

# AMERICAN MUSEUM NOVITATES

Number 1282      Published by  
THE AMERICAN MUSEUM OF NATURAL HISTORY      April 13, 1945  
New York City

## ON SOME DIPLOPODS FROM THE INDO-AUSTRALIAN ARCHIPELAGO

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The millipeds upon which the present paper is based are, for the most part, embraced in a collection sent to the writer some years ago by Dr. K. W. Dammerman, then of the Buitenzorg Museum in Java. The material was collected by Dr. Dammerman and associates, chiefly in Java, New Guinea, and Sumatra and some of the smaller adjacent islands. All the material here reported upon is now in the custody of the American Museum of Natural History, except that representing *Dinematocricus hadleyi* which is in the United States National Museum.

### Sphaerotheridae

#### *Sphaeropoeus lamprongsis*, new species

Figures 1-3

The integument of head and tergites brown to chestnut, darkened over caudal border. Legs brown.

Antennae very short; sixth article abruptly much thicker than the others, elliptic in cross section, the distal surface bearing numerous sensory cones.

Head strongly punctorugose, clothed throughout with numerous erect setae which are denser over the clypeal region than above.

Collum also densely rugose punctate; anterior margin arcuate, the posterior evenly convex so that lateral ends are rather narrow and acute, curving somewhat forward at ends. Subdensely setose.

Second tergite (shield) extending well below level of third and fourth, the ends broadly rounded. Anterior border and lateral ends thin, depressed conspicuously below level of remaining area of shield, the depressed border extending up on caudal side, strongly margined; anterior border of elevated portion of plate on each side of

middle limited by a smooth sharp ridge. Depressed border smooth, the plate otherwise roughened and punctate as are all the following tergites, all of which are similarly setose with numerous short, erect setae.

Anterior depressed borders of succeeding tergites, which are overlapped when the animal is rolled, with free margin conspicuously elevated, the surface punctate and clothed with prone hairs.

Vulva of female as shown in figure 1.

The structure of anterior and posterior gonopods is best shown by the figures (figs. 2, 3).

Length, 25-29 mm.; width, 14-16 mm.

LOCALITY: Sumatra: Lamprongs, Wai Lima. Three females and two males taken by Karny and Siebers, November-December, 1921.

#### *Zephronia moderata*, new species

Figures 4, 5

Head dusky brown, in considerable part nearly black with the antennae fulvous. First tergite and second tergite (shield) also similarly dark colored, the latter bordered both in front and behind with yellow. In the succeeding tergites the caudal border is yellow.

The antennae very short with the distal portion thicker; first five articles very short; the sixth very large, subglobular, its distal flat surface, bearing the numerous cones, circular in outline.

Collum with caudal margin evenly convex, the anterior angularly produced at middle and concave on each side.

Second tergite (shield) extending much below level of third and fourth, with lower ends evenly convexly rounded; border relatively depressed below level of median portion as usual, margined, the general

surface of the plate not roughened, setose with short erect hairs. Third tergite with lower ends narrowly acute, fourth extending considerably below it. All tergites clothed with numerous very short, erect hairs, with the surface itself smooth.

The form of tarsus and the relation of apical spine and claw are as shown in figure 4.

Anterior and posterior gonopods with tibia and tarsus fused (see fig. 5).

Length, about 16 mm.; width, 8 mm.

LOCALITY: Java: Tjibodas. One male taken in May, 1922, at 1400 meters elevation.

### **Zephronia tivia**, new species

Figures 6, 7

Of smaller size than the preceding species and characterized especially by the form of the gonopods, which are figured.

Color brown, without special markings.

Antennae with proportions of joints as shown in the figure.

Collum with anterior margin arcuate as usual, the median portion strongly bent forward beyond level of lateral ends as figured. Crossed by two transverse lines which are bowed apart more widely from each other in middle region.

Anterior border of shield slightly angled on each side at level of eye.

Gonopods of male as shown in figures 6 and 7.

Width of male holotype, 6.6 mm.

LOCALITY: Sumatra: Lamprongs, Wai Lima. November–December, 1921, Karny and Siebers.

### **Tonkinobelum sumatrense**, new species

Figures 8, 9

Head, collum, and anterior tergites blackish olive chestnut, the succeeding ones somewhat lighter olive chestnut, posterior margins of tergites bordered with a lighter, somewhat olive color, this lighter band sometimes broken with dark spots. Under surface of keels and pleurites, sternites, and legs also of olive cast. No spotting such as described for *T. maculatum*.

Antennae with sixth article several times longer than the fifth; the distal surface

oblique and very long, extending well proximad of middle and bearing numerous sensory cones. Clypeal region of head densely punctate, the punctae fewer dorsad and very sparse over vertex.

Collum with very few, weak punctae; anterior border margined with a line-like impression. Second tergite or thoracic shield in general as in *T. maculatum*, the generotype, but the transverse furrow much shallower mesially, more distinct on each side; hirsute over anterior face and in this transverse depression.

Anterior oblique surface of succeeding ordinary tergites, overlapped when animal is rolled, with anterior margin elevated as a rim, the surface hirsute but not ridged.

Telopodites of both pairs of gonopods four-jointed, the tarsus being distinctly set off from the tibia. Prefemur of anterior pair compressed in anteroposterior direction, in anterior view subquadrate in outline, anterior corners rounded, without processes; femur with process on ecto-caudal side, smooth, subacutely pointed; tibia opposite process of femur with hook-like process as antagonist; tarsus about three-fifths the width of tibia, cylindrical, distally rounded. Process of femur of posterior gonopod on mesial side, large, compressed, narrowing distally to an acute point, a blade-like expansion on ectal side from middle to base closing against a corresponding low triangular blade on mesial side of tibia; tarsus small, cylindrical, distally rounded, much narrower than tibia. (See figs. 8 and 9.)

Length, 51.5 mm.; width, at middle, 28.5 mm.; width of second tergite or thoracic shield, 27 mm.

LOCALITY: Sumatra: Manindjou. Two males taken by Leeuwen, January, 1920.

## **Polydesmidae**

### **Opisthoporodesmus silvestri**, new species

Figures 10–12

Reddish brown, with margins and tip of keels yellowish. Antennae and legs yellow.

Collum semilunate in outline, the anterior side and lateral ends together forming a semicircular line, and the caudal mar-

gin mesially straight and bent forward at ends. Tubercle of posterior row large but low, others obsolete, but all setae well developed.

Tergites in general with tubercles and setae as in the generotype, *O. obtectus* Silvestri. The keels raised conspicuously dorsad toward margins, with the processes more strongly produced caudad than in *obtectus*, as shown in figure 10. Posterior processes of keels of penult tergite more acute than in *obtectus* and not bilobate.

Last tergite acutely triangular in outline, relatively smaller than in *obtectus* (see fig. 10).

Tarsi of legs long and very slender.

Vulva of female a conspicuous subelliptic structure as shown in figures 11 and 12.

Length, about 13 mm.; width, 2.75 mm.; thus a much larger form than the generotype.

LOCALITY: New Guinea: Pionierbivak. One female taken June–August, 1920, by Van Heurn.

***Opisthoporodesmus conservandus*, new species**

Figures 13, 14

General color of body brown, with legs yellow.

Keels set high and rising above level of dorsum, with posterior processes also higher than anterior part of keel. Anterior margin of keel convex, the caudal margin concave or somewhat angularly excavated, the posterior processes mostly very acute, strongly produced caudad in posterior segments. Anterior margin of keel smooth, a little rolled upward; the lateral margin with two or three small serrations. Pores opening on process at, or just proximad of, tip. (See figs. 13 and 14.)

Anal tergite triangular, the narrowed tip extending beyond the anal valves.

Gonopods of male as described under the genus.

Length of male holotype, about 10 mm.; width, 1 mm.

LOCALITY: North New Guinea: Prau-wenbivak. One male taken by W. C. Van Heurn, September, 1920.

***Opisthoporodesmus anandrus*, new species**

Head, collum, and keels above fulvous, the keels with finely meshed reticulations of dark color; the region between keels darker, of dusty or purplish cast, especially behind the suture. Sternites and legs yellow.

Collum semicircular. Anterior and posterior rows of tubercles smallest.

Second tergite with posterior corners slightly acute, the excavation on caudal margins very obtusely angular; lateral margin with two small serrations. Keels of third and fourth segments similar, but posterior angles more strongly produced and more acute. Area of keels smooth except for two pointed tubercles on ridge-like swelling running from inner anterior base to posterior process, one tooth between middle and outer end and one near caudal end of the swelling. Anterior margin smooth, bent upward. The dorsum of these three segments bearing the usual three transverse rows of tubercles, two behind the furrow. Of the two posterior rows, the anterior much the larger. Tubercles of anterior row also much smaller. Typically four tubercles in each of the first two rows and six in the posterior row.

The sculpturing of the succeeding tergites similar but the tubercles of anterior row becoming more weakly defined or essentially obliterated except the median or apical granule on each which in life was probably setigerous, the type at present being much rubbed. The repugnatorial pore close to apex of posterior process on its outer side; a tooth-like serration cephalad of the pore opening so that porigerous keels appear to bear three serrations on lateral margin.

Caudal tergite triangular, much narrowing caudad, the narrow terminal process extending well beyond anal valves, apically rounded and bearing setigerous tubercles on caudal face; four setigerous tubercles near base above and a tubercle on lateral margin proximad of apex.

Anal scale with the two caudal setigerous tubercles widely separated, the caudal margin between them straight or very slightly convex.

Length, 17 mm.; width, 2.5 mm.

LOCALITY: New Guinea: Doormanpad. Female holotype collected October 27-30, 1920, by W. C. Van Heurn at 1800-2400 meters elevation.

The female is described without the male only because of the importance of the record and the belief that the type presents features distinctive enough for subsequent recognition.

**Opisthoporodesmus simplex**, new species

In the absence of a male, this species is referred to *Opisthoporodesmus* with which it agrees fully in general morphological features. It is a larger form than the generotype, *O. obtectus* of New Guinea, the length being 12 mm. as against 7 mm. and the width 1.75 mm. as against 1 mm. The details of the carinal process are also distinctive. The anterior keels continue the slope of the middorsal region, and the more posterior ones are but little more elevated. A large swelling within the lateral margin of keel and another one at base of keel. The setiferous swelling over dorsum low, not sharply set off and in part obsolete.

Dorsum brown, with legs yellow.

LOCALITY: Java: Tjibodas. August, 1921, one female, and May, 1922, one adult female and several partly grown, at 1400 meters elevation.

**Opisotretus euthus**, new species

Figures 15, 16

In general structure agreeing with the larger *O. kraepelini*. Keels similar, but the tooth mesad of the pore characteristically smaller, located more cephalad, and the angle as a whole obviously more produced caudad (fig. 15). A large swelling within the lateral margination and a second one on base of keel mesad of the first. An irregular series of slight, nearly obsolete longitudinal swellings behind sulcus and one in front of it.

In the gonopods the telopodite runs outward and curves partly about the base of the ninth legs as in *kraepelini*. The tarsal division similar to that in the latter species, but differing in bearing on the outer side a characteristic process or tooth. (See fig. 16.)

Length of female allotype, about 8 mm.; width, 1.25 mm.

LOCALITY: Java: Tjibodas. Several males and females taken by Dammerman, August, 1921, at 1400 meters elevation.

**Opisotretus mimus**, new species

Figure 17

Close in general structural features to *O. kraepelini*. It is separated chiefly because of the notable reduction of the keels on the last few segments, those of the eighteenth segment being obsolete and those of two preceding segments very narrow and with the caudal teeth or processes, between which the pore opens, short, not extending caudad beyond the caudal margin. These teeth are proportionately shorter and broader than indicated in Attems' drawing for *kraepelini*.

Collum somewhat broader and laterally less rounded than in *kraepelini*.

Anal segment with cauda moderately long and curved downward.

A much smaller form than *kraepelini*, the length being 7 mm. as against 12 mm.

LOCALITY: Java: Tjibodas. Four females, May, 1922, at 1400 meters elevation.

**RETRODESMUS**, NEW GENUS

Agreeing with *Opisotretus* and differing from *Opisthoporodesmus* in having but 19 body segments. Differing from the former in the proportionately broader collum and in lacking the three transverse rows of setiferous swellings, the seriate setae rising from an even, smooth surface. Posterior corners of keels more strongly produced. It differs notably in the position of the repugnatorial pore which, instead of lying close to the caudal margin mesad of the corner tooth as in *Opisotretus*, lies in front of the posterior process of the keel and much nearer the lateral margin than the posterior. The gonopods are similar in having the telopodite bent transversely outward but is geniculate at junction of tibial and tarsal portion, not evenly curved; the tibial portion much shorter and distally characteristically divided into short lobes and in part fringed.

GENEROTYPE: *Retrodesmus dammermani*, new species.

**Retrodesmus dammermani**, new species

Figures 18-20

Color pale testaceous. Antennae long, the joints between first and fifth long and slender. The fifth moderately clavately widening distad and the sixth abruptly much thicker; seventh article well developed (fig. 18).

Collum a little narrower than second tergite and than head as a whole, but much exceeding the cranium proper; anterior and lateral margins together forming an even convex curve, the caudal margin straight; at lateral ends two obscure denticles.

All succeeding tergites with posterior corners of keels produced caudad, the processes becoming longer on more posterior segments. Caudal margin of keels smooth, bearing no tooth. Lateral margins with a minute tooth at anterior corner followed usually by three small teeth, of which the middle one is commonly reduced and on some anterior segments may be absent. Position of pore as shown in figure 19. Processes of keels of eighteenth segment reduced (fig. 19). Transverse sulcus of metazonite sharply impressed.

For structure of gonopods see figure 20.

Length, about 6 mm.

LOCALITY: Java: Tjibodas. One male taken by Dammerman at 1400 meters elevation.

**Cryptodesmidae**

**Cryptocorypha tobana**, new species

Figures 21, 22

Color pale yellow.

Collum divided into 12 areas by radial lines as usual. The marginal indentation very obtuse and slight.

Keels of the following segments with three or four lateral scallops as in *leia*; relatively wide transversely, much as in *leia*.

Distinguished especially by the details of the gonopods of the male as shown in figures 21 and 22.

Length of male holotype, 5.5 mm. An

obviously smaller form than *leia*, the width being but 1.2 mm. as against 2 mm.

LOCALITY: Sumatra: Lake Toba (Toba-meer). One male taken in March, 1922, by Dammerman.

**Cryptocorypha leia**, new species

Figures 23-26

Color of preserved type appearing brownish yellow at present, but surface more or less dirty, probably a clear yellow in life.

The collum shows 12 areas marked off by distinct radial sulci, but the margin smoothly continuous, showing no such scallops as are well developed on the keels of the other body segments (fig. 23).

On the following body segments there are three lateral scallops on the non-poriferous segments, four on the poriferous. Each pore opens in the space between third and fourth scallops at a considerable distance mesad from the marginal notch (fig. 23).

Features of the caudal end as shown in figure 24.

Gonopods as represented in figures 25 and 26.

Width of male holotype, 2 mm.

LOCALITY: Java: Goenoeng Malabar. Male holotype taken in December, 1920, at 1600 meters.

**ELATOSUS**, NEW GENUS

A very small form like those of *Aplotes* and *Gonomastis*. In the types, the body consists of but 19 segments in the female and 17 in the male, but the latter certainly, and the former probably, lack one molt of maturity. Anal segment bent ventrad as in the two genera mentioned. Tergites simply thickened or moderately swollen on the sides, but with no true keels, except on the second segment where there is distally expanded a descending keel. Repugnatorial pores on segments V, VII, IX, X, XI, XII, XIII, and XV-XVII opening on a level with the surface or through a simple tubercle-like swelling. Dorsum of metatergites with mostly transverse series of setae; surface not tuberculate. Antennae short, clavate.

GENEROTYPE: *Elatosus pygmaeus*, new species.

