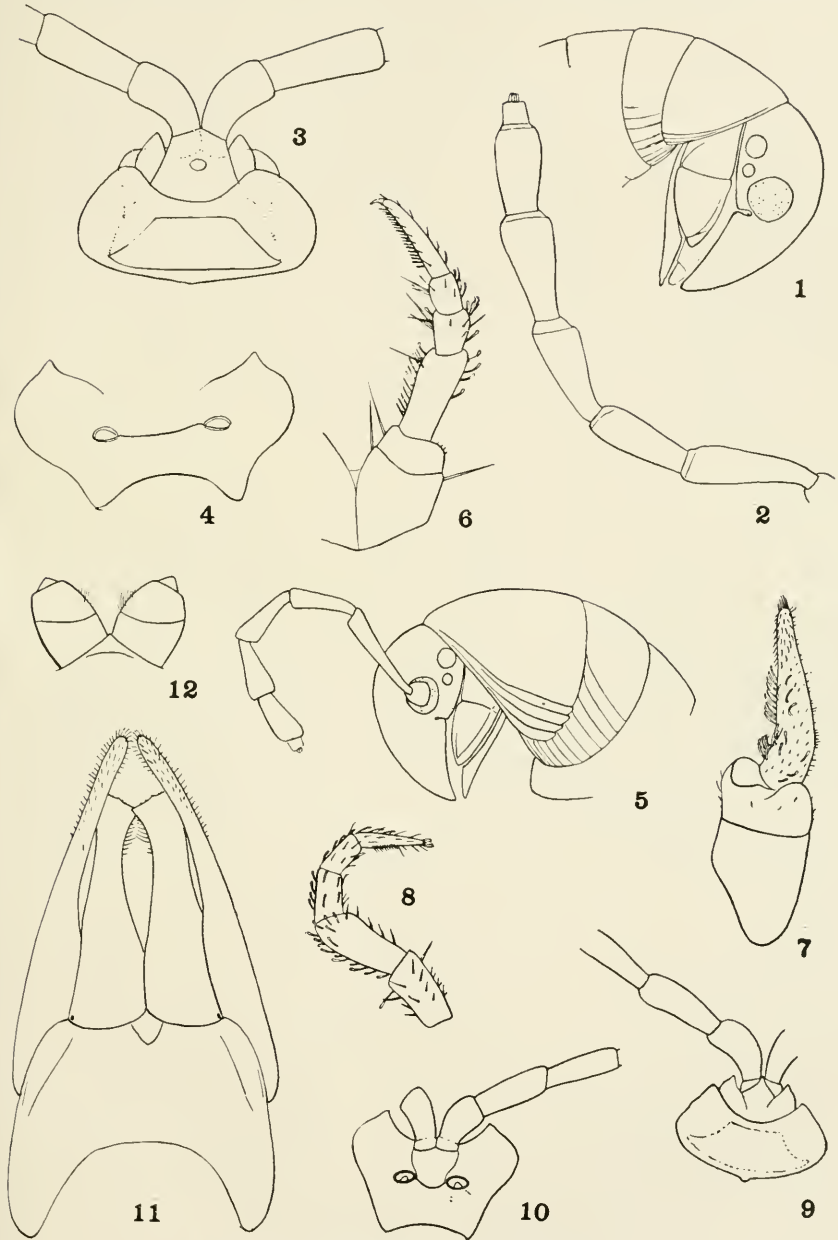
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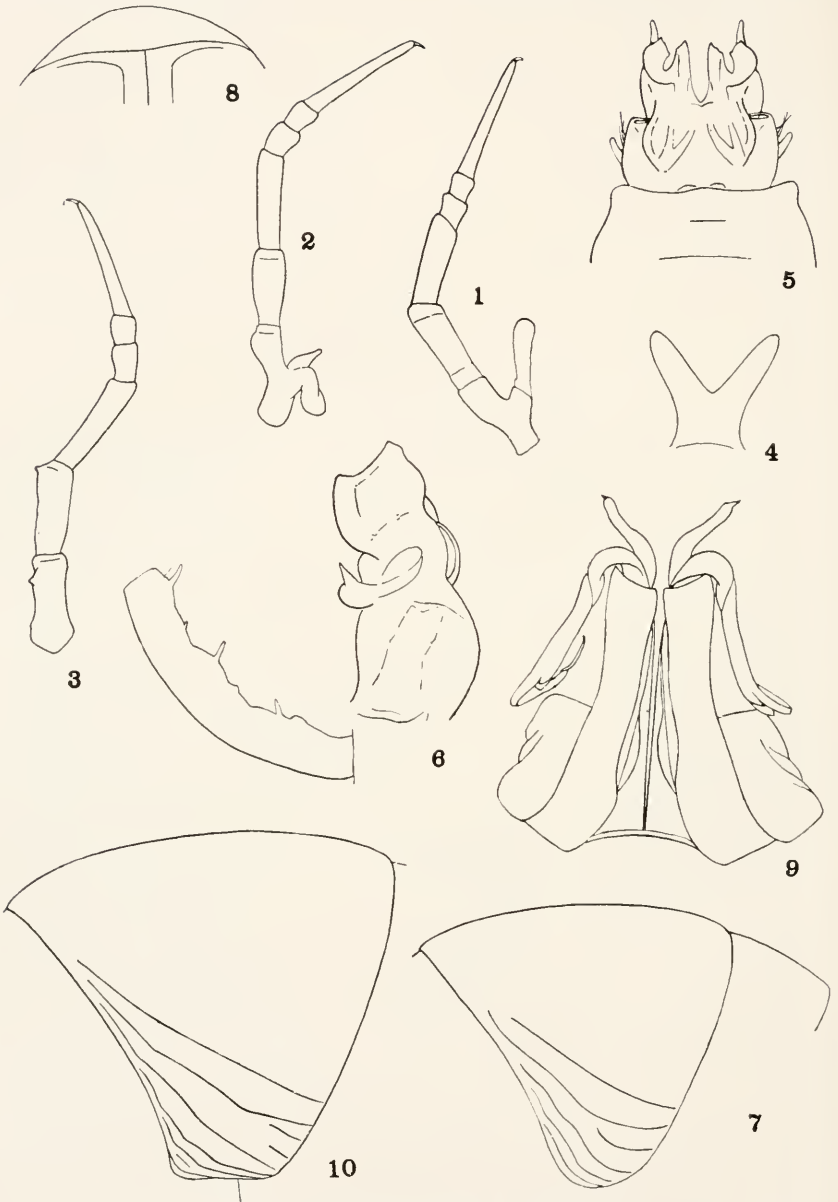
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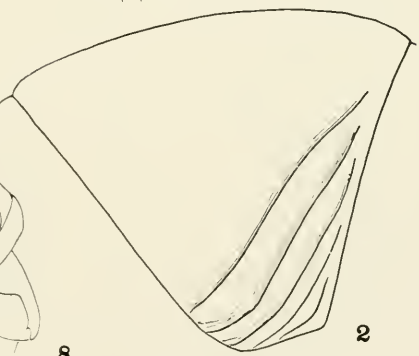
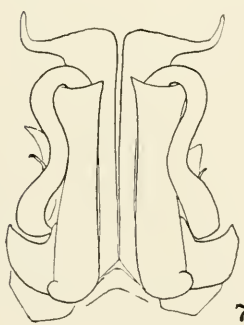
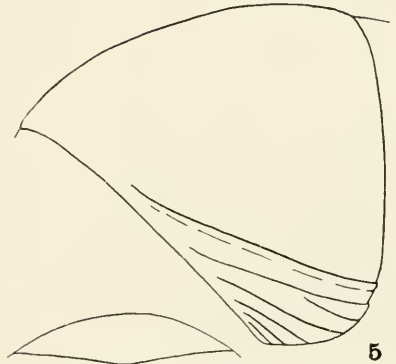
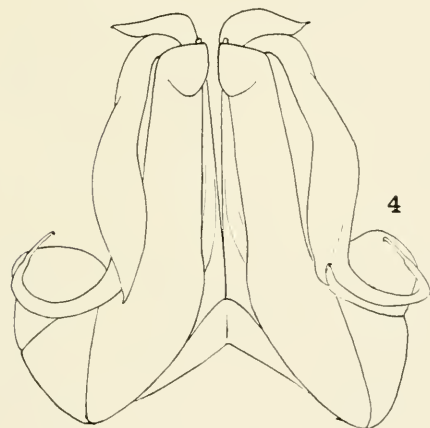
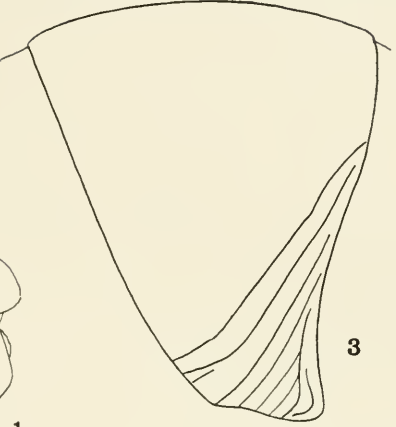
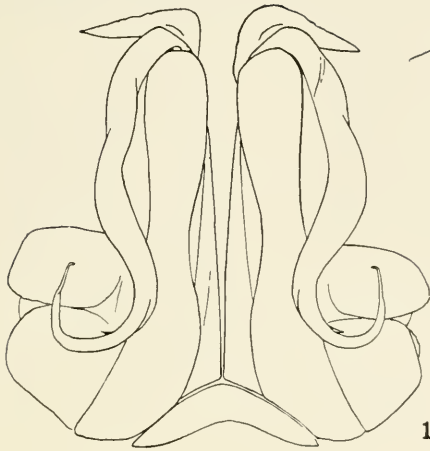
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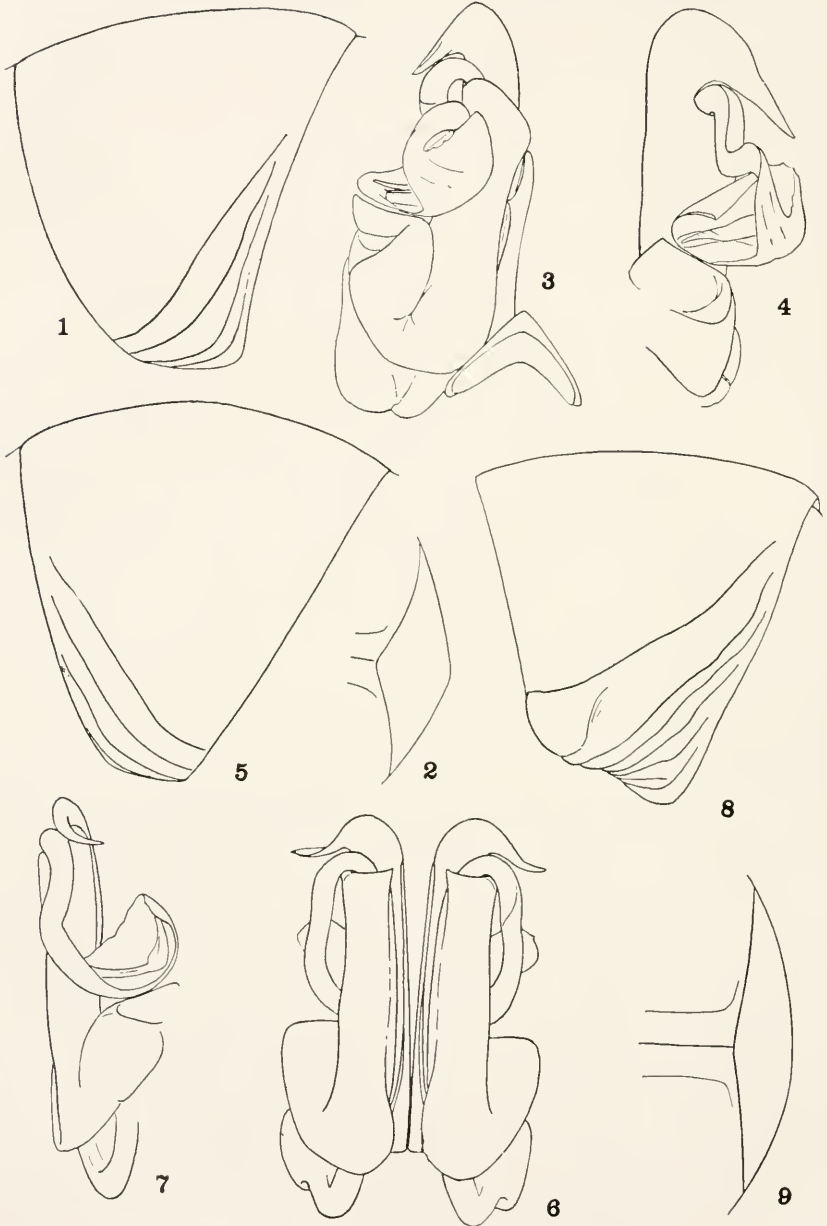
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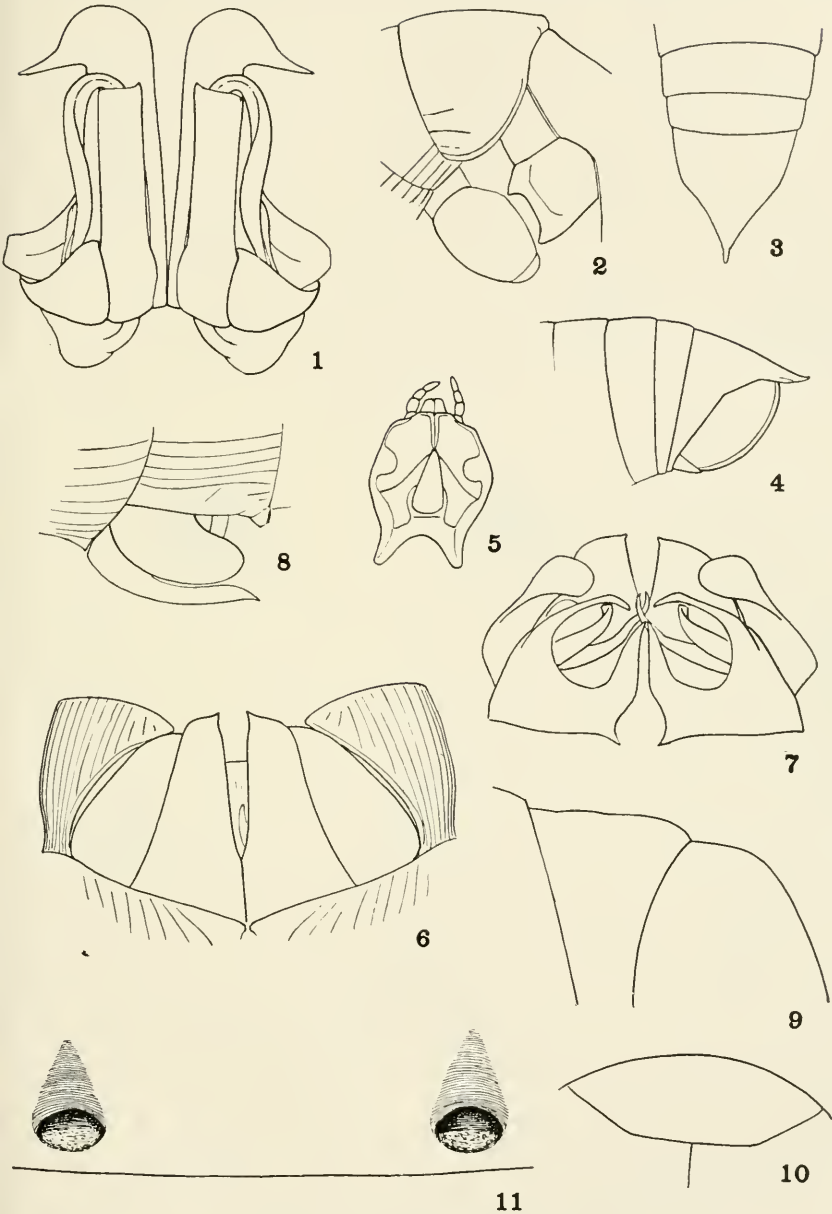