***Elatosus pygmaeus*, new species**

Figures 27-29

Color throughout light yellow, venter and legs a little paler than dorsum.

Surface of head above and in front minutely densely granular, with the granules in large part arranged or partly fused in anastomosing lines; densely setose with short setae. Antennae short, clavate.

Collum semicircular, the anterior and lateral margins forming an evenly convex curve and the caudal margin nearly straight between rounded ends; as wide, or nearly as wide, as head inclusive of "cheeks," narrower than second tergite but as wide as third; setae sparser and larger than those on head (fig. 28).

Second tergite with keel-like lateral expansion extending downward and forward so as partly to embrace the cardo on each side, the lower end strongly and evenly convex (fig. 27).

Succeeding tergites widely and evenly smaller on the sides, with the ventral portion insunk from swollen lateral portion. Surface and setae as on the collum.

Length, about 4.7 mm.

LOCALITY: Java: Tjibodas. Several females and two males apparently lacking one molt of maturity, August, 1921, at 1400 meters elevation.

In the immature male the gonopods are represented by short, pointed stumps in which the distal article is hemispherically rounded.

**PORAUXUS, NEW GENUS**

Agreeing with *Elatosus* in the form of the keels of the second segment and in the absence of true keels from the succeeding ones. It differs from that genus in having pores on segments V and VII to XVIII, and in having the metatergites crossed by three transverse series of definite setigerous tubercles. Antennae inserted close together, short and thick, with second and sixth articles longest and the seventh freely exposed. Anal tubercle bent down ventrad at right angles to axis of body. Gonopods of the male relatively large with telopodite freely exposed, and biramous, with one branch long and flagelliform.

GENEROTYPE: *Porauxus pangrangus*, new species.

***Porauxus pangrangus*, new species**

Figures 30-32

The general color of body and appendages is pale, nearly white, but in the male holotype the tergites and the upper part of head are brown from adherent material. The antennae of form shown in figure 30.

Collum covering the head in dorsal view; bearing setigerous tubercles in six transverse series.

Second tergite with a keel in vertical position extending below level of collum and of venter of third segment; lower end conspicuously expanded as shown in figure 31.

Ordinary metatergites posteriorly swollen out on sides and beneath; above crossed by three rows of tubercles (fig. 31).

Anal tergite bent down caudally behind the valves, the setae of end tubercle being directed ventrad. Anal valves meeting evenly at middle line where neither raised nor reentrant.

Gonopods of the male with the telopodites extending caudad parallel with body axis. (For structure see fig. 32.)

Length of male holotype, 4.2 mm.

LOCALITY: Java: Pangrango. An adult male and an immature female taken in August, 1921, at 2400 meters elevation.

***Cryptyma javana*, new species**

Figures 33, 34

Tergites and head above level of antennae white but appearing black from adherent material, the head and body elsewhere yellow.

Antennae clavate, with fifth article much the largest, but sixth and seventh well developed; second article nearly as long as fifth but much more slender.

Collum with its 10 border scallops separated by deep incisions as in the Mexican *C. lobata*, the generotype, and above bearing tubercles much as in the latter form.

The keels of the following tergites decidedly wider than those of *lobata*, with the lobe of posterior border notably farther ectad; lateral border similarly bilobed,

with a deep incision between the lobes (fig. 31).

Pores difficult to see, opening remote from margin toward base of posterior lobe on segments V (?), VII, IX, X, XII, XIII, and XV-XIX.

Anal segment small, curved downward, its setae directed ventrad.

Gonopods of male with coxae very large, concave on mesial side, concealing the telopodite in side view. (For structure see fig. 34.)

Width of male paratype, 1.2 mm.; length, 4.8 mm.

LOCALITY: Java: Pangrango. One male taken by Dammerman in May, 1922, and two males and two females taken at the same place in August, 1921, at 2400 meters elevation.

### **Cryptodesmus weberi** Pocock

*Cryptodesmus weberi* Pocock, in Weber, 1894, Zoologische Ergebnisse einer Reise in Niederländisch Ost-Indien, vol. 3, p. 374, pl. 22, fig. 13, 13c.

LOCALITIES: Java: Tjibodas. Several not fully grown specimens probably this species collected by Dammerman, August, 1921, 1400 meters elevation.

Poentjak. Two females (one incomplete), taken January 5, 1920.

### **APHLOTES, NEW GENUS**

Like the Sumatran *Gonomastis* in having but 19 body segments, in its very small size, and in having the nineteenth tergite bent strongly ventrad. It differs, however, conspicuously in having distinctly developed keels and in having repugnatorial pores on segments V, VII, IX, X, XII, XIII, and XV-XVII instead of on segments V, and VII to XVII. Pores opening at end of tubercles which run a little in front of the characteristic notch at caudolateral corner of keels, the latter being otherwise entire. Antennae short, subclavate, proportionately thick, with fourth, fifth, and sixth joints differing not much in width but the sixth over twice the length of the short fifth; seventh article freely exposed, antennae inserted close together and each lying in a groove running obliquely caudolateral from its base.

For features of gonopods see figures 37 and 38.

GENEROTYPE: *Aphlotes litus*, new species.

### **Aphlotes litus**, new species

Figures 35-38

This, one of the smallest of known polydesmoids, is pale yellow in color.

Head densely covered above and in front with small uniform setiferous granules. All joints of antennae, except the sixth, unusually short and proportionately thick.

Collum wider than the head, narrowing toward each end which is rounded below, the ends extending part way down over "cheeks." Collum not covering the head in dorsal view. Its surface densely granular and setose, the succeeding tergites being similarly clothed.

Keels of second tergite bent down vertically or nearly so, prolonged much below level of ends of collum; the end portion with margin strongly rounded, set off by a longitudinal furrow; keels as a whole set off by a longitudinal furrow at base; notched on posterior side for reception of succeeding keel when the animal is rolled up. (See fig. 35.)

The keels of third and fourth tergites descending less toward the vertical position and less prolonged. On the succeeding tergites the keels are longer in antero-caudal direction with the lateral end lobe not set off and the lateral margin long and more moderately convex. On all keels a furrow runs cephalad from the notch and separates two smaller areas. The keels become narrower and rise more toward the horizontal in going toward caudal end. (See fig. 35.)

The gonopods of the male are proportionately large and well exposed. Coxae separated, large, hemispherical, concealing the proximal portion of telopodite in lateral view. Telopodite arising near caudal end of coxae on mesial side and running forward; having a distally truncate laminate lobe from vertical side near middle, the blade cephalad of this more slender and of form shown in figures 37 and 38.

Length, about 4 mm.

LOCALITY: Java: Tjibodas. A male and female taken by Dammerman, August, 1921, at 1400 meters elevation.

**Aphlotes auctus**, new species

Figures 39, 40

The body in general is pale yellow or nearly white; often appearing rust colored, mostly in patches, from material adherent to the dense setae.

Structure in general close to that described and illustrated for *A. litus*, differing in the details of the gonopods of the male as shown in figures 39 and 40.

An obviously larger form than *A. litus*, length typically 6 mm. as against 4 mm. and less.

LOCALITY: Java: Pangrango. Ten specimens taken by Dammerman in August, 1922, at 2400 meters elevation.

**Oniscodesmidae**

**HOPLITESMUS**, NEW GENUS

Closely resembling *Doratodesmus*, but the body composed of only 19 segments instead of 20 and the middorsal processes beginning on the fourth segment instead of the fifth. Sternites reduced as in *Doratodesmus* so that coxae are nearly contiguous except in sixth segment where well developed, with coxae widely separated, and on fifth where of intermediate width. Legs of seventh segment in male also inserted widely apart.

GENEROTYPE: *Hoplitesmus enoplus*, new species.

**Hoplitesmus enoplus**, new species

Figures 41-44

Dorsum between keels appearing black, or nearly so, to the naked eye, the anterior median processes similar, but the longer posterior ones distally brownish yellow. Keels brownish yellow and the legs light yellow. Dark color apparently due largely to adherent material which rubs off more readily on prominences.

Antennae short, but proportionately not so thick or clavate as in *Doratodesmus armatus*.

Collum as wide as head, but not concealing the latter fully in dorsal view; sur-

face marked off into flat tubercular areas; with a median longitudinal depression.

Second tergite with keels very large, descending below the horizontal and partly concealing the head in lateral view; between keels covered with flat tubercles arranged in three transverse rows which are widely interrupted at middle, the tubercles not developed on the keels; tubercles normally bearing short setae but these mostly rubbed off in the type specimen. The general form and relations are shown in figure 41.

Third tergite with keels smaller, narrowed acutely distad as shown in the figure. Most mesial tubercle of second and third series on each side enlarged, that of the third the more so, and basally confluent but well separated from those of opposite side. On the fourth tergite the corresponding tubercles more enlarged and salient and contiguous at base with those of opposite side. On subsequent tergites the composite processes increasing in size to the seventeenth on which the process is largest and projects above that of the eighteenth tergite, as shown in figure 42 which also indicates the form of the posterior keels.

Gonopods of male as shown in figures 43 and 44.

Width of male holotype, 5 mm.; length, about 25 mm.

LOCALITY: Poentjak. One female, May 7, 1920.

**PAUROPLUS**, NEW GENUS

In general features resembling *Hoplitesmus* but bearing a developed middorsal process only on the antepenult segment, with weaker ones on the two preceding segments and none on the others. Keels strongly bent downward, ectad of bases.

For structure of gonopods of male see figure 47.

GENEROTYPE: *Pauroplus analdes*, new species.

**Pauroplus analdes**, new species

Figures 45-47

The types light yellow in color.

Antennae short, strongly clavate, with the fifth and sixth joints especially thick.



Collum as wide as the head but leaving the latter largely exposed in dorsal view; anterior margin less convex than the posterior, the two meeting at an angle on each side; dorsal surface occupied by four transverse rows of even tubercles.

Second tergite with keels broadly expanded on anterior side bending convexly forward but only partly concealing the head in lateral view; of form shown in figure 45, beyond base each keel extending downward, subvertical in position; dorsal surface with three transverse rows of tubercles on each side, the end of these rows of the two sides widely separated in mid-dorsal region.

On the subsequent tergites the keels are also much depressed ectad of bases but less than those of second tergite; general form and relations as shown in figure 45; thick transverse rows of setigerous tubercles, of which only two rows may be well marked; the most mesial tubercle of the caudal row on each side a little enlarged, but the enlarged tubercles of the two sides not meeting in the middle to form processes except on the antepenult segment, where the process is large and projects caudodorsad, and on the two preceding segments in which the processes are low. For these and other features of posterior segments, see figure 46.

Gonopods of male represented in figure 47.

Width, 9 mm.

LOCALITY: Sumatra: Lompongs, Pedada Bay. Male holotype and female allotype, January, 1922.

## Strongylosomidae

### OXIDUS COOK

*Oxidus* COOK, 1911, Proc. U. S. Natl. Mus., vol. 40, p. 628.

*Kalorthomorpha* ATTEMS, as subgenus of *Orthomorpha*, 1914, Arch. Naturgesch., vol. 80, pp. 191, 195; 1936, Das Tierreich, no. 68, p. 80.

It seems to the author best to recognize the two subgenera of *Orthomorpha* defined by Attems as genera. As *Oxidus* COOK antedates *Kalorthomorpha* Attems and has the same species, *gracilis*, as its type, obviously COOK's name must be used.

### *Oxidus sequens*, new species

Figures 48, 49

The type is a pale brown form belonging in the *filarius* group.

Body slender, moniliform, each segment being deeply constricted between prozonite and metazonite. Metatergite with the usual transverse sulcus. Keels absent, represented merely by striae.

Fourth sternite of male with a process in form of a transversely placed, distally truncate lamina.

Gonopods of male holotype, 13 mm.

LOCALITY: Java: Pangrango. August, 1921, at 2400 meters elevation.

### *Oxidus lamellifer*, new species

Figure 50

Color pale chestnut, often showing cross bands of a more yellow tint.

Segmental constriction and metazonal transverse sulci developed in average degree and metazonite with the usual transverse series of setae. Keels narrow but distinct throughout; caudal processes of keels in posterior region slenderly acute.

Fifth sternite of male with a long, narrowly lamellar process which curves forward toward free end and bears on anterior surface numerous curved setae. Second and third legs in the male thickened, the fourth article in particular bulging convexly on outer side. Inner face of articles of these legs, except last three, bearing numerous long setae which are distally curved or curled.

Distinct in the form of the gonopods (fig. 50).

Width of male holotype, 1.6 mm.; length, about 16 mm.

LOCALITY: Java: Tjibodas. Males and females taken by Dammerman in August, 1921, at 1400 meters elevation.

### *Oxidus filarius* (Attems)

Figure 51

*Orthomorpha filaria* ATTEMS, 1932, Treubia, vol. 14, p. 38, figs. 19-20.

LOCALITIES: Java: Tjibodas (type locality). Several males and females taken by Dammerman in August, 1921, at 1400 meters elevation; many in October, 1906, collector not given.

Pangrango. Several males taken likewise in August, 1921, at 200 meters elevation.

**Oxidus pygmaeus** (Pocock)

Figure 52

*Orthomorpha pygmaeum* Pocock, in Weber, 1894, Zoologische Ergebnisse einer Reise in Niederländisch Ost-Indien, vol. 3, p. 360.

The color of the specimen is yellowish throughout, the legs clearer yellow than the body.

A small form which is more robust, with segments more compactly arranged than, for example, in *arvies*. Metazonites with transverse sulcus well marked and distinct, with posterior angles produced in some degree caudad, beginning with those of fifth segment, the posterior corner of those of fourth angular but not produced.

Fifth sternite of male with a single process which is low.

Telopodite of male gonopod characteristically complicated, as shown in figure 52.

Width, 1.25 mm.

LOCALITIES: Java: Tjibodas. One male taken by Dammerman in August, 1921, at 1400 meters elevation.

Pangrango. Several males and females taken by Dammerman, also in August, 1921, at 2000 meters elevation.

**Oxidus hydrobiologicus** (Attems)

*Orthomorpha hydrobiologica* ATTEMs, 1927, Zool. Meded. R. Mus. Nat. Hist. Leiden, vol. 10, p. 120, figs. 1-4.

LOCALITIES: Java: Pangrango. Several males and females, August, 1921, elevation 3000 meters.

Krakatau. Several specimens, December, 1919.

Karimon Djawa Island. Several taken by Selsman in October, 1920.

**Oxidus annex**, new species

Figures 53, 54

Body light brown, anteriorly of chestnut cast. Some specimens have the segment behind the metazonal sulcus with adjacent part of following prozonite lighter in color, giving the appearance of alternating dark to light anals. Legs yellowish.

Segments deeply constricted, and the

metazonites with dorsal sulcus distinctly developed. Two transverse series of rather long stout setae across edge. Keels narrow but distinct, with posterior corners acutely produced on segments behind the fourth; posterior corners of keels on second and third segments rounded. Pleural keels absent or abortive.

Fifth sternite of male with a single large process which is tongue-like and broader distally than proximally.

The gonopods are as shown in figures 53 and 54.

Length of male holotype, about 18 mm.; width, 2 mm.

LOCALITY: Java: Tjibodas. Several specimens of both sexes taken by Dammerman, August, 1921, at 1400 meters elevation. He also took a male at the same place in May, 1922.

**Oxidus malabaricus**, new species

Figure 55

Dorsum in types pale brown with lower part of sides and legs yellow.

Tergites with the transverse sulcus sharply developed; with the usual transverse series of moderately coarse setae which project dorsocaudad and seem especially conspicuous on the posterior segments. Keels very narrow on anterior segments; also narrow on posterior segments, but better developed, with caudal angles free and acutely produced.

In the male the sternite of the fifth segment with a single process which is long and slenderly tongue-like.

Gonopods as shown in figure 55.

Width of male holotype, about 1.6 mm.

LOCALITY: Java: Goenoeng Malabar. Male holotype and several broken females, December, 1920, at 1600 meters elevation.

**Oxidus pangrangus**, new species

Figure 56

Dorsum brown or somewhat chestnut without lighter longitudinal band but with keels yellow.

Tergites with the usual deep transverse sulcus; keels narrow but with posterior corners sharply produced on posterior segments, the processes in anterior region

reduced; dorsal setae present, moderately long and coarse, arranged in four definite transverse series, two in front of sulcus and two behind it.

Pleural keels obsolete.

Sternite of fifth segment with a low but broad setigerous prominence but none on fourth sternite.

Gonopods of male as shown in figure 56.

Width, 2 mm.

LOCALITY: Java: Pangrango. Male and female taken by Dammerman in May, 1922, at 3000 meters elevation.

### **Orthomorpha consocius**, new species

Figure 57

Close to *O. spinalum* Attems, described from Karimon Djawa Island, with which it agrees in the male gonopods in having a spine on the inner side of the telopodite near the distal end; but this spine is conspicuously shorter and subconical in form, while the excision at the end of the telopodite in *spinalum*, with tooth at its bottom, is quite absent in the present form, as shown in figure 57.

It is apparently a smaller form than *O. spinalum*, the width of the male holotype being 3.2 mm. as against 4 mm.

LOCALITY: Java: Tjibodas. Male holotype taken by Dammerman, July, 1920.

### **Orthomorpha eupistum**, new species

Figures 58, 59

Dorsum dark brown or obscure chocolate, body paler beneath. Antennae brown. Legs yellow, in some darker distally. Head paler, yellowish on lower sides and in clypeal region.

Sulcus across vertex of head deep. Head smooth, setae as usual.

Collum rounded and margined about lower end and up and across anterior border, the margination becoming very narrow in dorsal region.

Keel of second segment thin and very narrow, merely a thin, ridge-like elevation, complete, rounded off at ends; pleural keel well developed, acutely produced behind. The keel of the third segment similar, that of the fourth segment a little thicker, both with pleural keels similar to that of second

segment. Keels of fifth and subsequent pore-bearing segments similarly little raised but much thicker, with caudal end narrowed to point and the pore on lateral surface at base of this narrowed apical portion; the intervening keels thin. Pleural keel on fifth, sixth, and seventh segments well developed, but lower than more anterior ones, produced at caudal end; the pleural keels behind this fading out and soon not evident.

Anal tergite prolonged, with tubercle at each end of caudal margin long and curved downward. Process on fifth sternite large, laminate, bent ventrocephalad, distally convex.

Anal scale subtriangular in general outline, an apical portion set off by a sulcus and obtusely angular at apex.

Gonopods as illustrated.

Width of male, 2.2 mm.

LOCALITIES: New Guinea: Doormanpad. Two males taken by Van Heurn, October, 1920.

Java: Tjibodas. Several males and females taken by Dammerman, July, 1920, and two males, October, 1906, at elevation of 1400 meters.

### **PAPUOSOMA**, NEW GENUS

Body consisting of 20 segments, with repugnatorial pores borne on the lateral surface of keels near caudal end thereof on segments V, VII, IX, X, XII, XIII, and XV-XIX.

Keels well developed but only of moderate width, those of segments II to IV especially narrow and rounded at ends. Second keel below level of third as usual. The other keels with posterior corners from rectangular to acutely produced. Keels set off by a deep furrow above, this running essentially straight forward.

Segments deeply constricted; each metatergite crossed by a sulcus which is sharply impressed except on most anterior segments. Collum and metazonites of other tergites bearing a transverse series of setae along anterior portion, the keels also each bearing two stout setae in the genotype.

Pleural keels not developed.

Only the sternite of the fifth segment in

the male with a process, this in the form of a conspicuous setose lamina.

No special processes on femora or other joints of any of the legs.

Gonopods of male with femur short, rounded, densely setose, set at right angles to coxa and in line with telopodite. Terminal process arising at distal end on upper side toward outer edge; bending first caudad and then curving forward (distad) in a semicircle sheathed against the tarsal process which arises on dorsal surface distad of middle and is a lamina of nearly uniform width.

GENEROTYPE: *Papuosoma cladis*, new species.

This genus appears to be most nearly related to *Antichiropus* of Australia and *Mimosoma* of the Solomon Islands.

Y-shaped yellow mark on each segment, the arms of this mark embracing the deltoid area. Legs yellow except for a dark ring toward distal end of tarsus.

Antennae long, with sixth article obviously thicker than the fifth and abruptly much thicker than the seventh.

Body much constricted behind the collum over region of second, third, and fourth segments, the fourth segment narrowest.

Collum semicircular; with a series of stout setae about anterior and lateral border. The following segments each with a series of similar setae across anterior portion of metazonite and with two stout setae on each keel. Metazonites of typical segments crossed by a sharply impressed transverse sulcus which, however, is only vaguely indicated on segments II to IV.

#### KEY TO SPECIES OF *Papuosoma*

- a. Keels, except on anterior segments, virtually obliterated, being indicated by a longitudinal sulcus, below which the thickening is slight or absent.
  - b. With a continuous median dorsal yellow stripe; keels of second segment well developed . . . . . *zygethus*, new species
  - bb. Without such longitudinal dorsal stripe; the dorsum uniformly colored or with prozonites alone paler . . . . . *prodelum*, new species
- aa. Keels distinctly developed throughout.
  - b. Dorsum nearly uniformly colored, or only with prozonites lighter than metazonites, the latter not marked with cross or longitudinal bands or with median spots.
    - Dorsum light brown; anal tergite with posterior margin convex; width, 3 mm. . . . . *obesum*, new species
  - bb. Dorsum with distinct color markings.
    - c. A continuous yellow stripe along dorsum . . . . . *typonotum*, new species
    - cc. Not with a continuous yellow stripe along dorsum; each ordinary segment with an inversely Y-shaped yellow mark . . . . . *cladis*, new species

#### ***Papuosoma cladis*, new species**

Figure 60

Head in the holotype yellowish chestnut, the antennae similar but becoming darker distally, the seventh joint dark blackish chestnut but cone-bearing apex abruptly pale, as is also the first article. Dorsum with a deltoid chestnut area on each segment with base on caudal margin and apex at the constriction; on each side a wide chestnut band beginning dorsally in front of constriction and running obliquely over region of keel, these chestnut areas leaving between them dorsally an inversely

Keels of second, third, and fourth segments narrow, extending from caudal margin to segmental constriction, anterior and posterior ends rounded. Succeeding keels abruptly wider, wider behind than in front and with the caudal outer corner angular, the angle, at first subrectangular, becoming acutely produced in posterior segments. The repugnatorial pore on lateral margin of keel at base of caudal corner or process.

Anal tergite strongly narrowed caudad, but with the caudal end concave, presenting a tubercle-like process at each angle.

Process from sternite of fifth segment a

lamina widening a little from base distad, and with the distal margin convex; setose.

Gonopods with tarsus arising from dorsal side of tibia distad of middle, of nearly uniform width to the acute distal tip, distal end recurved. Tibial process arising at distal end, curving first proximad and then into a semicircle. (See fig. 60.)

Length, about 25 mm.

LOCALITY: New Guinea: Doormanpad. Male holotype collected by W. C. Van Heurn, October 27-30, 1920, from 1800 to 2400 meters elevation.

### **Papuosoma prodelum**, new species

Figures 61, 62

Head dilute chestnut, the antennae more brown, the sixth joint darker distally and the seventh abruptly much darker, blackish except for the yellow apical portion. Metatergites of segments also pale chestnut, the prozonites and sides and venter yellow. Legs also yellowish but lacking the dark ring present on tarsus of *cladis*.

Setae arranged on collum and metazonites as in *cladis* but fewer in number.

Keels only slightly raised above general surface, being much narrower than in the generotype, the caudal processes small and close to the surface.

Anal tergite very characteristic, being caudally deeply, subquadrately excised so as to leave on each side of excavation a long process, these processes distally acute, and curving ventrocaudad. Two setae on small tubercles at bottom of excavation. (See figures showing lateral and dorso-caudal views.)

Laminate process from sternite of fifth segment distally truncate, wider at base than at free end.

Gonopods as shown in figures 61 and 62. Length, about 20 mm.

LOCALITY: New Guinea: Doormanpad. Male holotype and paratype and female allotype collected by W. C. Van Heurn, October 27-30, 1920, at elevation of 1800 to 2400 meters.

### **Papuosoma typonotum**, new species

Figure 63

General coloration as in *P. prodelum*, but with a sharply defined median yellow stripe

along dorsum. Clypeal region yellow. Antennae with seventh article darker as in the preceding forms. Keels, sides, venter, and legs yellow, the legs without dark tarsal rings.

Transverse series of setae as usual.

Keels better developed than in *prodelum* but less than in *cladis*.

Anal tergite with distal lamina a little widening at end, caudal margin widely, weakly incurved, the processes at ends slight.

Ventral process of fifth segment narrowed moderately distally, the distal end convex.

Gonopods as shown in the figure.

Length, about 23 mm.

LOCALITY: New Guinea: Doormanpad. Male holotype taken by W. C. Van Heurn, October 27-30, 1920, at elevation of 1800 to 2400 meters.

### **Papuosoma zygethus**, new species

Head above chestnut with dusky markings, paler below. Antennae brown, with the two distal articles darker, the seventh being black. Dorsum chestnut at sides, with a continuous, wide, median, yellow stripe over entire length from head to anal tergite; the median band on the collum narrowed, hour-glass shape, being widest at posterior and anterior margins. Anal tergite and valves dark, somewhat dusky. Body becoming paler down sides and on venter.

Sulcus on vertex of head deeply impressed; a seta each side of its middle and one each side of anterior end, with a series of paired setae below this between antennal sockets, and the clypeal region setose as usual. Antennae with joints of moderate length, the distal joints thicker.

The collum of usual general form, narrowly margined. Setae rubbed off type, but scars indicate the presence of the two usual series.

The following segments with segmental sulcus very deep. The metazonite slightly depressed across middle but with no sharply impressed sulcus, although a pale transverse line seems to represent it on the most posterior segments.

Keels of second, third, and fourth seg-

ments narrow but distinctly developed, but the following segments bear only a deep longitudinal sulcus above the level of the pores, the keels being not developed. The sulcus very weak or obsolete on posterior segments.

Anal tergite short, narrowed strongly caudad, the process distally subtruncate or slightly incurved.

Width, 2.1 mm.

LOCALITY: New Guinea: Doormanpad. Female holotype taken by W. C. Van Heurn, October 27-30, 1920.

**Papuosoma obesum**, new species

Head light brown. Antennae yellow except seventh article and distal end of sixth which are chestnut. Dorsum light brown, with prozonites lighter, yellow. Sides, venter, and legs yellow.

Median sulcus in vertex impressed as usual. Vertex with sparse, short setae, the setae of clypeal region more numerous. Antennae moderately long, slender; sixth joint thicker than the fifth.

Collum strongly narrowed on each side, the ends rounded.

Keels of second segment in the usual position, narrow, caudal and produced caudad and rounded. Keels of third and fourth segments very narrow, the caudal ends slightly produced. Succeeding keels very thick, thickest at level of repugnatorial pore which is near middle of height.

Transverse sulcus across metatergite distinct except on anterior segments.

Caudal tergite convex at base, strongly narrowed caudad, with the narrowed caudal portion nearly horizontal; caudal margin truncate.

Anal scale subtriangular with distal angle rounded.

Width, 3 mm.

LOCALITY: New Guinea: Doormanpad. One female taken by W. C. Van Heurn, October 27-30, 1920.

**CALOMA**, NEW GENUS

In general form resembling *Papuosoma*. The first legs of the male of normal size and without processes or other special modification. Distinct in the structure of the gonopods of the male. In these the coxa is

elongate and at right angles to the telopodite, the femur short, ovoid, and densely setose; toward distal end of tibia a strong and slender stylus arises on mesial side; at base of tarsal division on ventral side a prominent body which divides into two lamellae; the principal tarsal process a long lamina which is nearly straight except at distal end where bent ventrad into a subuncate form.

GENEROTYPE: *Caloma agametum*, new species.

**Caloma agametum**, new species

Figure 64

Head brown, darkest above. Antennae yellow, darkened distad, the fifth article blackish at distal end, but joints beyond the fifth missing from the holotype and shade of color therefore uncertain. Dorsum dark, nearly uniform, brown, entirely without lighter markings. Pleural and ventral regions paler, tending toward yellow. Legs yellow.

Sulcus on vertex of head sharply impressed, a series of few setae each side of its anterior end. Setae numerous in clypeal region.

Collum semicircular with lateral ends well rounded. A series of eight long setae along anterior border and a series of four across posterior portion. Following segments deeply constricted as usual. The metazonites crossed by a sharply impressed transverse sulcus, in front of which is the usual series of few, long setae.

Keels of second segment well below level of others. Keels of second, third, and fourth segments thin and narrow, produced at caudad end in a short, acute angle. Succeeding keels abruptly much thicker but very narrow, acutely produced at caudal end. Pore on lateral surface of keel toward lower edge at base of narrowing caudal portion.

Anal tergite with the usual two caudal processes, these moderately long and decurved.

Process of sternite of fifth segment laminate, moderately long and curved forward, narrowed distad and with distal end subtruncate.

Gonopods as shown in the figure.

Width, 1.9 mm.; length, about 20 mm.

LOCALITY: North New Guinea: Prauwenvivak. One male taken by W. C. Van Heurn, November–December, 1920.

**XENOSOMA, NEW GENUS**

Body consisting of 20 segments, with repugnatorial pores on segments V, VII, IX, X, XII, XIII, and XV–XIX, as usual. Pores borne on lateral surface of keels at caudal end of processes.

Keels well developed, the second carried below level of adjacent ones. Posterior corners of keels of most segments moderately produced, the processes apically rounded.

Transverse sulcus of metazonites weak.

Anal tergite moderately wide distally, rounded or subtruncate.

Sternite of fifth segment with a forwardly directed process.

Femur of first legs with an acute ventral process at proximal end.

Gonopods with femur short. Tibia with a short curved process on outer side at base, and with its principal process arising from upper surface toward inner edge some distance proximad of end and curving dorsoproximad. Tarsus arising proximad of apex of tibia at outer edge and curving forward (distad).

GENEROTYPE: *Xenosoma atyches*, new species.

Includes also a second new species, *X. sonandrum*.

***Xenosoma atyches*, new species**

Figures 65–67

Head and antennae chestnut in color. Body with dorsum and sides also dark chestnut; collum and each metatergite with a large triangular yellow spot having apex forward. Venter yellowish. Legs brown.

Antennae short. Head smooth, vertex with sulcus long, fine and sharply impressed.

Collum sub-semicircular, the lateral ends a little extended and widely rounded.

Keels of second segment thin and long, extending forward beneath edge of collum and also produced caudad, much longer than those of third segment. Keels of sec-

ond and subsequent segments rounded anteriorly and produced posteriorly. Keels of fifth segment and succeeding poriferous ones much thicker than the non-poriferous keels. Repugnatorial pore borne at base of caudal process toward ventral edge of lateral surface.

Anal tergite narrowed caudad, conspicuously produced beyond anal valves, the sides of projecting portion subparallel, bent down, the ventral side concave or fluted; caudal corners rounded, the intervening caudal margin a little concave.

Sternal process of fifth segment but a little forward, of form shown in figure 65.

Femoral process of first legs short, acute.

Gonopods as shown in figures 66 and 67.

Length, approximately 17 mm.

LOCALITY: North New Guinea: Prauwenvivak. Holotype a male, allotype a female; several additional paratypes in a broken condition. Collected by W. C. Van Heurn, September, 1920.