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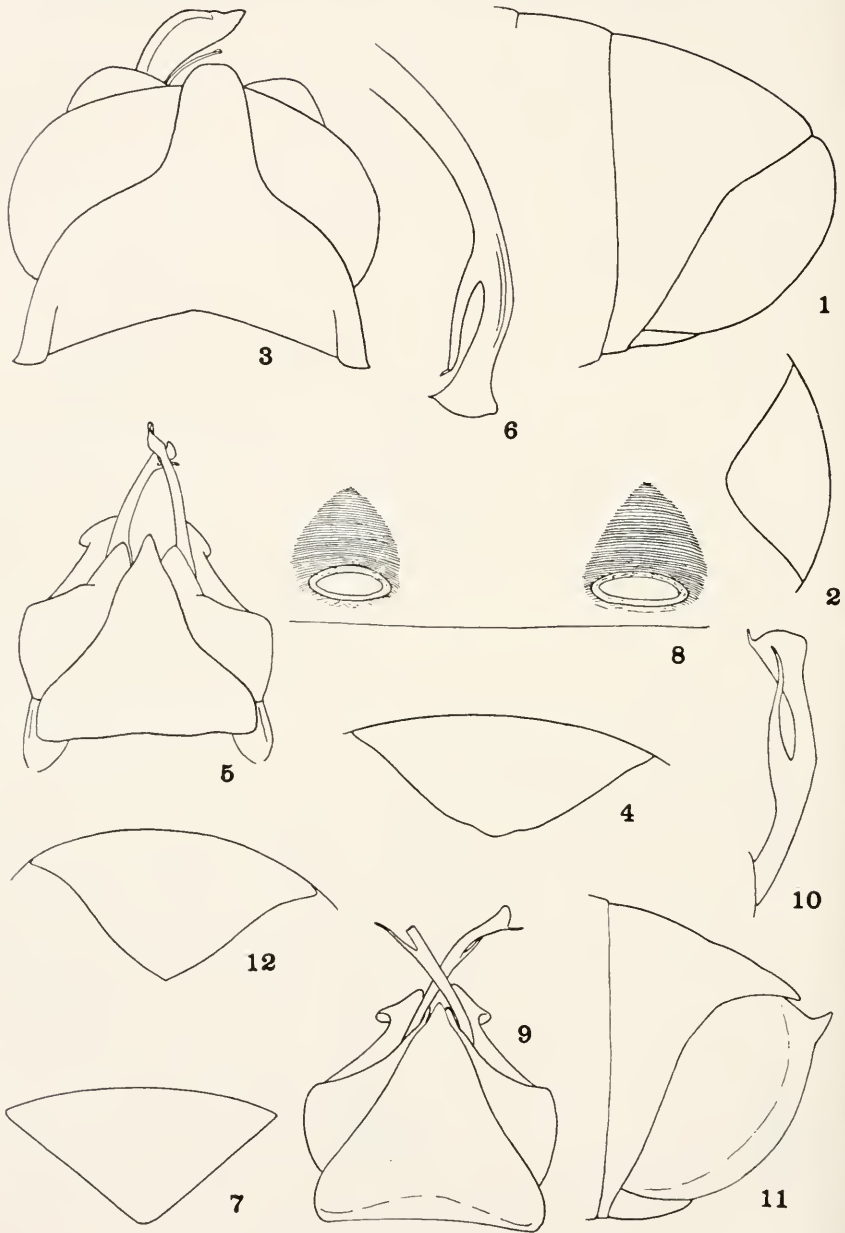
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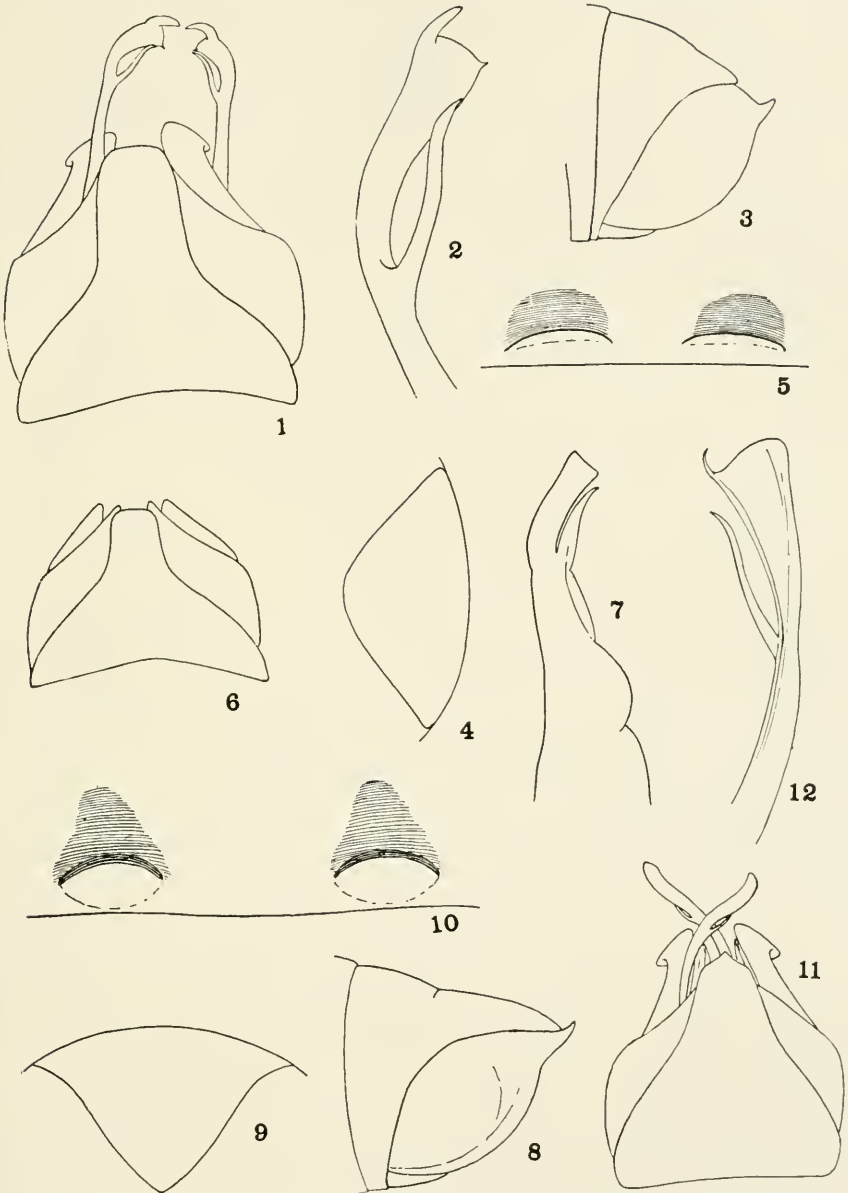
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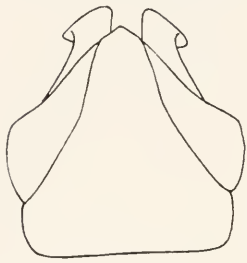
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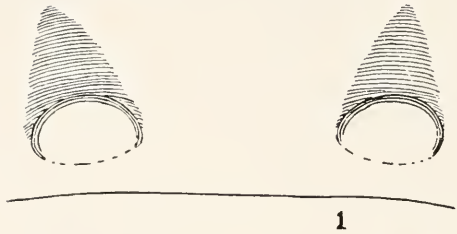


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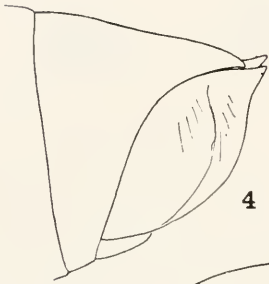
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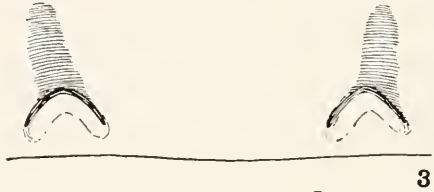