***Xenosoma sonandrum*, new species**

Figure 68

Head chestnut, sometimes blackish. Antennae lighter in color, typically somewhat yellowish over basal portion of each article and chestnut or dusky distally. Dorsum chestnut, very dark when in full color, the collum and metatergite of each of the succeeding tergites with a large median yellow spot narrowing to a point cephalad; tergite without yellow marking. Pleural region also chestnut, being paler ventrad, the venter yellow. Legs chestnut, often dusky, the apical portion of tarsus yellow.

Collum of the usual semicircular shape and margined laterally and part way up anterior margin on each side.

Keels of second tergite wider, extended conspicuously farther laterad than, e.g., in *Caloma agametum*, produced caudad. Keels of third and fourth segments also thin and concave inside of elevated margin, the caudal end a little produced but distally rounded. Succeeding keels much thicker, with caudal ends less produced and distally rounded, with the pore laterally located and nearer caudal end than in the preceding species. Segments constricted as usual.

Metatergites transversely depressed at middle but without sharply impressed sulcus.

Anal tergite of usual general form, caudal portion concave beneath, the caudal end convex, with tubercles obscure.

Process of fifth sternite of the male low, distally rounded.

Ventral femoral process of first leg of male triangular in outline as viewed from behind.

Gonopods as figured.

Length of male, about 18 mm.; of female, 23 mm.

LOCALITY: North New Guinea: Prauwenbivak. Male holotype, female allotype, with two male and two female paratypes taken by Van Heurn, November-December, 1920.

### Platyrhacidae

#### PLATYRHACUS C. KOCH

*Platyrhacus* C. Koch, 1847, Kritische Revision der Insektenfauna Deutschlands von...Panzer, p. 58.

For the purposes of the present study it has seemed best to use *Platyrhacus* in the broad sense adopted by Attems, who selects the Javan *P. pfeifferae* Humbert and Saussure as a new type, and to recognize certain groups as subgenera rather than as genera as originally proposed.

#### *Platyrhacus* (*Platyrhacus*) *acmophorus*, new species

Figures 69-71

Color dark brown, in some nearly black, the ventral surface and legs a lighter brown. Keels often lighter, especially toward margins.

Median sulcus across vertex of head ending well above the level of the antennal sockets in a furrow or depression that widens out ventrad to pass into general level of region below antennae. Vertex densely granular.

Metazonites with three transverse rows of tubercles which are much smaller than in *conformatus* and are well separated from each other. Tubercles of posterior row much larger than the others, subconically elevated, those of anterior row minute.

Prozonites granular as usual. Keels ectad of ends of tubercle series, and dorsal surface between major tubercles bearing numerous coarse granules which are not crowded.

Keels excised laterally between the angularly projecting corners. In lateral excavation of keels of second, third, and fourth segments one or two small teeth. Excision of fifth and succeeding keels also ordinarily with two or three small teeth, though these sometimes much reduced. The posterior corner processes becoming larger and projecting more and more caudad in approaching posterior end as usual. Pores on lateral margin. (See figs. 69 and 70.)

Anal tergite shaped as in *conformatus*. typically with seven setiferous notches, The usual two setiferous tubercles above.

Sternites without setae and without spiniform processes, at most with slight tubercular elevations mesad of the bases of legs.

Gonopods as shown in figure 71.

Width of male holotype, 10.2 mm.; of female allotype, 12 mm.

LOCALITY: New Guinea: Doormanpad. Male holotype, female allotype, and 10 paratypes taken by W. C. Van Heurn October 27-30, 1920, at 1800 to 2400 meters elevation.

#### *Platyrhacus* (*Platyrhacus*) *doormanpadus*, new species

Figures 72-75

Dorsum fuscous or black, with borders of keels and tip of anal tergite paler, light brown or yellowish. Legs light brown, the antennae dark brown.

Vertex of head strongly granular, with usual furrow and sulcus. Middle lateral region elevated in deltoid area which is much smoother, the granules fine and well separated. On upper part of deltoid are a pair of setae and lower down the usual curved series of setae.

Collum with lateral ends of keels conspicuously depressed. Anterior series of tubercles set off behind by a conspicuous transverse depression; the tubercles close. Tubercles of caudal series larger, subcon-



tiguous. Tubercles of third row distinct but second series obscure, its tubercles lost among the large granules.

Keels of other tergites wide. Lateral margins of keels concave, the concave margin on first and second keels typically with three small teeth, the number on more posterior segments commonly from four to six. Anterior and posterior margins of keels finely dentate, the denticles well separated. (See fig. 72.)

Tubercles of caudal series across metatergites rather large, subcontiguous, low. Tubercles of first series obscure and those of second series also depressed, but little developed. Surface between tubercles with the granules weakly indicated but in large part almost obliterated, leaving the surface nearly smooth. Pores on upper surface, their diameter or more from margin.

Anal tergite characterized by having a conspicuous convex process at middle of caudal margin as figured (fig. 73).

Sternites nearly smooth, without cones at bases of legs. Anal scale with caudal tubercles low and rounded, almost obliterated; the margin between tubercles wide and straight.

Gonopods as figured (figs. 74 and 75).

Width of male holotype, 8.3 mm.; of female, 9 mm.

LOCALITY: New Guinea: Doormanpad. Male holotype and female allotype taken by W. C. Van Heurn, October, 1920.

**Platyrhacus (Platyrhacus) parabates,**  
new species

Figures 76, 77

Dorsum dark brown, the keels beyond bases fulvous. Pleural region also brown, the sternites and legs yellow.

A deep and widely flaring furrow crossing vertex of head and widening into clypeal region. Vertex densely, coarsely granular, the region below level of antennae also densely granular. Clypeal region bearing four prominent setigerous tubercles arranged in a semicircle, the concavity of which is ventrad; a larger series of setae adjacent to labrum in a wider semicircle.

Metazonites of body segments with three transverse series of tubercles, these all small and widely spaced, those of the posterior series typically about 12 in number and larger than those of the other series. Median area of keels covered with coarse, elevated tubercles, the borders with tubercles much smaller, granuliform.

Collum with anterior margin widely concave, the anterolateral margin on each side convexly rounded. Large tubercles along lateral and anterior borders, the depressed area within the elevated border formed by these tubercles densely granular and with sparse, smaller tubercles, a row of which lies along caudal border.

Dorsum of succeeding anterior segments conspicuously convex. Keels with anterior corners projecting farther laterad and the lateral margins oblique. Lateral margins wavy or crenate, there being on each mostly four major crenatures. In middle region the posterior corner becomes more extended and presents a caudally directed angle which becomes more and more produced caudad, the processes of the posterior keels broader and distally rounded as shown in the figures. Pores removed from margin mostly by a distance about equal to the diameter of the rim encircling the opening (fig. 76).

Anal tergite with caudal margin strongly convex, the middle part truncate, setigerous; lateral margins parallel.

Sternites without spiniform processes, smooth. Anal scale widely trapeziform, the margin straight between the setigerous tubercles, the lateral margins widely flaring.

The gonopods with coxae mostly concealed as in *simplicior*, the anterior face bearing only two setae. Femur-tibia densely setose on all sides over whole length. The smooth telopodite divided distally, the two prongs arising at the same level, acutely tapering, recurved (fig. 77).

Width, 9 mm.

LOCALITY: Sumatra: Lamprongs, Wai Lima. Male holotype and many paratypes, now mostly much broken, taken by Karny and Siebers, November-December, 1921.

**Platyrrhacus (Platyrrhacus) relaxus,**  
new species  
Figures 78, 79

Dorsum fuscous, the keels yellow, anal tergite with border of yellow. Antennae and legs brown.

Labral region abruptly depressed below clypeus, bearing above the setigerous edge a curved transverse series of seven setae. The usual series above them on lower part of clypeus.

Collum as shown in figure, the lateral ends depressed. The usual four series of tubercles, the anterior row ordinarily embracing 10 tubercles, the posterior site, and the two intermediate four each.

Metazonites with tubercles of the three transverse series small, much as in *uncatalus* but those of two first rows relatively smaller; tubercles on second and third segments larger than those of following segments. Keels wide, lateral marginal thickenings giving a crenate appearance, the crenations mostly small and from four to seven in number, rather irregular. Pore on upper surface, and, inclusive of rim, usually decidedly less than the diameter from the edge. The lateral margin often gently incurved at middle. (See fig. 78.)

Anal tergite with median portion of caudal margin smooth and slightly convex, each convex lateral portion with a rounded tubercular elevation at its middle as figured.

Sternites without special developments. The anal scale with caudal angle obtusely angular between the well-developed setigerous cones.

Gonopods as figured (fig. 79).

Width of male holotype, 8.1 mm.; females up to 10.8 mm. in width.

LOCALITY: Sumatra: Lamprongs, Wai Lima. Several specimens taken by Karny and Siebers, November–December, 1921.

**Platyrrhacus (Platyrrhacus) flavisternus**  
Pocock

*Platyrrhacus flavisternus* Pocock, in Weber, 1894, *Zoologische Ergebnisse einer Reise in Niederländisch Ost-Indien*, vol. 3, p. 346, pl. 19, fig. 16.

LOCALITY: Java: Tjibodas. One female taken in May, 1922.

**Platyrrhacus (Psaphodesmus) conifer,**  
new species  
Figures 80, 81

Dorsum brown, with keels and a median longitudinal stripe yellow.

Collum with four transverse series of tubercles, one along the anterior border of two tubercles, two over middle region of four tubercles each, and one on posterior border of six tubercles. The tubercles of the anterior series smaller than those of the other three. On the following tergites there are the usual three series of prominent tubercles, of which those of the posterior row are notably largest, and one is of acutely conical form. Normally six tubercles in each series. All but most posterior keels laterally excised. (For posterior keels see fig. 80.)

Gonopods of male with two principal prongs, of which one is furcate into two, as shown in figure 81.

Width of male holotype, 6 mm.

LOCALITY: New Guinea: probably south New Guinea. Several specimens taken in 1909 by Dumas.

**Platyrrhacus (Psaphodesmus) conformatus,** new species

Figures 82–84

Color of preserved type a nearly uniform brown above, without stripes. Legs a somewhat lighter brown.

Antennae of moderate length and thickness. Median sulcus on vertex of head deep, the vertex on each side of it strongly granular, not setose.

Dorsum well arched throughout length. Metazonites with three transverse rows of large contiguous tubercles which extend laterally onto bases of keels, the tubercles depressed. Tubercles of middle region of posterior row elongate oblong, the other subcircular in outline. Prozonites very finely granulose or roughened. Keels roughened ectally from tubercles to outer border which is smooth. Outer margin of second to fourth keels presenting three broad, blunt, and smooth teeth, of which the median is nearly obliterated on the fourth. Keels of fifth segment deeply excised at middle and bearing the pore, which is not visible from above, on the margin in

the angle. All other pore-bearing keels similarly excised and conspicuously bidentate, the non-pore-bearing keels similar (see fig. 82). The caudal corner of keels in posterior region becoming more and more prolonged and bent back more and more caudad.

Anal tergite posteriorly semicircularly rounded, the caudal margin coarsely and rather weakly crenate and bearing a long coarse seta in each incision, of which there are six. Two setiferous tubercles on dorsal surface. Two setiferous tubercles on margin of pleural region of ring on each side.

Sternites with surface granular; without spines or setae. Anal scale with the usual two caudally directed setae borne on tubercles.

Gonopods with coxa bearing numerous setae on anterior surface. Femur with numerous setae on ventral and ectal surfaces. Few setae on tibial area. Telopodite presenting three slender, curved processes of which the two inner ones are confluent into a broad, thin, plate-like basal piece. (See figs. 83 and 84.)

Width, 9.5 mm.

LOCALITY: New Guinea: Doormanpad. Two males and two females taken by W. C. Van Heurn, October, 1920, at 1800 to 2900 meters elevation.

**Platyrhacus (Psaphodesmus) ethodus,**  
new species  
Figures 85, 86

Dorsum dark brown throughout, inclusive of keels, the legs lighter.

Antennae rather short, uniform in thickness. Granulation of head coarse, dense. Setae as usual.

Lateral wings of collum short, subtriangular, much depressed below strongly arched dorsum. Tubercles small, sharply elevated, well separated. Anterior series continuing along margin down upon keels on each side. Tubercles of posterior row moderately larger than others, typically 10 in number, not extending upon keels. Intermediate rows of four tubercles each, these widely separated.

Keels of second segment with anterior corner extending much beyond posterior, the lateral margin strongly oblique, cre-

nate, the crenatures or nodules nearly uniform and typically five in number. Anterior margin of keels smooth, the posterior nearly so. Keels of third and fourth segments with lateral margins less oblique, nodules four in number. Fifth keels with five or six crenatures or rounded nodules. Pore on oblique outer surface almost contiguous with bases of middle crenations or teeth. On subsequent keels the teeth are often six or sometimes seven in number and more widely separated. Keels very short, upper surface strongly granular and bearing also two or more tubercles in line with those of dorsum. Caudal corners of posterior keels only moderately produced caudad.

Dorsum of segments strongly convex and elevated above keels, the surface in general strongly granular. Tubercles of all three series small, but conspicuously developed and elevated, those of caudal series a little largest, all widely separated.

Anal tergite with caudal margin semicircular, slightly incurved at middle. Sternites with well-developed, acutely pointed cones at bases of legs. Caudal tubercles of anal scale low and rounded, the margin between them wide and straight.

Gonopods illustrated in figure 86.

Width of female allotype, 9 mm.; of male holotype, 8.5 mm.

LOCALITY: New Guinea: Pionierbivak. Six specimens, August 13, 1920.

**Platyrhacus (Psaphodesmus) fratrellus,**  
new species  
Figures 87, 88

Probably yellowish throughout in life, but the metazonites of the holotype appear brown at first from an accumulation that is readily brushed off.

Head densely granular. The usual series of setae in clypeal region.

Collum strongly convex, a subtriangular keel projecting on each side. Convex middle region bearing four transverse series of uniform, well-spaced tubercles, one series along anterior border, one along caudal and two in between; the granules between tubercles and on keels much smaller.

Dorsum of ordinary segments strongly convex. Metazonites with tubercles of

caudal series typically nine in number, well separated, much larger than those of the other two series. A patch of tubercles on keels, the patch widest at middle, these tubercles obviously larger than granules over proximal region of keels.

Keels of second and third segments with anterior corner projecting laterad well beyond posterior corner, the lateral margin crenate, crenations four. On fourth keels the anterior and posterior corners about equally prominent, while on succeeding keels the posterior corners become more and more produced. Lateral margin of keels of fourth and subsequent segments showing a median interval or excision which is wider on poriferous keels. The pores on slanting upper surface of edge. (See fig. 87.)

Anal tergite semicircular.

Sternites without processes. Anal scale trapeziform; caudal margin angularly produced between the caudal tubercles.

Gonopods with coxae glabrous or nearly so. Femur-tibia moderately setose on caudal (subventral) surface. Telopodite with a simple, slender, curved proximal branch and a wider distal blade ending in three slender, semicircularly curved spines. (See fig. 88.)

Width, 7 mm.

LOCALITY: North New Guinea: Prauwenvivak. Male holotype taken in September, 1920, by W. C. Van Heurn.

### **Metapidiiothrix javana**, new species

Figures 89-93

Body dark over dorsum and upper part of sides, the caudal borders of metatergites a more solid, nearly bluish color; lower part of sides and venter yellow. Legs and antennae yellow.

Antennae rather long; third article longest, slender, the fifth next in length, clavately widening distad, the sixth joint thickest, short. (See fig. 89.) Eye patch with ocelli in four somewhat irregular series: 5,5,4,2.

Collum narrowing acutely down each side, crossed with the usual transverse series of six coarse setae, each of which is borne on a tubercle.

Subsequent tergites also with the six setae, these coarse and borne on conspicu-

ous tubercles, of which the outermost is set a little caudad of laterad from the middle one, its seta projecting caudad of laterad. In dorsal view the outline of the dorsum is serrate from the projecting tubercles, but the prominences are low and almost obliterated toward caudal end of body.

In the male the third legs are greatly thickened, but the other pregenital legs are of normal size without any special modification (cf. fig. 90).

Ninth legs of male with the second joint conspicuously crassate and the first joint a slender pedicel (fig. 91).

Gonopods of the male as shown in figures 92 and 93.

Last tergite posteriorly truncate with two slender papillae projecting from truncate end.

Length, near 5.5 mm.; width, 1 mm.

LOCALITY: Java: Tjibodas. One male taken in August, 1921, and four females in May, 1922, by Dammerman, at 1400 meters elevation.

### **Metapidiiothrix** sp.

LOCALITY: Poentjak. One female taken May 7, 1930.

This female, in not very good condition, measures 9 mm. in length.

## **Spirobolidae**

### **JAVOLUS**, NEW GENUS

Agreeing with *Pseudospirobolellus* in lacking a well-developed sternal plate in the anterior gonopods. Coxae of anterior gonopods contiguous at middle line as shown in figure 94. Differing from *Pseudospirobolellus* in the form of the posterior gonopods, which are broader and more lamellate instead of being in the form of a stylus or slender blade. Fifth legs of male with prominent coxal processes. Repugnatorial pores on the metazonites, beginning on sixth segment.

GENEROTYPE: *Javolus purmerendus*, new species.

### **Javolus purmerendus**, new species

Figures 94-96

Typically dark gray-brown above, sometimes with more or less clearly defined annuli of lighter color; lower part of sides and

the venter lighter. Legs yellowish. In two specimens, the last segment is black, and this is probably normal in living or fresh specimens.

Eyes transversely broadly subelliptic, separated by about one and a half their length; ocelli arranged typically in five transverse series: 7,8,8,7,4. Clypeal setigerous foveolae 4 + 4. No median sulcus across vertex, but a distinct one running from level of antennal sockets to lower margin.

Collum strongly narrowed down each side, with lower end evenly rounded in the female; in the male lower end somewhat broader, with anterior corners widely rounded and the posterior more angular; a fine margining sulcus below and up anterior border to level of eye on each side; otherwise no sulci or striae.

Ordinary segments constricted in front of posterior sulcus; the latter distinct across dorsum as well as down the sides. Anterior sulcus at or near posterior margin of preceding segment, also distinct throughout. Repugnatorial pore just behind the posterior or segmental sulcus, from which it is but little removed.

Anal tergite evenly convex behind, exceeded by the valves; the latter smooth, evenly convex, neither depressed nor elevated along mesial margin.

In the male the coxal processes of the fifth legs are conspicuous and sublamellar in form, narrowly rounded at apex and distally curved cephalad. Other coxae without processes.

Gonopods of the male as represented in figures 95 and 96. As shown in the last figure, the posterior gonopods extend abruptly backward distally a little above level of anterior gonopods.

Number of segments, 43-46.

Diameter, 2.5 mm.

LOCALITY: Java: Purmerend, Batavia Bay. Male holotype, female allotype, and two female paratypes taken in November, 1919.

### **Spirobolellus wachlerinus**, new species

Figures 97, 98

The ground color of the body is yellow. There is a narrow, median, longitudinal

black stripe and a broader black band on each side. Head yellow, appearing dusky above due to a fine net-work of dark lines. Antennae yellow. Collum black, except a yellow median area, a similarly colored wing on each side, and a low triangular yellow band at caudal margin bisected by the median black stripe. Anal tergite black. Legs yellow.

Head concavely depressed or excavated on each side for reception of antenna. Smooth, the median sulcus very lightly impressed. Eyes triangular; more than twice the transverse diameter apart; ocelli in four transverse series: 6,5,3,1, taken from base to apex. Antennae short; the sixth article abruptly thicker than the others.

Collum strongly narrowed down each side as usual, the ends well rounded, the caudal corner more obtusely and evenly rounded than the anterior. Margined along each side and up the anterior border.

Constricting furrow of the succeeding segments wide, shallow above, deep below. Metazonites higher than prozonites. Distinctly striate only below, the striae straight across metazonites and curving across prozonites on which they rise higher on the side, becoming fine and very oblique. Covered portion of prozonites smooth.

Pores high on side, small, near middle length of metazonite.

Anal tergite obtusely rounded behind, a little exceeded by the valves.

Sternite of anterior gonopods large, as usual, with the apical excision larger, more widely open or obtuse than in *chrysogrammus* and strictly angular, not rounded at bottom as in *solitarius*. See figures 97 and 98 for this and for characters of the posterior gonopods.

Number of segments, 37-40.

Diameter of male, 1.5 mm.; of female, 1.75-2 mm.

LOCALITY: Java Sea: Wachler Island, about 25 specimens, male and female, collected by Dammerman, October 22, 1921; Kombuis Island, several males and females taken January 27, 1922.

### Rhinocricidae

#### **Dinematocricus acompus**, new species

Figures 99, 100

General color brownish black. Legs brown.

Sulcus of head widely interrupted in the frontal region. Setigerous foveolae 2 + 2.

Collum rounded and margined at lower ends in the usual way. The second tergite extending well below it, not excavated, strongly striate below, with striae bent upward anteriorly and running beneath collum.

Segmental sulcus not impressed above, disappearing in a shallow transverse furrow which is well marked. Surface above behind the furrow wholly smooth, becoming roughened toward edge of preceding metazonite, the overlapped portion of prozonite smooth. Segments strongly striate on sides below level of pores and in front of furrow, the striae curving obliquely upward and forward to, but not extending upon, the covered portion; striae over metazonite only below. Scobina beginning at about the eighth segment and extending to the thirtieth; each consisting of a small, deeply impressed, lunate mark, with striae indistinct or absent.

Anal tergite caudally rounded, strongly roughened over proximal portion, the caudal portion smooth, much exceeded by the anal valves. Valves with borders strongly compressed and elevated, not angled above.

Gonopods represented in figures 99 and 100.

Number of segments in male holotype, 52.

Width, 6 mm.

LOCALITY: New Guinea: Pionierbivak. Two males taken June–August, 1920, by Van Heurn.

#### **Dinematocricus eupistus**, new species

Figures 101, 102

Dark brown or blackish, the prozonites mostly distinctly darker than the metazonites.

Median sulcus of head widely interrupted, not especially well impressed below. Foveolae 2 + 2.

Collum and second segment of usual form and relations.

Segments depressed across dorsum but sulcus not there obvious. Sulcus curved about side of pore and evident below this level in the depression. Striae on prozonites extending to level of pore, but present on metazonites only below. Anterior, deep impression of anterior scobina wide transversely, followed by series of striae as usual, becoming much smaller toward posterior end of series; the distance between scobina in anterior region greater than width; beginning on eighth or ninth segment and extending to segment XXX.

Anal tergite with anal process narrow, a little exceeded by the valves. Anal scale of usual shape. Gonopods as shown in figures 101 and 102.

Number of segments in male holotype, 51.

Width, 5.1 mm.

LOCALITY: New Guinea: Doormanpad. One male taken in October, 1920, at 1410 meters elevation by Van Heurn.

#### **Dinematocricus gonethus**, new species

Figures 103, 104

Prozonites olive gray, the metazonites ferruginous or somewhat chestnut, a wide anterior border on collum, widest at middle, also of this color.

Antennae short, rather slender and nearly of uniform width. Median sulcus of head interrupted in frontal region. Head each side of sulcus in frontal and upper clypeal region marked with fine transverse striae, the surface in general smooth and shining. Setigerous foveolae 2 + 2.

Collum of typical form, narrowly margined in front below level of eyes, the margination continued on lower end. Second tergite extending well below end of collum.

Segmental sulcus on ordinary segments sharply impressed entirely about ring, contiguous with pore, above which it is slightly angled. Metazonite with longitudinal striae only beneath, elsewhere smooth and shining; the prozonites striate entirely up side, the striae oblique, and some of those above level of pore running transversely across dorsum. Scobina with anterior impressed line curved, relatively long, followed by a series of striae forming a tri-

angular area that is shorter than the anterior width. Scobina beginning at eighth or ninth segment and extending to the twenty-eighth.

Anal tergite behind basal ring nearly triangular in outline, with apex narrowly rounded and sides nearly straight, equal to, or but little exceeding, the valves. Inner borders of valves only moderately compressed. Anal scale subtriangular.

Characterized especially by the gonopods, which are illustrated (figs. 103 and 104).

Number of segments, 44.

Diameter of male holotype, 5 mm.

LOCALITY: New Guinea: Pionierbivak. One male and one broken female collected by Van Heurn, June-August, 1920.

#### **Dinematocricus kangeanus**, new species

Figures 105, 106

A dark chocolate-colored or nearly black form with head, collum, and last tergite and anal valves lighter. Covered part of prozonites yellowish and caudal border of metazonites somewhat chestnut. Legs dark chocolate colored.

Clypeal foveolae 2 + 2. Median sulcus of head distinct across vertex and down to clypeal excavation, continuous.

Segmental sulci fine but distinct throughout. The segments not at all furrowed or constricted, smooth and shining.

Scobina with lunate impressions wide transversely; separated by a space clearly greater than their width. The striate area short, broader than long, posteriorly widely rounded.

Last tergite rounded behind, clearly exceeded by the anal valves.

Best characterized by features of male gonopods (figs. 105 and 106).

Diameter, 10 mm.

LOCALITY: Kangean Island, Tambanganau. One male taken by C. Backer in April, 1929.

#### **Dinematocricus hadleyi**, new species

Figures 107, 108

General color deep chocolate or nearly black, with a lighter annulus of ferruginous cast about caudal border of each ordinary metatergite, the collum similarly bordered both anteriorly and posteriorly. Legs

chocolate-brown or sometimes lighter, the antennae deep chocolate or black.

Head with the usual median longitudinal sulcus across vertex and down the front to clypeal edge. Clypeal foveolae 2 + 2.

On ordinary segments the sulcus is distinct up the sides but is obliterated across the middorsal region; not excurved or angled at level of pore, with the rim of which it is contiguous. Tergites smooth above. Scobina with deep, relatively wide, lunate anterior impression followed by the usual finely striate area; separated by more than twice the width of a depression; beginning on the tenth segment and extending to about the thirty-eighth segment, but the scobina toward end of the series gradually reduced and fading out.

Anal tergite pointed behind, the apex narrowly rounded. The triangular caudal portion set off by transverse sulci; exceeded by the anal valves. Anal valves smooth.

Gonopods of male as represented in figures 107 and 108.

Number of segments in male holotype and female allotype, 54.

Length up to 130 mm.; width, to 10.5 mm.

LOCALITY: New Guinea. One male and three females taken in 1943 by James E. Hadley. (Types in the United States National Museum.)

#### **Polyconoceras extrusus**, new species

Figures 109, 110

General color fuscous, with caudal borders of metazonites chestnut. Legs also fuscous.

Sulcus of head continuous, though somewhat weaker for a short distance in frontal region. Foveolae 2 + 2.

Collum with surface smooth and shining, the lower ends rounded and margined as usual. The second tergite extending a little below it, striate beneath, with striae curving upward anteriorly as usual.

Segmental sulcus not evident above, but segment irregularly, shallowly furrowed in its place or with several weak wrinkles; sulcus weak on sides, subcontiguous with pore, above level of which it is weakly

angled. Surface of dorsum smooth and shiny; segments striate on sides and below as usual; also some oblique striae above level of pore. Scobina consisting of a wide crescentic impression followed by the usual series of fine striae; extending to segment XXXV from segment VIII.

Anal tergite acutely triangularly narrowed caudad, the apex narrowly rounded; caudal portion set off by a sharply impressed transverse sulcus or this sulcus obscure; equaling valves. Anal valves compressed as usual, rounded above.

Gonopods as figured (figs. 109 and 110).

Width of male holotype, 8 mm.

LOCALITY: New Guinea: Pionierbivak. Two males taken by Van Heurn, June-August, 1920.

### Trigoniulidae

#### *Trigoniulus amnestus*, new species

Figures 111, 112

Segments behind furrow, head, and collum ferruginous. Segments in front of furrow dark brown or nearly black down sides, the middorsal portion usually lighter. Antennae and legs also ferruginous.

Head smooth. Labral excision rectangular, a fine median sulcus extending from its apex continuously up to and across vertex. Supralabral setiferous pits 2 + 2, the two pits on each side widely separated. Eyes not extending mesad quite so far as inner edges of antennal sockets; eyes in outline subtriangular, the angles strongly rounded, upper side convex, the mesial straight, running moderately obliquely upward and mesad from lower angle. The usual depression for reception of basal joints of antennae.

Collum of usual general shape, being strongly narrowed down on each side and with anterolateral corner rounded. Anterior and lateral borders margined, the margining sulcus extending entirely across the plate.

Segmental sulcus obsolete, but indicated by the usual encircling weak constriction. Metazonites with diameter a little greater than that of the prozonites. Segments under lens appearing finely punctorugose along the constricting furrow, the rugae

gradually fading out toward caudal border and on the covered anterior border, both of which are smooth; metazonites crossed below by close-set longitudinal striae which become sparse, widely separated, at the middle height of sides. Repugnatorial pore on prozonite contiguous, or nearly so, with position of suture.

Sternite very finely cross striate.

Anal tergite not exceeding the valves, bluntly recurved behind; a shallow transverse depression in front of caudal end. Anal valves compressed as usual. Anal scale with anterior margin essentially straight.

Tarsal pads present on all legs of male except first two and last few pairs.

For structure of gonopods see figures 111 and 112.

Width of male holotype, 3.5 mm.

LOCALITY: Java: Purmerend, Batavia Bay. Male holotype, female allotype, and several paratypes, November, 1919.

### Harpagophoridae

#### *Thyropygus baweanus*, new species

Figure 113

Color of head, collum, and segments behind sulcus reddish brown or chocolate, under microscope appearing finely spotted with yellow, fulvous in front of sulcus. Legs pale.

Eyes more than their diameter apart; ocelli in six transverse series. Median sulcus of vertex distinct.

Collum with anterior margin incurved a little above anterolateral angle on each side opposite third article of antennae. Anterolateral corner well rounded, and lateral margin slightly convex. Caudal margin on each side bending a little back and meeting lateral margin at nearly a right angle. With a deep margining sulcus from level of eye along anterior margin, about each corner, and along lower side to caudal margin. One or two short sulci above lateral end of margining sulcus on each side.

The segmental sulci deeply impressed, curving opposite the pores from which they are widely removed. Metazonites with sharply impressed longitudinal striae below and up side part way to the pore. Prozon-



ites without longitudinal striae, but the usual fine, encircling cross striae which above cover only a little more than anterior half of zone but below cover it entirely.

Cauda much exceeding the valves, slightly curved, the tip blunt.

Characterized especially by the gonopods as shown in figure 113.

Segments of male holotype, 61; of female allotype, 55.

Diameter of holotype, 7.2 mm.; of female allotype, 8.2 mm.

LOCALITY: Bawean Island. One male holotype and one female allotype and a partly grown specimen taken February 6, 1920, by Dammerman.

### **Thyropygus cherus**, new species

Figures 114, 115

A conspicuously banded form, the prozonites being gray and the metazonites dark brown, more reddish at caudal margin. Collum and head dark brown, the former lighter about border. Antennae and legs lighter brown. Anal valves dark brown, the elevated borders reddish.

Vertex of head crossed by a sharply impressed sulcus which ends abruptly at level of a line connecting inner angles of eyes. Setae just above labral area 4 + 4. Labral setae 12 + 12; the three median labral teeth continued dorsad as ridges across labral region. Eyes much more than their length apart; subtriangular, the dorsal margin convex, the mesial angle acute, the ventral one obtuse, and the ectal one rounded; ocelli numerous and distinct, arranged in seven transverse series.

Antennae short, the articles, except the first and the sixth and seventh, strongly clavate, short, and thick. (See fig. 114.)