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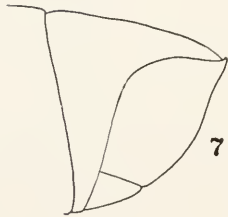
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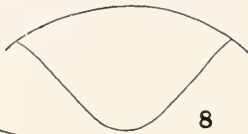
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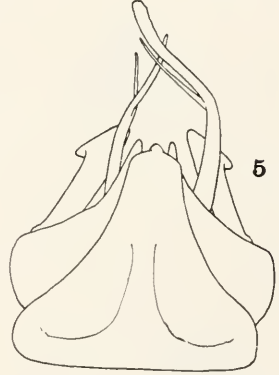
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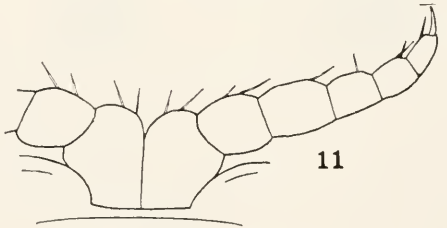
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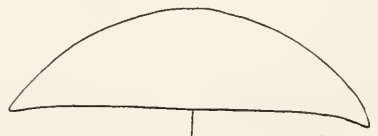
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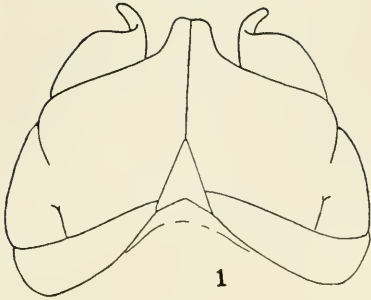
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FOR EXPLANATION OF PLATE SEE PAGE 67.