The collum narrowed down the sides as usual, the anterior margin on each side a little widely concave and then convexly rounding about the lower corner; strongly margined below and up the front to the level of the eye. A series of short, longitudinal striae on each side above lower margin, smooth and shining above (fig. 115).

Segmental sulcus deeply impressed, excurved opposite each pore, to which it is close. A longitudinal stria across prozonite and metazonite along middorsal line.

Surface minutely and rather obscurely punctate and with short, irregular, impressed lines. Metazonites with deep longitudinal striae below and up sides to level of pore. Striae across prozonite below, the anterior ends of the striae bending dorsad.

Last tergite with fine coriarius markings as on other segments, the cauda free, but not exceeding valves, and curved a little upward, the apex bluntly rounded.

Anal scale marked off by a sulcus from the ring, this sulcus on each side running out parallel with, and close to, the caudal margin; posterior angle obtuse. Anal valves with mesial borders compressed and moderately elevated.

Number of segments, 58.

Diameter, 10 mm.

LOCALITY: Sumatra: Wai Lima. A female taken by Karny and Siebers, together with a partly grown specimen and several young ones, November-December, 1921.

### **Thyropygus krakataunus**, new species

Figure 116

Original coloration uncertain because of long preservation of specimen. The metazonites of segments appear to have been brown or reddish brown, the prozonites abruptly paler.

Antennae short, the fifth article strongly clavate and thicker than the fourth, sixth article subspherical with distal end truncate, seventh article abruptly narrower. The vestigial sulcus fine, vertex each side of it smooth. Eyes separated by more than their diameter; elongate transversely, subtriangular in outline, the mesial angle acute, the ectal rounded, and the ventral one obtuse; the dorsal side convex.

The collum with the usual general form; strongly margined along each side and up anterior margin to level of eyes; above margining sulcus on each side, two or three short sulci with trace of a third or fourth running from caudal margin forward.

Segmental sulci deeply impressed, excurved opposite pore as usual. Metazonites with deeply impressed longitudinal striae, the striae present more than half way up to pore. Prozonites with encircling

striations over anterior portion as usual, the posterior portion not punctate.

Cauda not greatly exceeding the valves, straight, bluntly rounded.

Anal scale free from the ring.

Gonopods of general structure presented in *javanicus*, but the spine at "knee" of femur not two-pointed, etc. (see fig. 116).

Segments of male holotype, 55; of female allotype, 57.

Diameter of holotype, 7 mm.; of allotype, nearly the same.

LOCALITY: Krakatau. Male holotype, female allotype, and several paratypes taken by Dammerman, April 25, 1919.

### ***Thyropygus magister*, new species**

Figures 117, 118

Metazonites dark reddish brown, the prozonites a lighter brown. Collum, head, and anal valves dark reddish brown, with margins of valves and of last tergite a lighter red. Antennae reddish brown or chestnut, the legs brown.

Head with sulcus and eyes nearly as in *cherus*. Setae above labral area apparently only 3 + 3. The labral border not set off sharply at sides as in *cherus* and the median depressed area without distinct dental ridges; labral setae apparently 12 + 12, the foveolae extending out upon rounded lateral corner where much reduced in size. The antennae with joints longer than in *cherus*. (See fig. 117.)

Collum of usual general shape. Lower marginal ridge not so thick relatively as in *cherus*. Immediately above this ridge a depressed area in which there are two deep sulci extending from caudal margin part way across the plate. (See fig. 118.) Smooth and shining above.

Segmental sulci fine but distinct throughout, excurved at level of pore from which separated by nearly the diameter of the pore. Surface above appearing smooth and shining, the microscope revealing minute and largely obscure punctae only. Metazonites with coarse longitudinal striae beneath, these abbreviated above and not extending wholly to level of pore. Exposed portion of prozonites without striae except a few very fine ones just above outer end of

stigmatal slit; covered portion with the usual transverse striations.

Anal tergite with caudal process straight and short, tip bluntly rounded, free but exceeded by valves. Mesial border strongly compressed, more elevated than in *cherus*. Anal scale with lateral limiting sulcus evident only at outer ends, the anterior region being smoothly continuous with the ring of the segment.

Number of segments, 66.

Diameter, 18.2 mm.

LOCALITY: Sumatra: Wai Lima. Collected by Karny and Siebers, November-December, 1921.

### ***Thyropygus karimonus*, new species**

Figures 119-122

Coloration of typical segments at present somewhat chocolate colored behind the sulcus, the color in front of caudal margin more or less chestnut; anterior portion of segment light brown to yellowish, collum chocolate colored. Last segmental ring and anal valves abruptly lighter in color. Legs brownish yellow.

Antennae moderately short, with the articles proportioned nearly as illustrated for *cherus*.

Collum in general form also much as in *cherus*, but the marginal thickening narrower below over posterior portion (fig. 119).

Cauda much exceeding the valves, but little upcurved at end (fig. 120).

Gonopods of the male as shown in figures 121 and 122.

Number of segments in the male holotype, 61.

Diameter of male holotype, 10 mm.

LOCALITY: Java: Karimon Djawa Island, Karimon Djawa. A male and female taken by Selsman, September, 1920.

### ***Thyropygus kangeanus*, new species**

Figures 123, 124

In structure of male gonopods very close to *T. karimonus*. In the male the collum differs from the latter species in having the antero-inferior corner produced with the thickened border of that part narrower and in other details as shown in figure 123.

The cauda is relatively shorter than in *karimonus* and is concave above instead of being straight, as shown in figure 124. The color pattern differs in that the dark annuli are much narrower in comparison with the light ones, embracing only the caudal border of the metazonites.

Diameter of male holotype, 9 mm.

LOCALITY: Kangean Island, Tambora-jangau. Collected by C. Backer, April, 1919.

### Cambalidae

#### JAVICHUS, NEW GENUS

Repugnatorial pores beginning on segment V. Metazonites dorsally smooth, without trace of longitudinal ridges of keels.

Gonopods of male consisting of two pairs. The anterior bear no flagella; composed of two large joints, the coxa and undivided telopodite. Posterior gonopods not showing division into separate articles.

Ventral plate of first legs of male undivided but retaining a suture between the halves. First legs reduced in size but composed of full number of joints and terminating in a straight claw.

Second legs of male unmodified except for the genital processes from posterior side of coxae, those in generotype prominent, subcylindrical, and distally truncate.

GENEROTYPE: *Javichus monilus*, new species.

#### *Javichus monilus*, new species

Figures 125-127

Dark brown, in part nearly black, except lower part of head and the first two segments which are lighter, somewhat orange. Legs brown with antennae much darker, black or nearly so.

Antennae short, moderately clavate; second article longest; the third, fourth, and fifth not much differing in length from one another; sixth article thick cylindrical; seventh article broad but very short, only a little projecting out of the sixth, with the four sensory cones connivent at the middle of its distal face. Eyes with ocelli numerous, arranged in five or six longitudinal se-

ries: 3,4,4,4,2,1. Labral margin without definite teeth, the crenatures nearly obsolete.

Collum strongly narrowed down the sides. The lower margin short with infero-caudal corner strongly rounded. Dorsal surface strongly setose.

The succeeding segments conspicuously constricted, giving the body a submoniliform appearance. Surface of tergites lacking granules, ridges, or rugae, smooth; subdensely clothed throughout with fine and very short erect setae.

Last tergite with caudal margin nearly straight, not at all projecting over the valves. Anal valves with mesial borders neither compressed and produced nor nearly in a furrow; surface setose.

Gonopods as illustrated in figures 125, 126, and 127.

Number of segments, 42.

Diameter, 8 mm.; length, about 16 mm.

LOCALITY: Java: Tjibodas. One male taken by Dammerman in August, 1921, at 1400 meters elevation.

#### *Cambalopsis tjampeana* Attems

*Cambalopsis tjampeana* ATTEMMS, 1903, Zool. Jahrb., vol. 18, p. 68, pl. 6, figs. 28-37.

LOCALITY: Java: Tjibodas. One young specimen taken by Dammerman, May, 1922.

### Polyzonidae

#### PAROCONUS, NEW GENUS

Most nearly related to *Siphonoconus* but differing in various significant points.

Head of the same form with the two eyes in similar position. Seventh article of the antennae sunk in the sixth, not freely projecting. Tergites smooth. Pleurites all free from the tergites.

Anal ring complete, the sternite not separated. Penult segment lacking legs and sternite, the pleurites separated by an open slit, not overlapping as in *Siphonoconus*.

Anterior gonopods with coxae completely fused but with median suture preserved and visible; telopodite with first two joints strongly developed. Posterior gonopods with coxae also fused and preserving median suture, wholly lacking the conspicuous

processes present in species of *Siphonoconus*; telopodite composed of four distinct segments instead of three. The terminal joint similarly long and thin.

GENEROTYPE: *Paroconus paurodesmus*, new species.

**Paroconus paurodesmus**, new species

Figures 128-130

Venter and legs light yellow, the dorsum and antennae with an unevenly suffused brownish tint over yellow.

Differing from described species of *Siphonoconus* in smaller number of segments which in the adult male from Batavia is 33. In the specimens from Krakatau, the number varies from 30 to 35.

Head of the usual general form, shown in figure 128. Antennae short and subcylindrical, less clavate than in previously known species, also differing from the latter in having the seventh article completely sunken in the sixth with only tips of the cones showing in lateral view. Collum extending over head and concealing eyes from above and at least partly so from in front. (See fig. 128.)

Anal and penult tergites long. The anal tergite abruptly narrower than the penult, rounded above posteriorly.

Gonopods of the male as shown in figures 129 and 130.

Length of male holotype, 4 mm.; width, 65 mm. Length of largest female, 7 mm.; width, 0.9 mm.

LOCALITIES: Java: Batavia. One male, March, 1921.

Krakatau: One male holotype and four females taken in September, 1920.

**UPSIMA, NEW GENUS**

Antennae with seventh article exposed, not retracted into the sixth.

Agreeing with the polyzonine forms in having the lower ends of the anal ring not fused, but differing from the other known genera in that these ends do not overlap or meet, being separated by a membranous area. Penult ring with lower ends not meeting, also separated by a membranous area. (See fig. 131.)

Vasa deferentia of male opening through processes of the coxae of second legs.

GENEROTYPE: *Upsima princeps*, new species.

**Upsima princeps**, new species

Figures 131, 132

Dorsum yellow, irregularly suffused with purple. Antennae also purple over a yellow background and the legs clear yellow.

Eyes partly covered in dorsal view by the collum.

Dorsum in comparison with related forms rather broad; the tergites widely arched and without keels or tubercles laterally; pores widely removed from lateral and caudal borders. Features of caudal segments as shown in figure 131.

Efferent genital processes from coxae of second legs of male directed caudad, slenderly cylindrical.

Gonopods of male as represented in figure 132.

Number of segments in male holotype, 26; in female allotype, 29.

Length of female allotype, 5 mm.; width, 0.75 mm.

LOCALITY: Princes Island. Male holotype, female allotype, and several female paratypes, January, 1922.

**Siphonophoridae**

**Siphonophora praecisa**, new species

Figures 133-135

Color pale yellow throughout.

Rostrum short, about equal in length to the head. Antennae strongly clavate, with the sixth article much thicker and longer than the others and the exposed part of the seventh very short; fifth article with a conspicuous sensory pit on its distal border.

Tergites evenly convexly arched but depressed so as to be semi-elliptic rather than semicircular in cross section; not laterally keeled or tuberculate.

The dorsum densely setose with very short erect hairs as usual.

The gonopods of the male as shown in figures 133, 134, and 135.

Number of segments in the male holotype, 41.

Width, 0.85 mm.; length, about 9 mm.

LOCALITY: Java: Pangrango. Male holotype and one immature specimen taken in August, 1921, by Dammerman, at 2400 meters elevation.

### Platydesmidae

#### ZINAZONIUM, NEW GENUS

Resembling *Phaeacobius* in having across the metazonites rows of tubercles bearing numerous short sensory hairs, which also clothe the surface between the tubercles. It differs conspicuously from this genus, however, in having the side wings of the tergites much wider than long as in *Platydesmus*, etc. On each side of the middle of each ordinary tergite two large tubercles confluent at base into a longitudinal ridge, and on each side of these two transverse series of few, much smaller, and widely separated tubercles. First tergite not covering the head, bearing a curved posterior submarginal row of large tubercles and a shorter transverse series of smaller tubercles in front of it. Last tergite a little surpassing the anal valves. Pleurites with ectal ends completely fused with tergites, but free from sternite; the latter broad.

Gonopods of male primitive; divisions retained and clearly evident; coxae of both pairs large, mesially in contact. Repugnatorial process beginning on the sixth segment, as in *Fioria*.

GENEROTYPE: *Zinazonium leeuweni*, new species.

#### *Zinazonium leeuweni*, new species

Figures 136, 137

The dorsum, including bases of lateral keels, pale brown. The outer half of keels and the apices of the tubercles yellow. Legs and ventral surface yellow.

Body moderately broad in outline, being about six and three-fourths times as long as greatest width.

Head densely clothed with short hairs like those on tergites.

Collum a little wider than head, its anterior margin nearly straight, or its lateral ends with its large tubercle projecting a little forward; caudal margin on each side rounding forward. Typically eight large tubercles in posterior row adjacent to caudal and lateral margin. Dorsum strongly convex, with the keels curving out sub-horizontally a little above level of bases of legs. Keels of immediately succeeding tergites bent strongly forward, those of the second segment nearly attaining the level of the anterior margin of the collum. Distal ends of anterior keels rounded; in the fifth the anterior corner the more produced, but behind the sixth the posterior corners of keels protruding more and more acutely. Keels of middle region somewhat sigmoidal in outline, bending first forward and then caudad. In caudal region curved strongly back, those of the penult segment running directly caudad and equaling or slightly exceeding the anal tergite, the latter caudally rounded, clearly exceeding the anal valves.

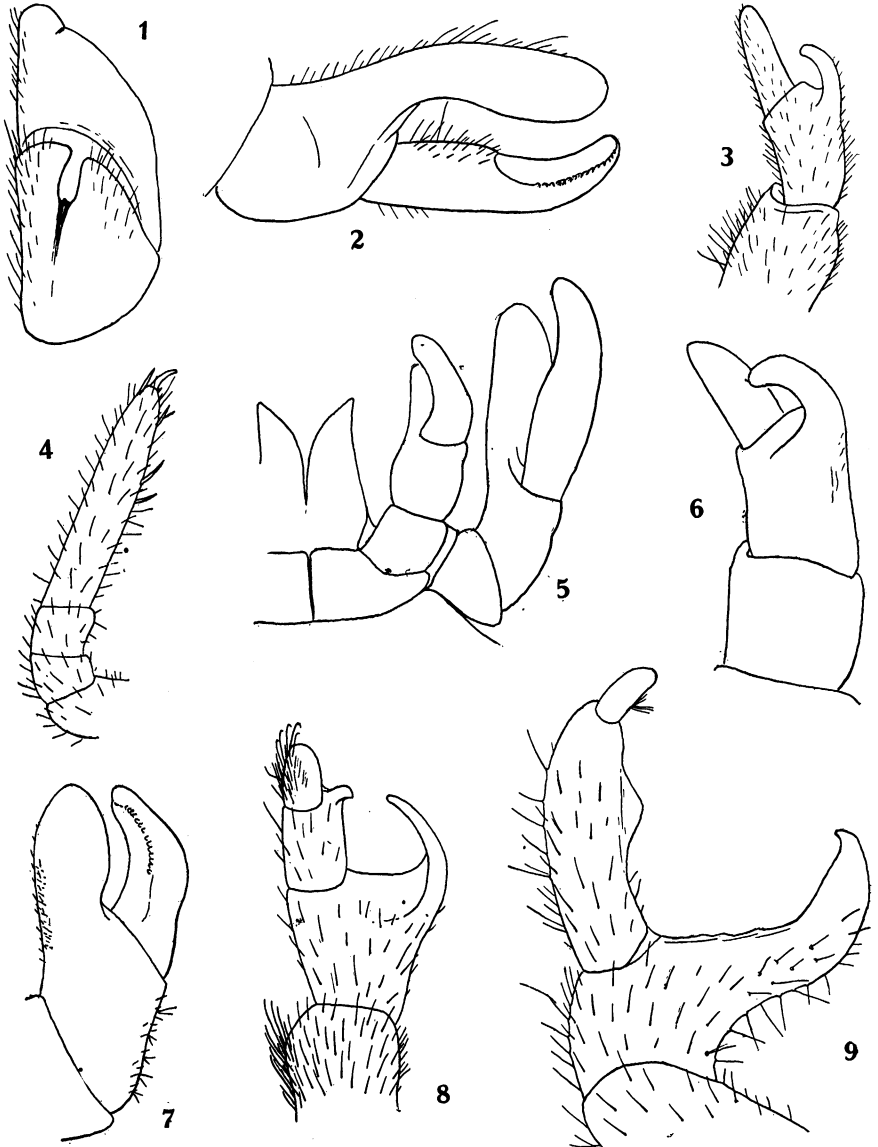
On typical tergites the posterior tubercle of the submedian two on each side conspicuously larger than the anterior, projecting a little caudad. Anterior row of tubercles on each side consisting of from two to five widely separated, smaller tubercles, four being the prevalent number; the posterior row composed mostly of two or three well-separated tubercles of which the mesial one is conspicuously largest.