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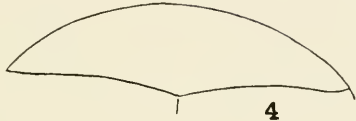
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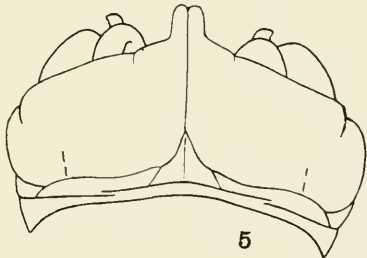
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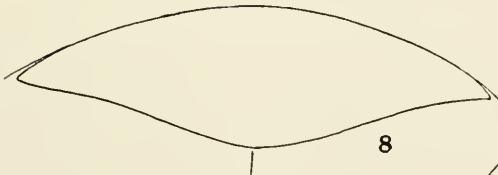
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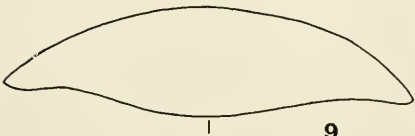
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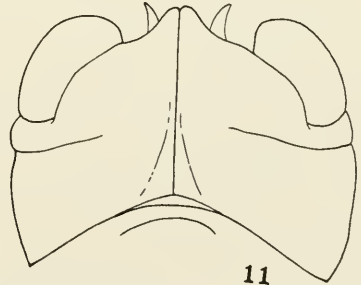
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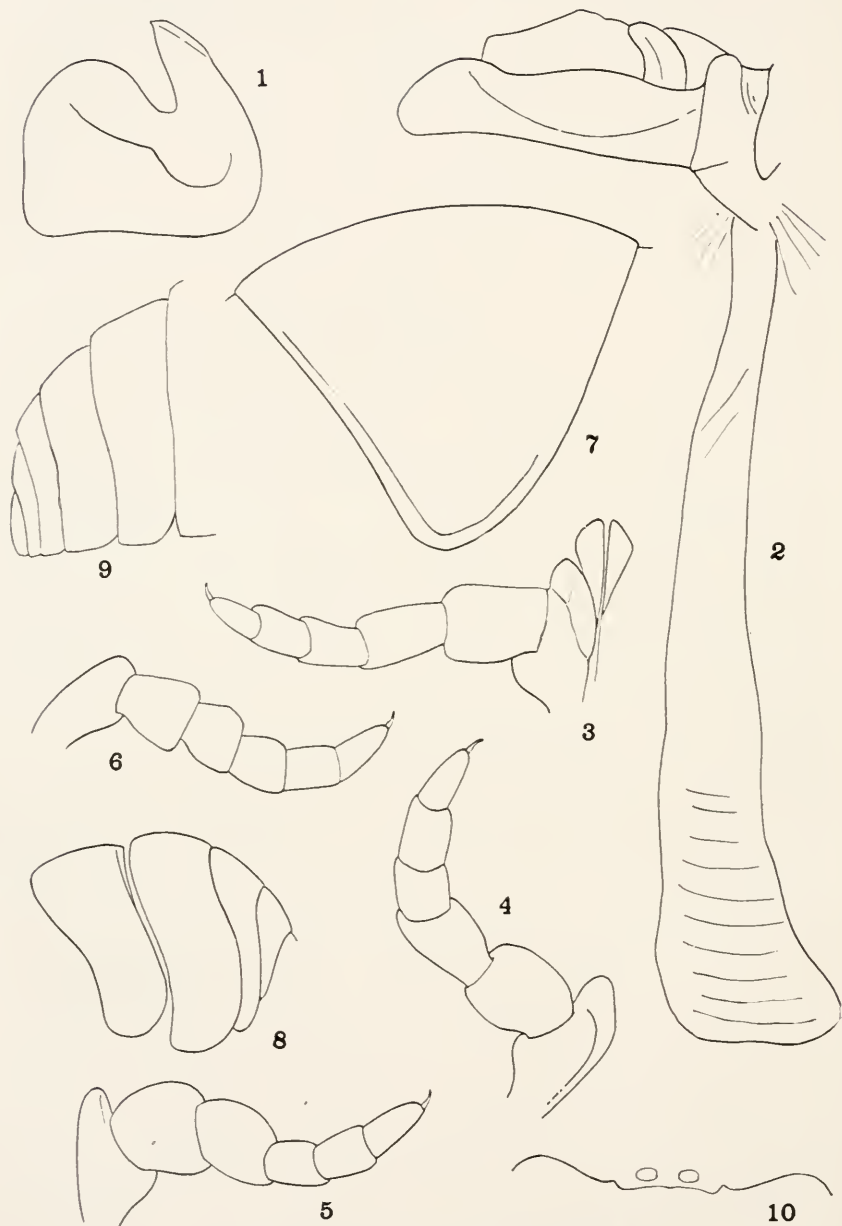
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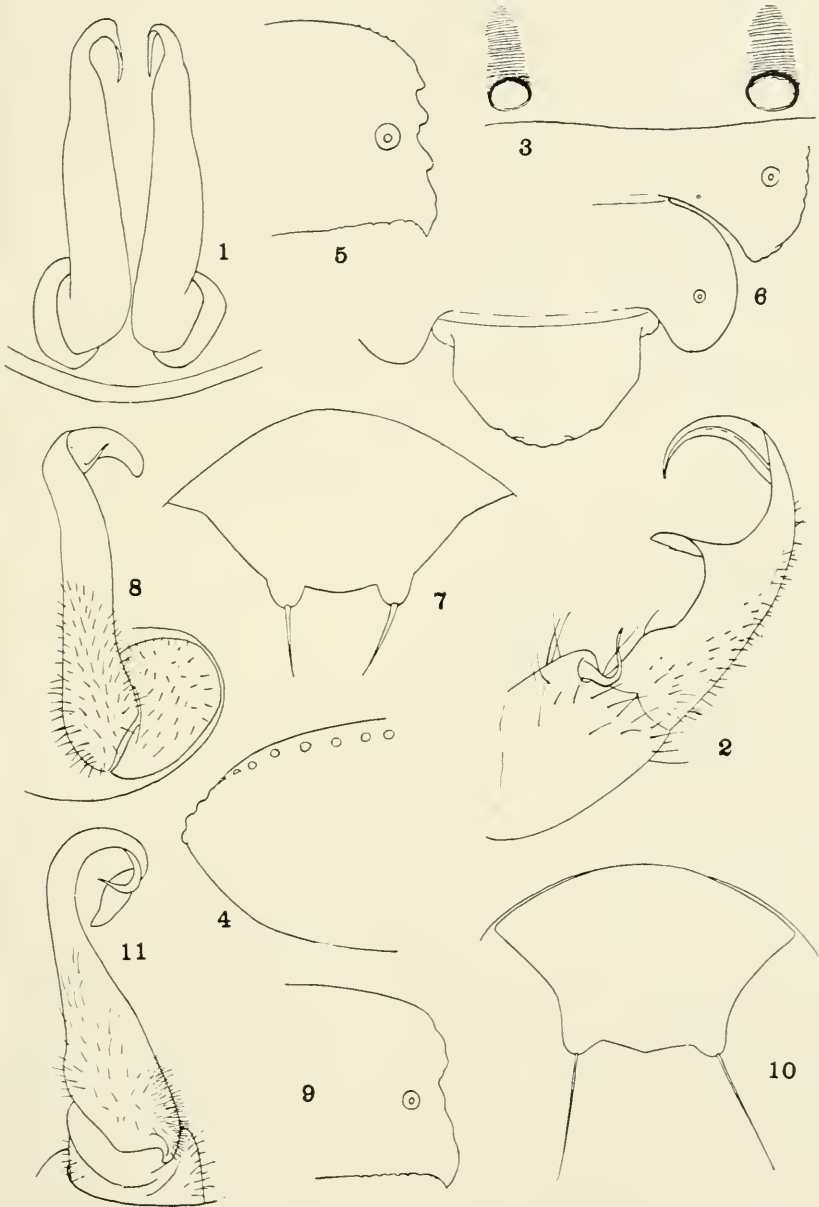
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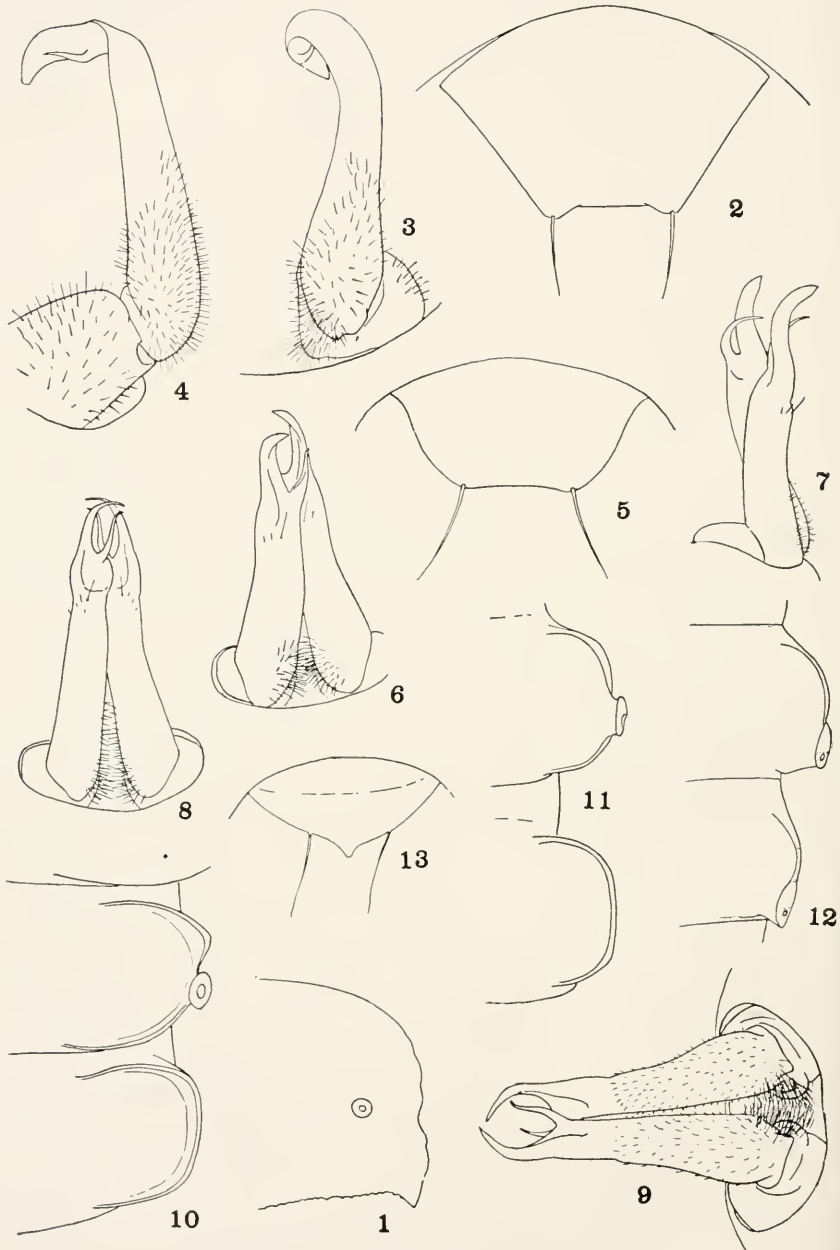
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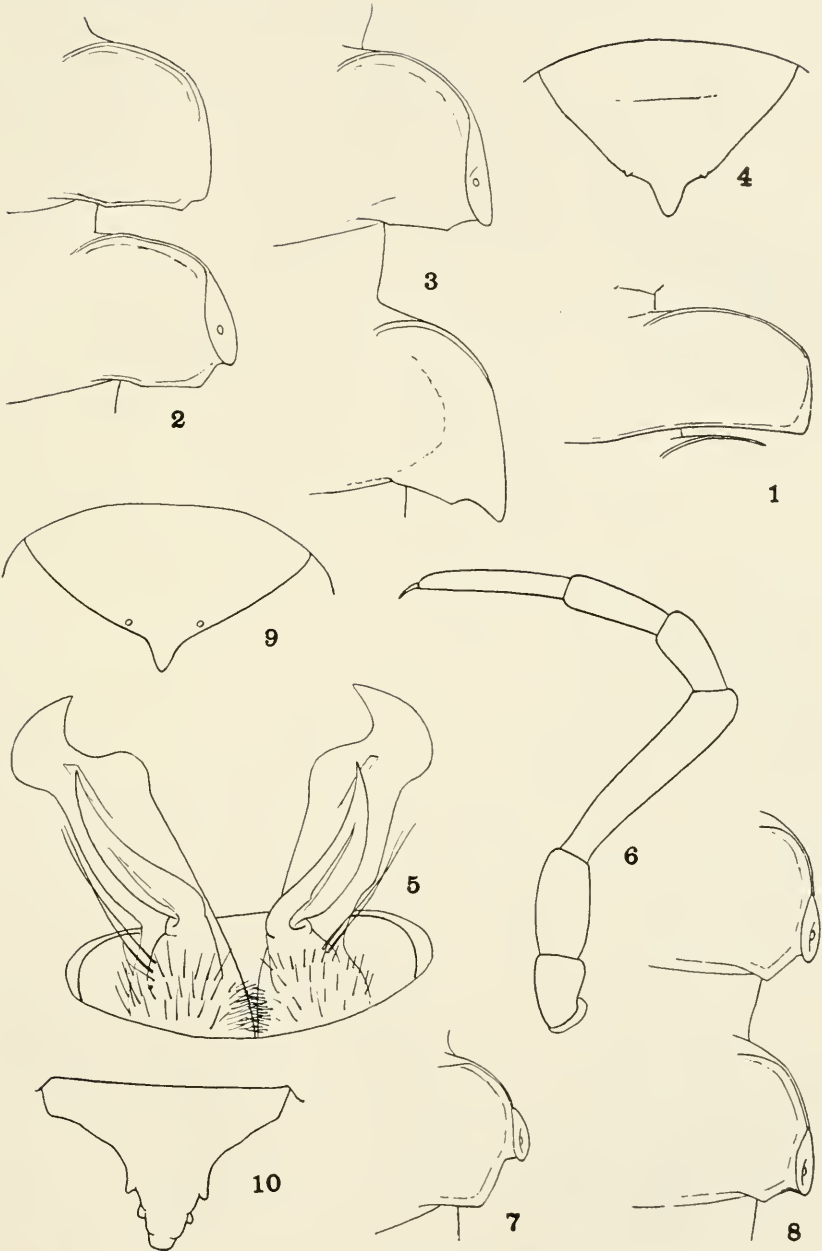
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FOR EXPLANATION OF PLATE SEE PAGE 68.