Gonopods with proportions and structure shown in figures 136 and 137.

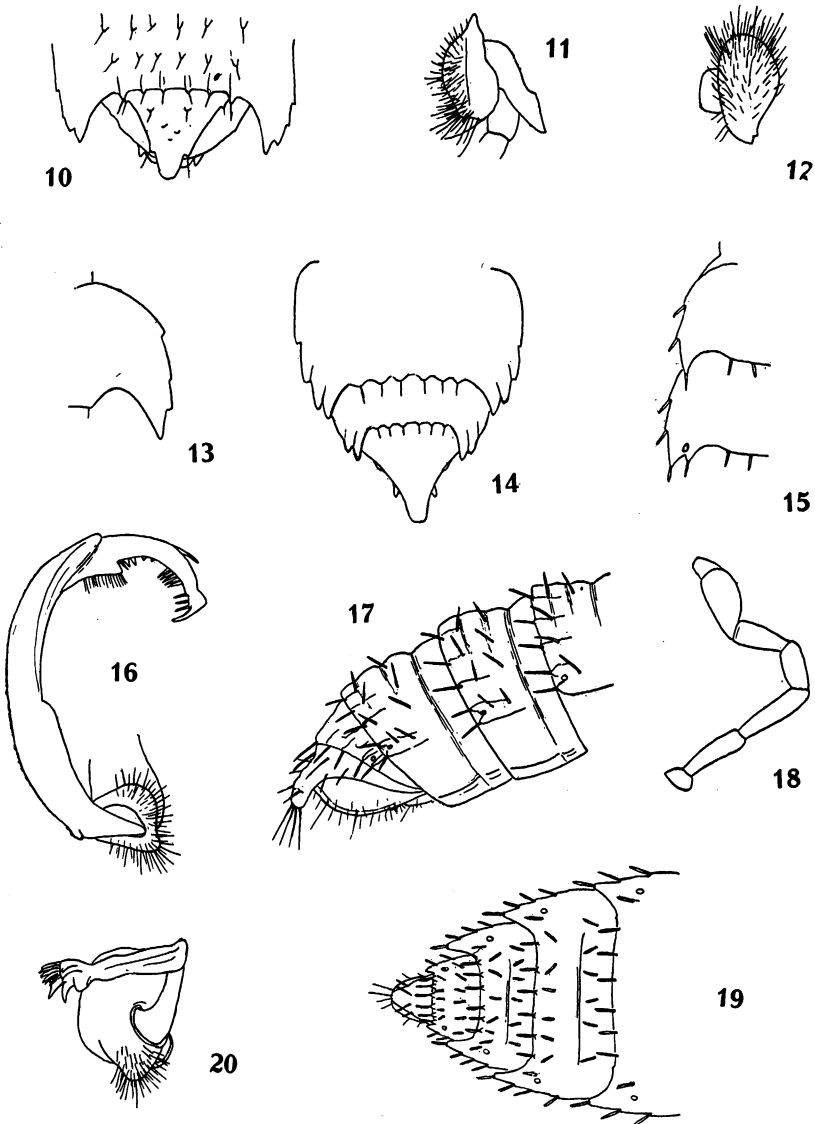
Segments of body mostly 66-68.

Length, 30 mm.; greatest width, 4.5 mm.

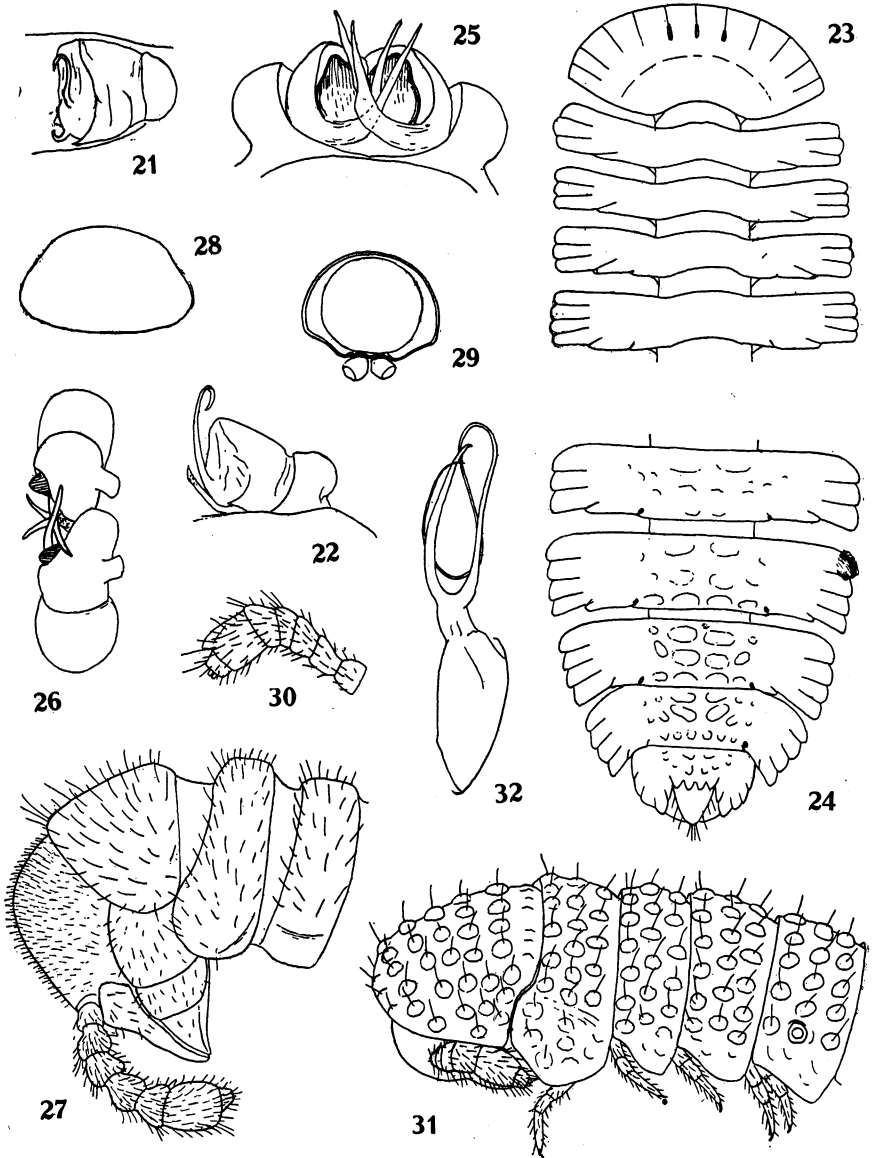
LOCALITY: Sumatra: Sibolangir. A dozen specimens, adult and young, collected by Leeuwen in September, 1920, at an elevation of 1500 meters.



- Fig. 1. *Sphaeropoews lamprongsis*, new species, vulva of female.  
 Fig. 2. Idem, second right gonopod of male, caudal view.  
 Fig. 3. Idem, first right gonopod of male, caudal view.  
 Fig. 4. *Zephronia moderata*, new species, distal articles of leg, showing claw and spines.  
 Fig. 5. Idem, anterior view of right gonopods of male.  
 Fig. 6. *Zephronia tivra*, new species, first gonopod of male, subcaudal view.  
 Fig. 7. Idem, second gonopod of male, caudal view.  
 Fig. 8. *Tonkinobelum sumatrense*, new species, first gonopod of male, mesocaudal view.  
 Fig. 9. Idem, second gonopod of male, caudal view.

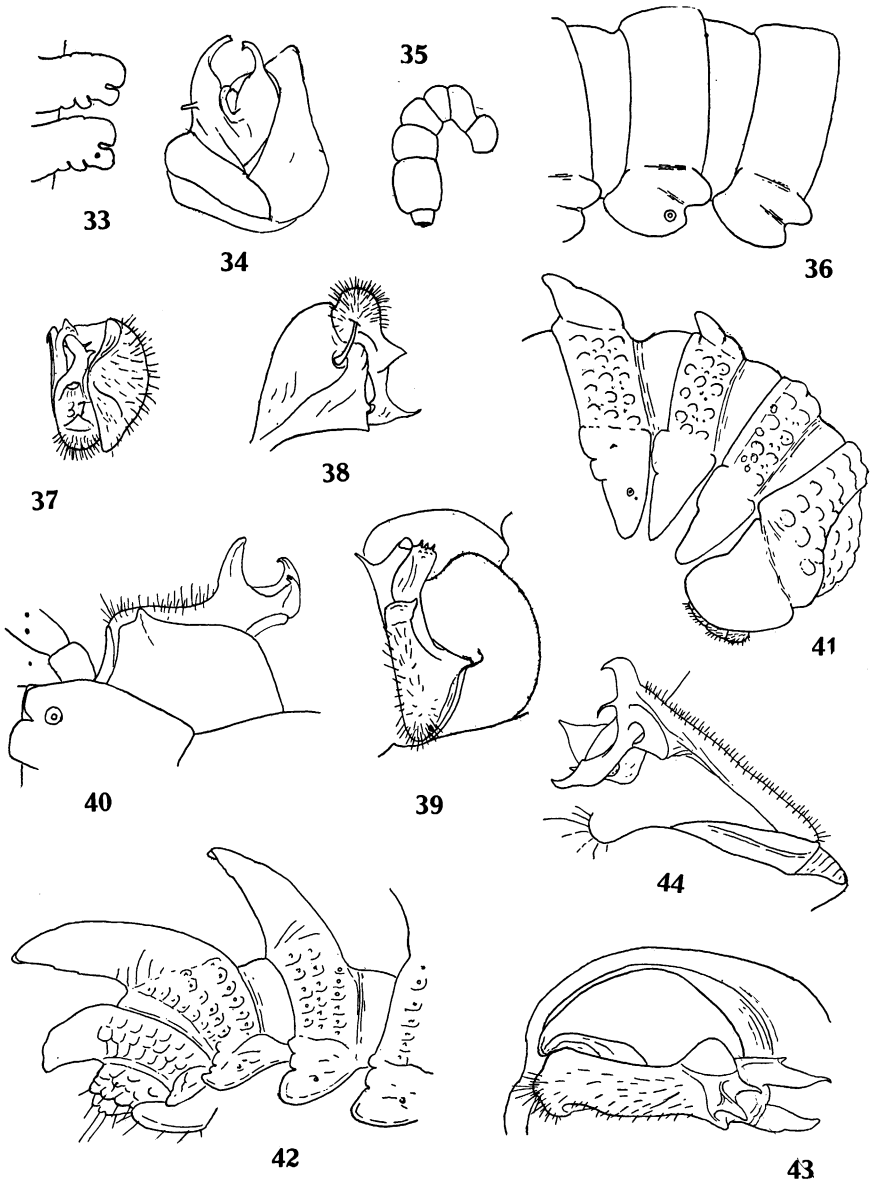


- Fig. 10. *Opisthoporodesmus silvestri*, new species, caudal end, dorsal view.  
 Fig. 11. Idem, right vulval process, lateral view.  
 Fig. 12. Idem, right vulval process, ventral view.  
 Fig. 13. *Opisthoporodesmus conservandus*, new species, fourteenth right keel in outline.  
 Fig. 14. Idem, caudal end, dorsal view, in outline.  
 Fig. 15. *Opisetretus euthus*, new species, fourteenth and fifteenth left keels in outline.  
 Fig. 16. Idem, left male gonopod, subventral view.  
 Fig. 17. *Opisetretus mimus*, new species, caudal end of body, lateral view.  
 Fig. 18. *Retrodesmus dammermani*, new species, antenna in outline.  
 Fig. 19. Idem, posterior end of body, dorsal view.  
 Fig. 20. Idem, right gonopod, ventral aspect.



- Fig. 21. *Cryptocorypha tobana*, new species, right gonopod of male, ventral view.  
 Fig. 22. Idem, right gonopod of male, anterior view.  
 Fig. 23. *Cryptocorypha leia*, new species, anterior segments, dorsal view.  
 Fig. 24. Idem, posterior segments, dorsal view.  
 Fig. 25. Idem, gonopods of male, anterior view.  
 Fig. 26. Idem, gonopods of male, ventral view.  
 Fig. 27. *Elatosus pygmaeus*, new species, anterior end of body, lateral view.  
 Fig. 28. Idem, collum in outline, dorsal view.  
 Fig. 29. Idem, cross section of a typical segment.  
 Fig. 30. *Porauzus pangrangus*, new species, antenna.  
 Fig. 31. Idem, anterior portion of body, lateral view.  
 Fig. 32. Idem, right gonopod, ectal view.





- Fig. 33. *Cryptyma javana*, new species, sixth and seventh right keels.  
 Fig. 34. *Idem*, left gonopod of male, caudoventral view.  
 Fig. 35. *Aphlotes litus*, new species, antenna.  
 Fig. 36. *Idem*, seventh and eighth tergites, lateral view (male) with granules and setae omitted.  
 Fig. 37. *Idem*, left gonopod of male, ventral view.  
 Fig. 38. *Idem*, right gonopod of male, mesial view.  
 Fig. 39. *Aphlotes auctus*, new species, left gonopod of male, ventral view.  
 Fig. 40. *Idem*, left gonopod of male, *in situ*, ectal view.  
 Fig. 41. *Hoplitesmus enoplus*, new species, anterior segments, lateral view.  
 Fig. 42. *Idem*, caudal segments, lateral view.  
 Fig. 43. *Idem*, right gonopod of male, ventral view.  
 Fig. 44. *Idem*, right gonopod of male, ectal view.