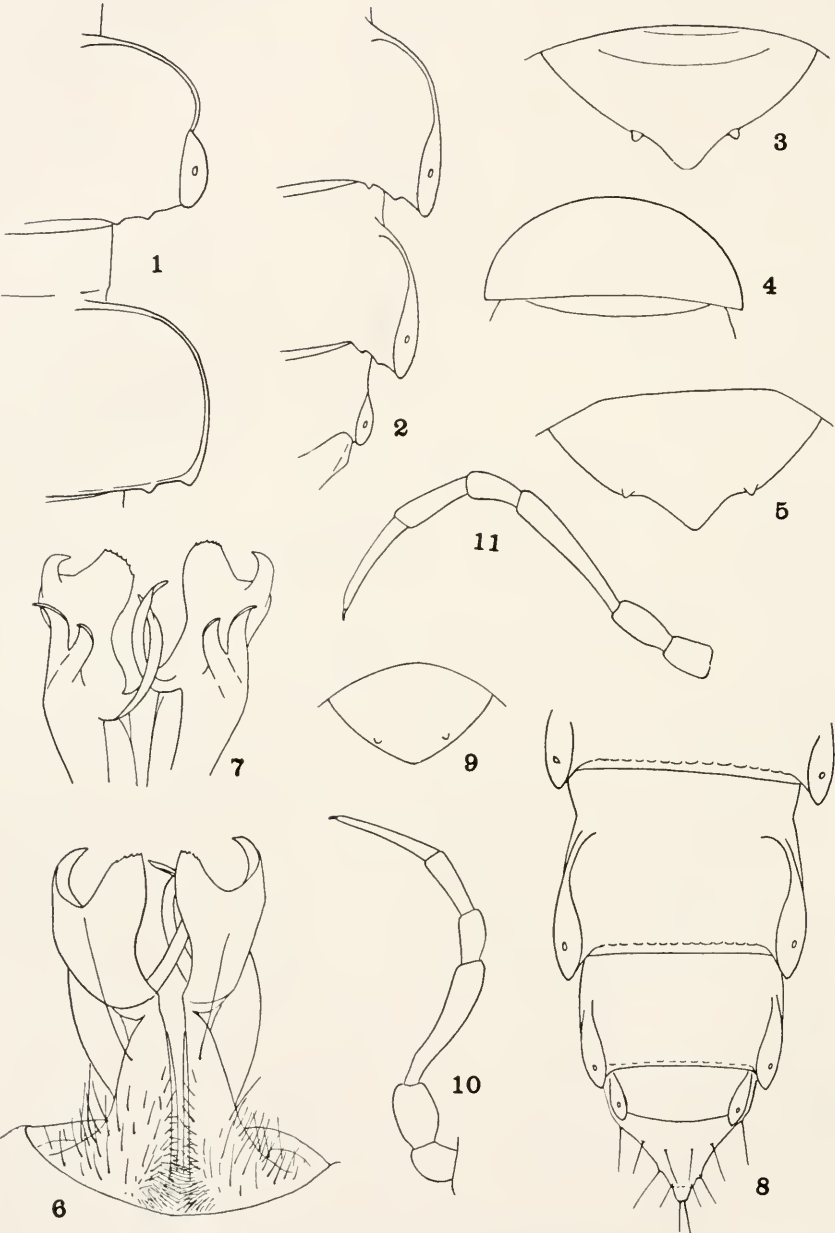
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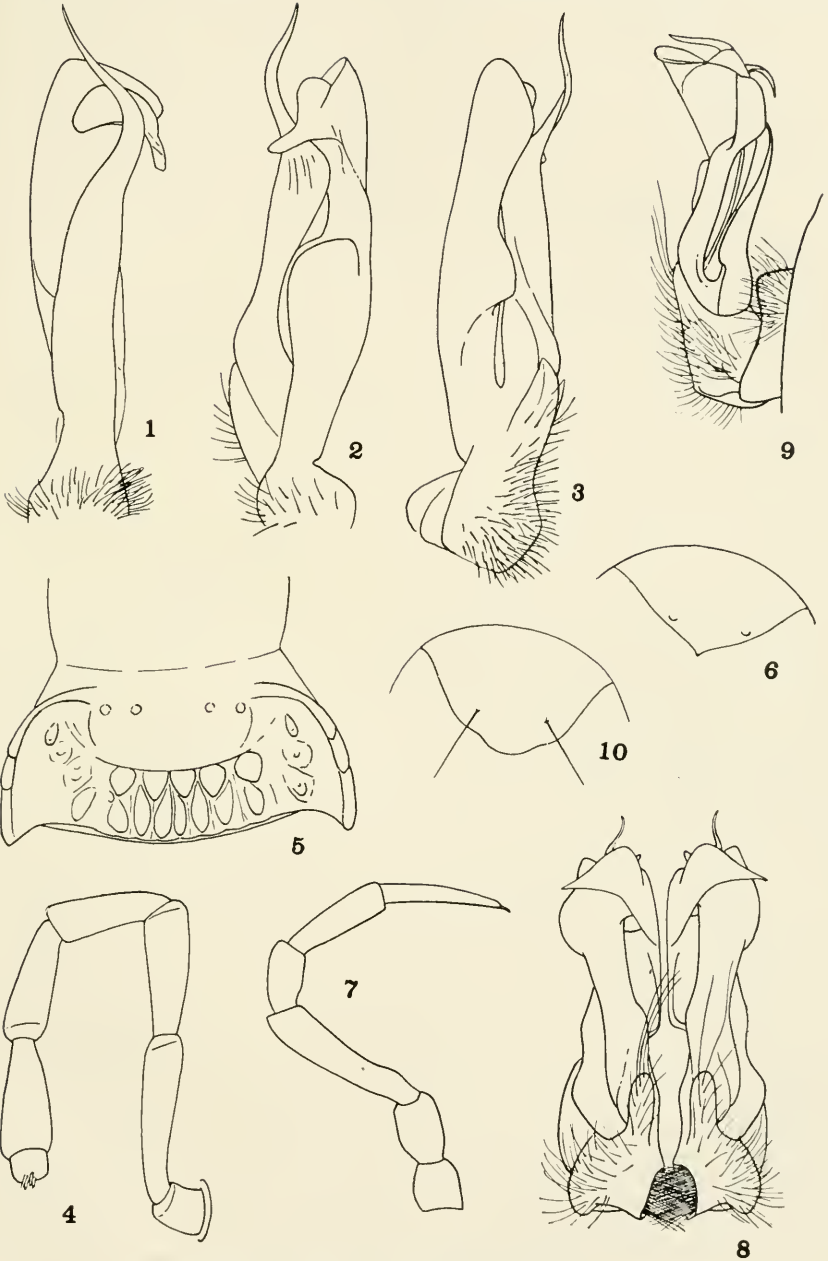
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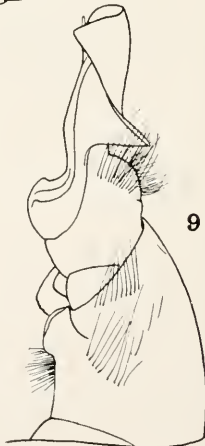
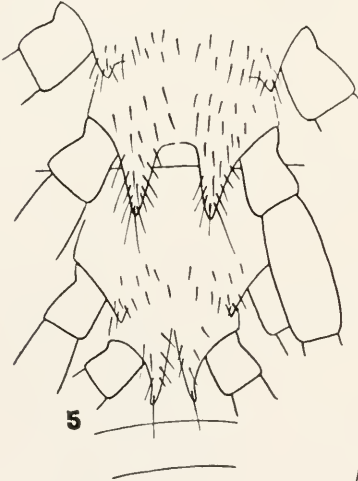
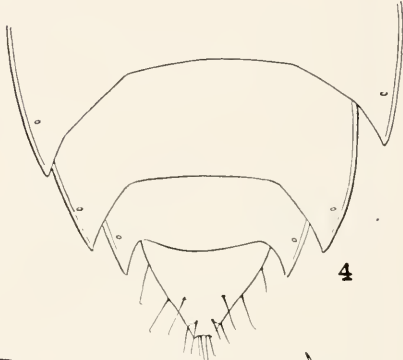
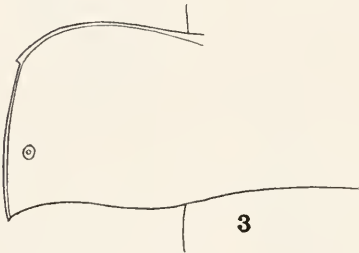
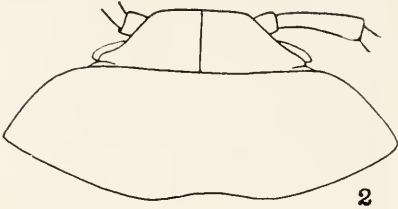
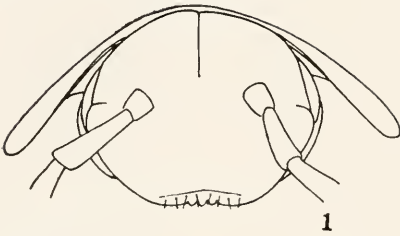
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FOR EXPLANATION OF PLATE SEE PAGES 69 AND 70.



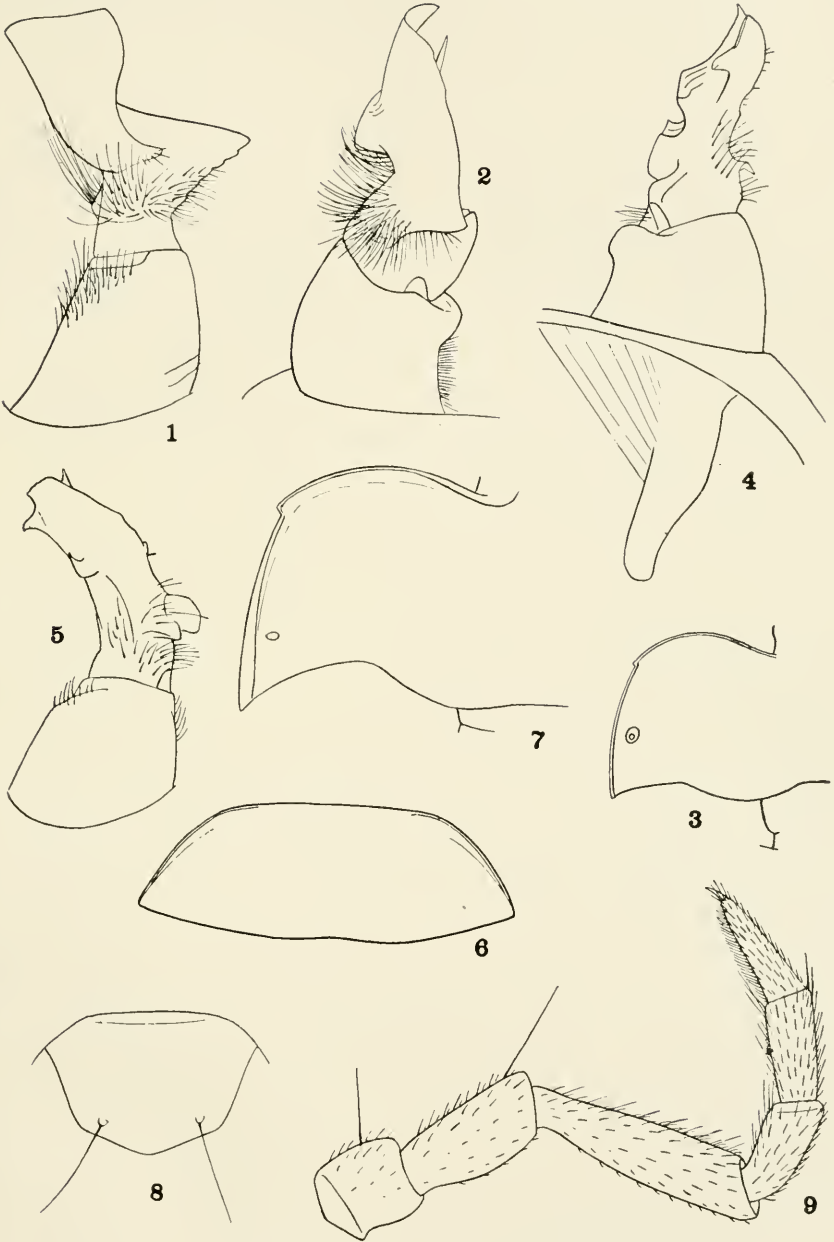
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FOR EXPLANATION OF PLATE SEE PAGE 70.



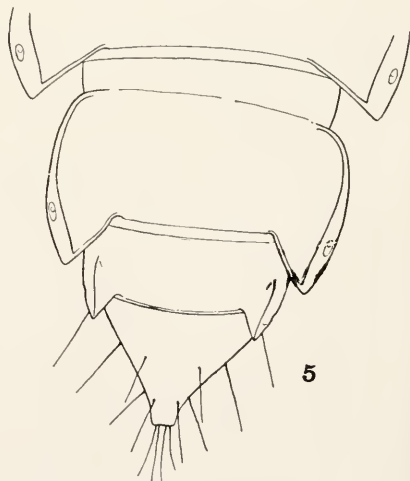
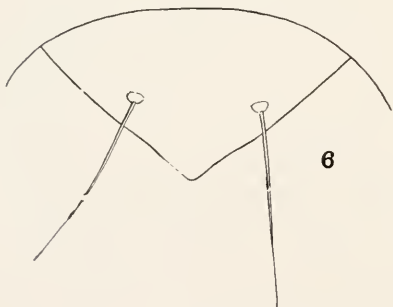
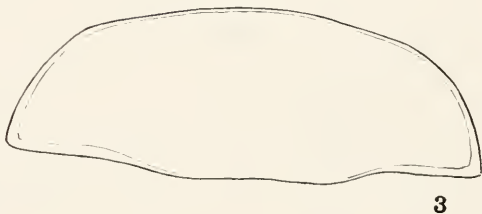
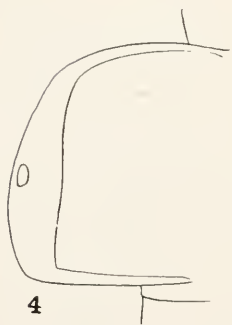
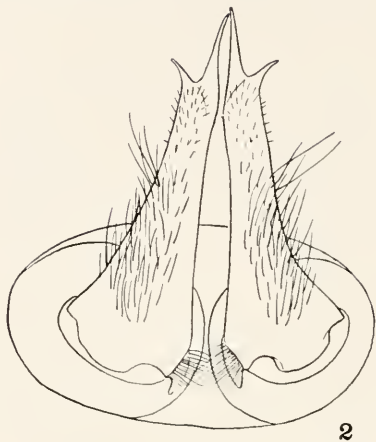
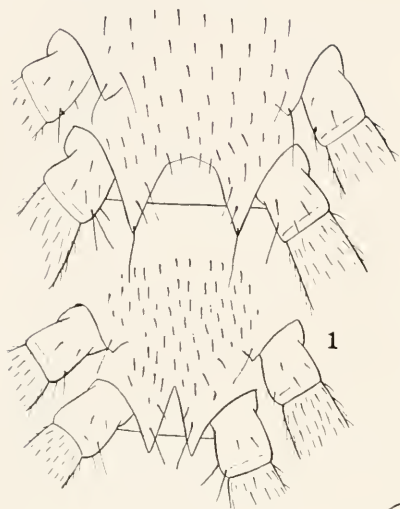
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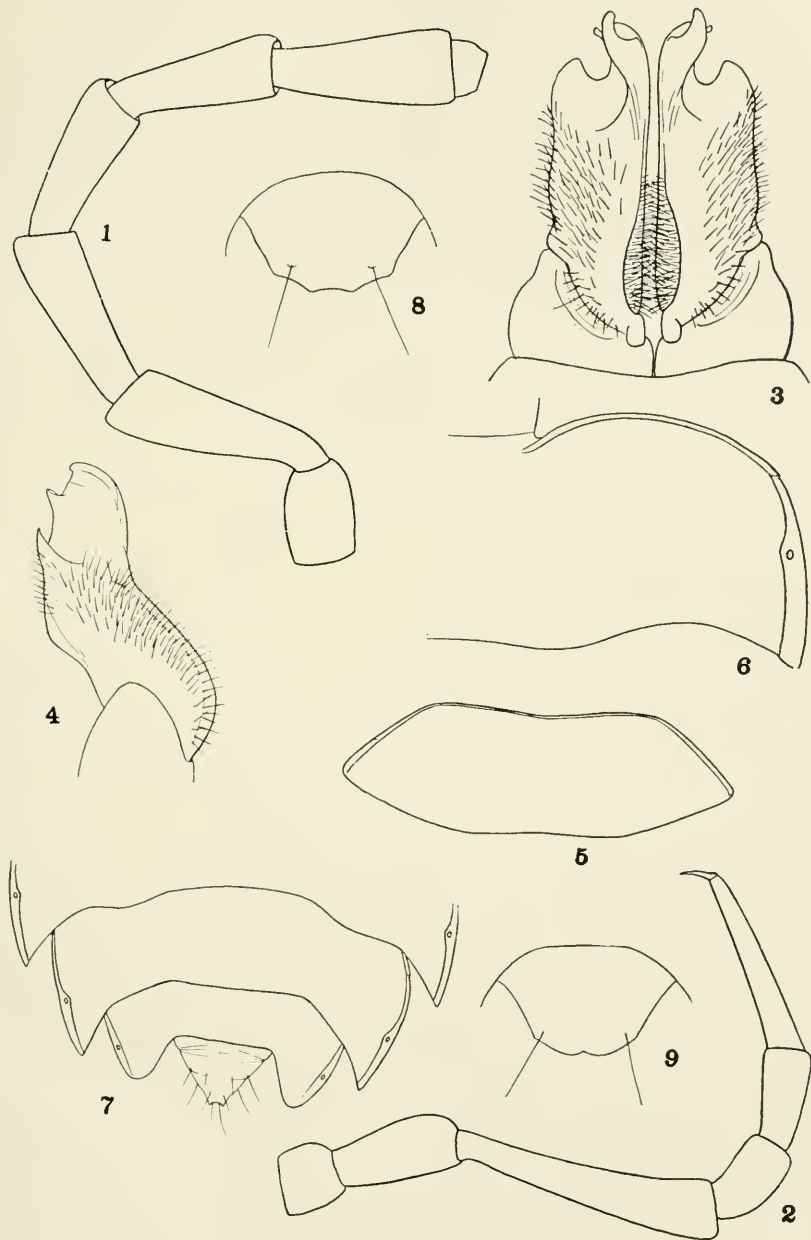
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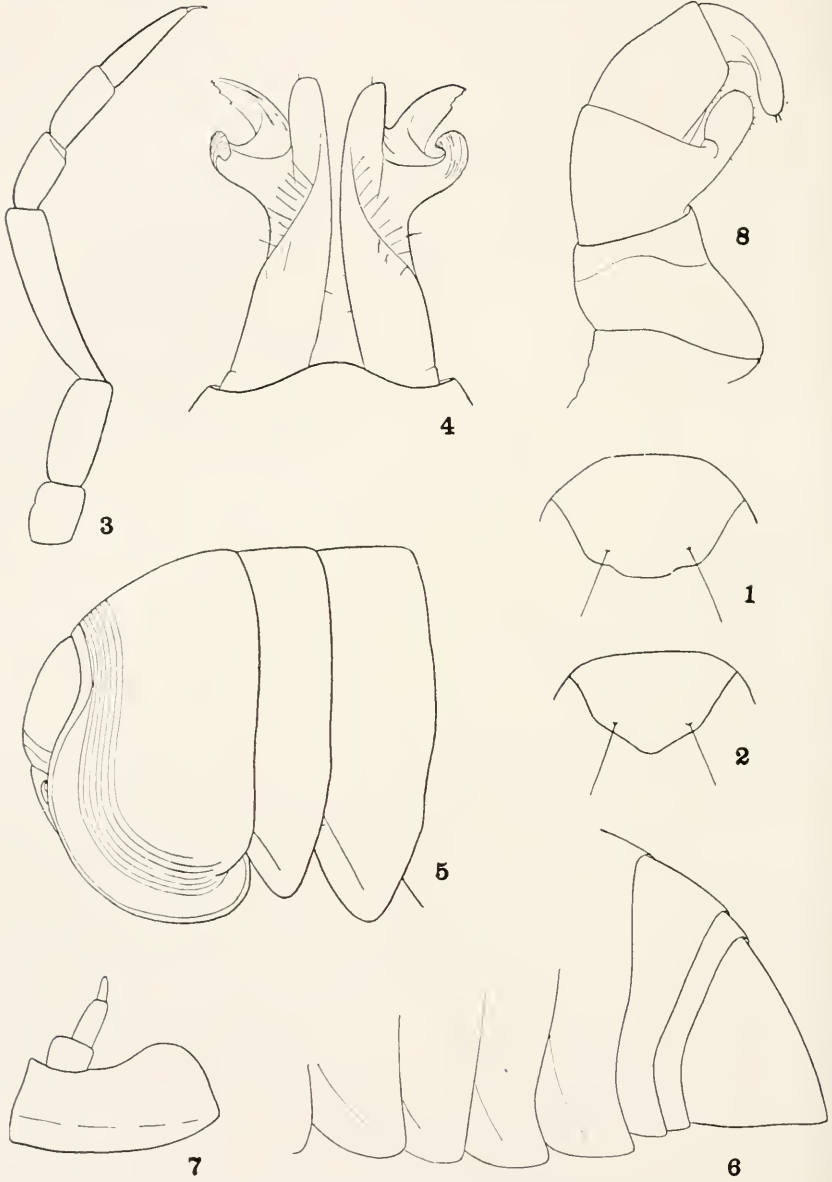
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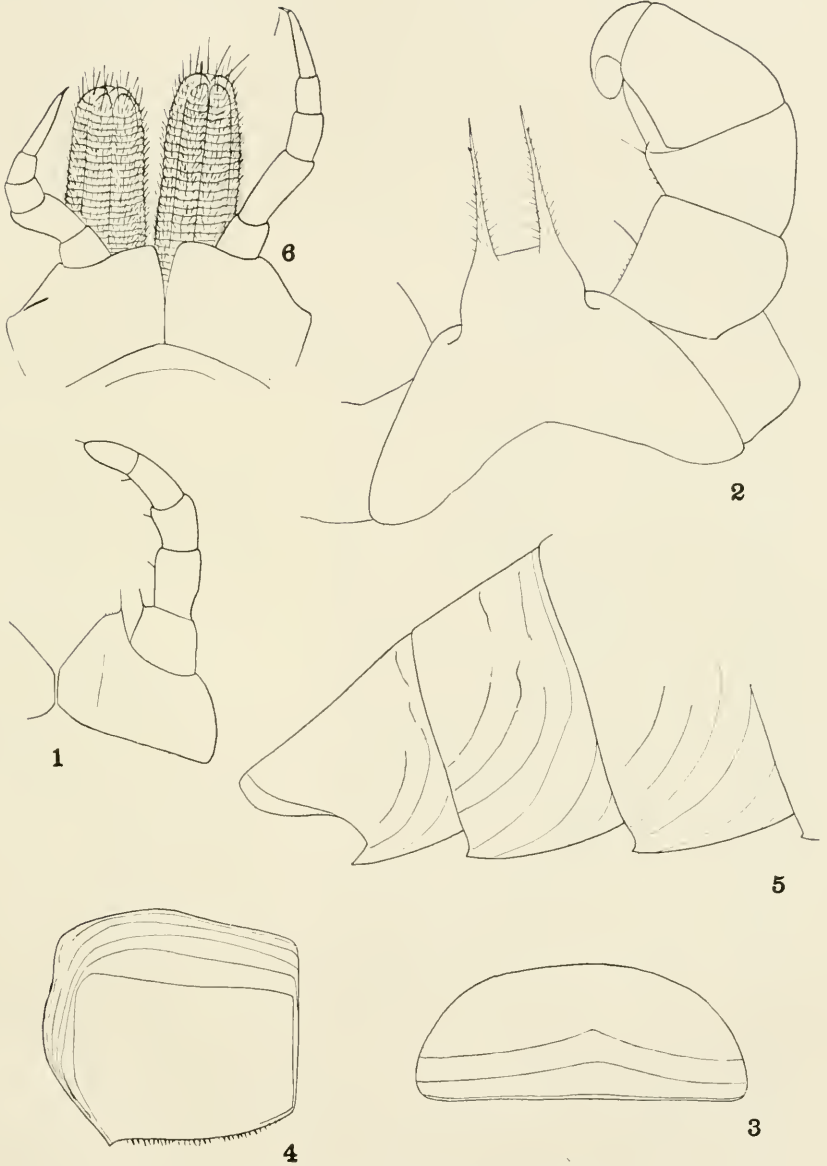
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