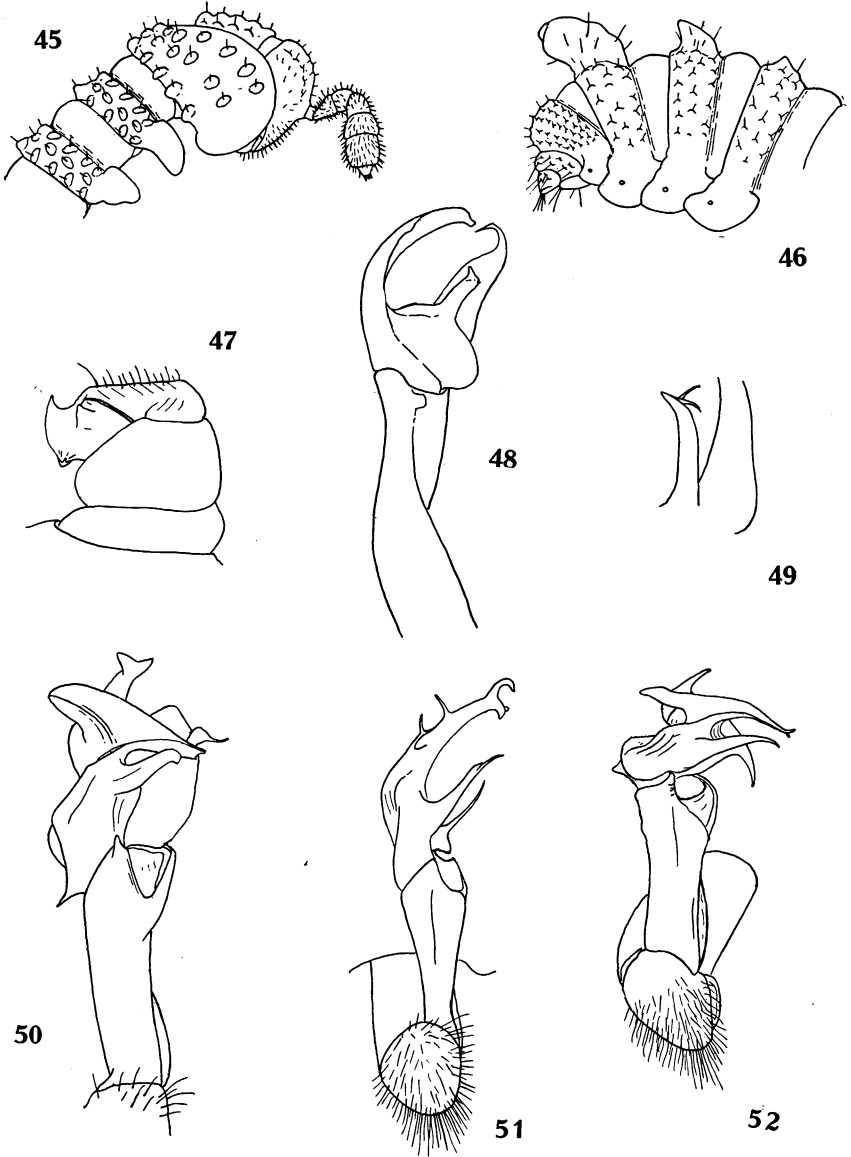


Fig. 45. *Pauroplus analdes*, new species, anterior end, lateral view.  
 Fig. 46. *Idem*, posterior end, lateral view.  
 Fig. 47. *Idem*, right gonopod, *in situ*, lateral view.  
 Fig. 48. *Oxidus sequens*, new species, right male gonopod, distal portion, ventral view.  
 Fig. 49. *Idem*, mesial view of ventral branch of telopodite of gonopod.  
 Fig. 50. *Oxidus lamellifer*, new species, gonopod of male.  
 Fig. 51. *Oxidus filarius* (Attems), right gonopod of male, ventral view.  
 Fig. 52. *Oxidus pygmaeus* (Pocock), right gonopod of male, ventral view.

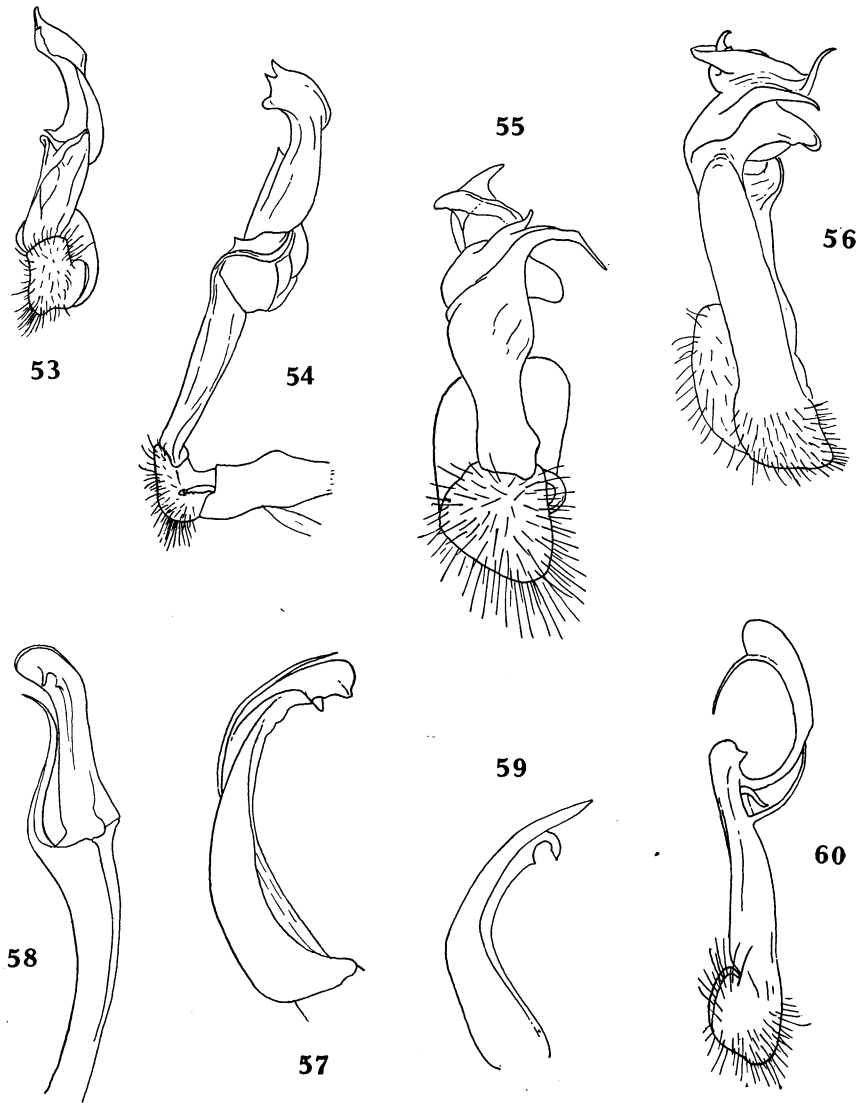
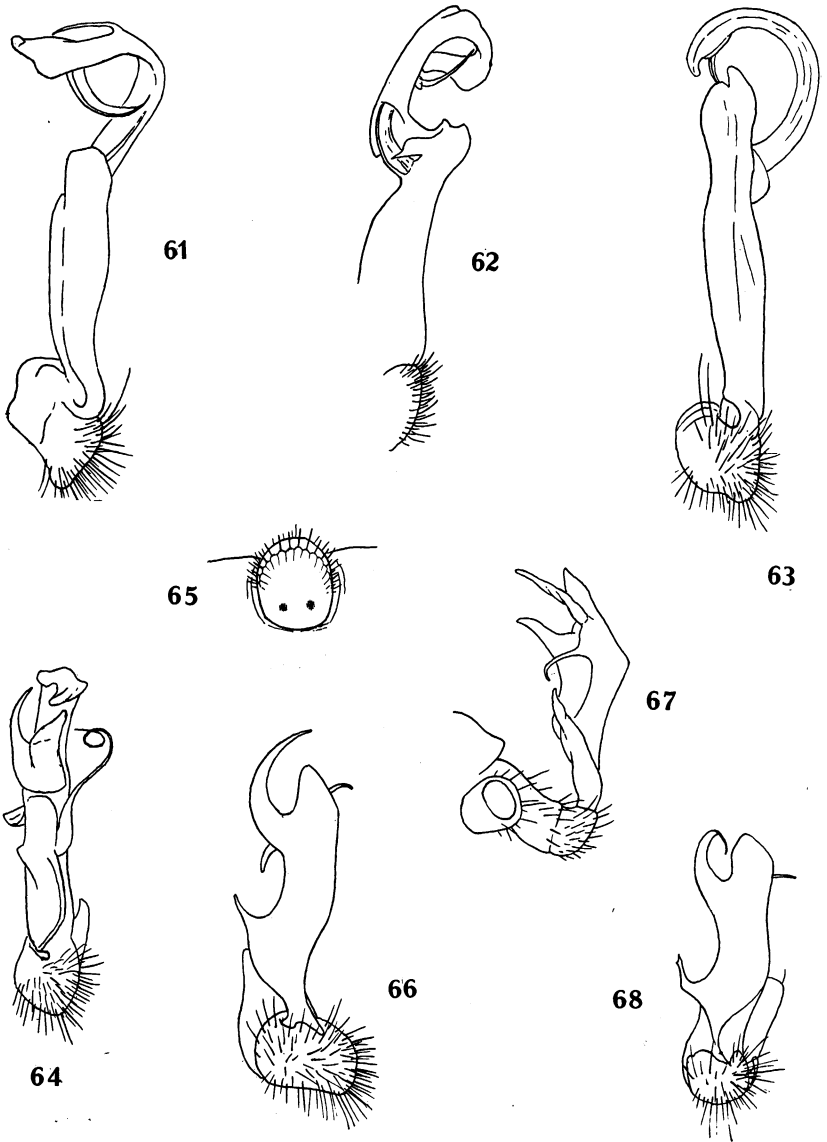
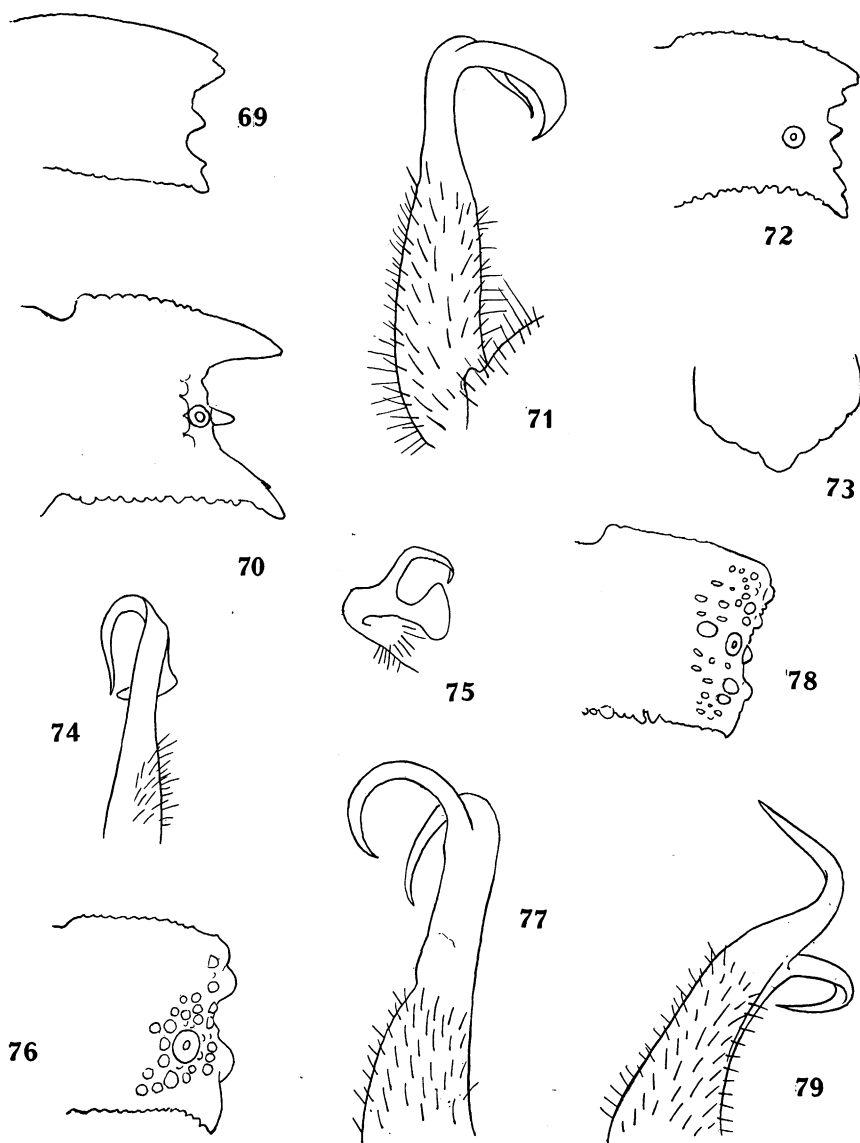


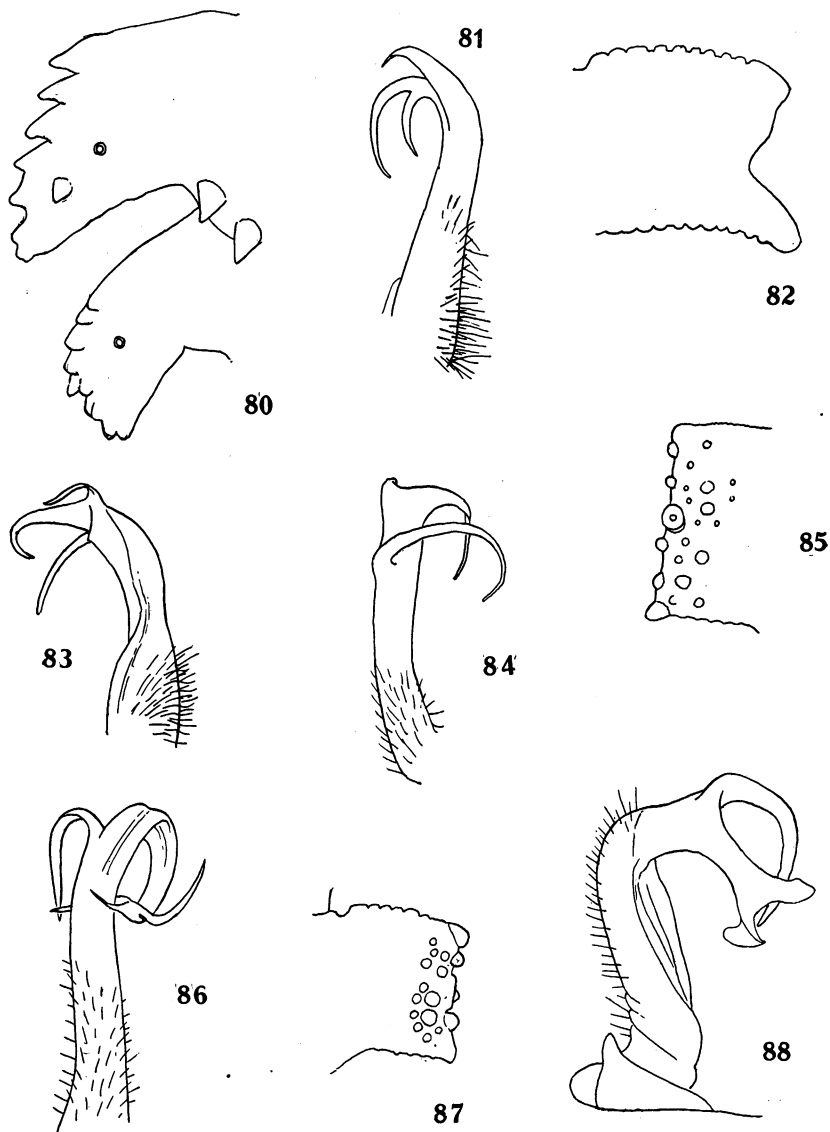
Fig. 53. *Oxidus annex*, new species, left gonopod, ventral view.  
 Fig. 54. Idem, right gonopod, mesial view.  
 Fig. 55. *Oxidus malabarus*, new species, right gonopod of male, ventral view.  
 Fig. 56. *Oxidus pangranjus*, new species, right gonopod of male, ventral view.  
 Fig. 57. *Orthomorpha consocius*, new species, left gonopod of male, subventral view.  
 Fig. 58. *Orthomorpha eupistum*, new species, left gonopod, ventral view.  
 Fig. 59. Idem, ectal view of apical part of right gonopod.  
 Fig. 60. *Papuosoma cladis*, new species, right gonopod of male, ventral view.



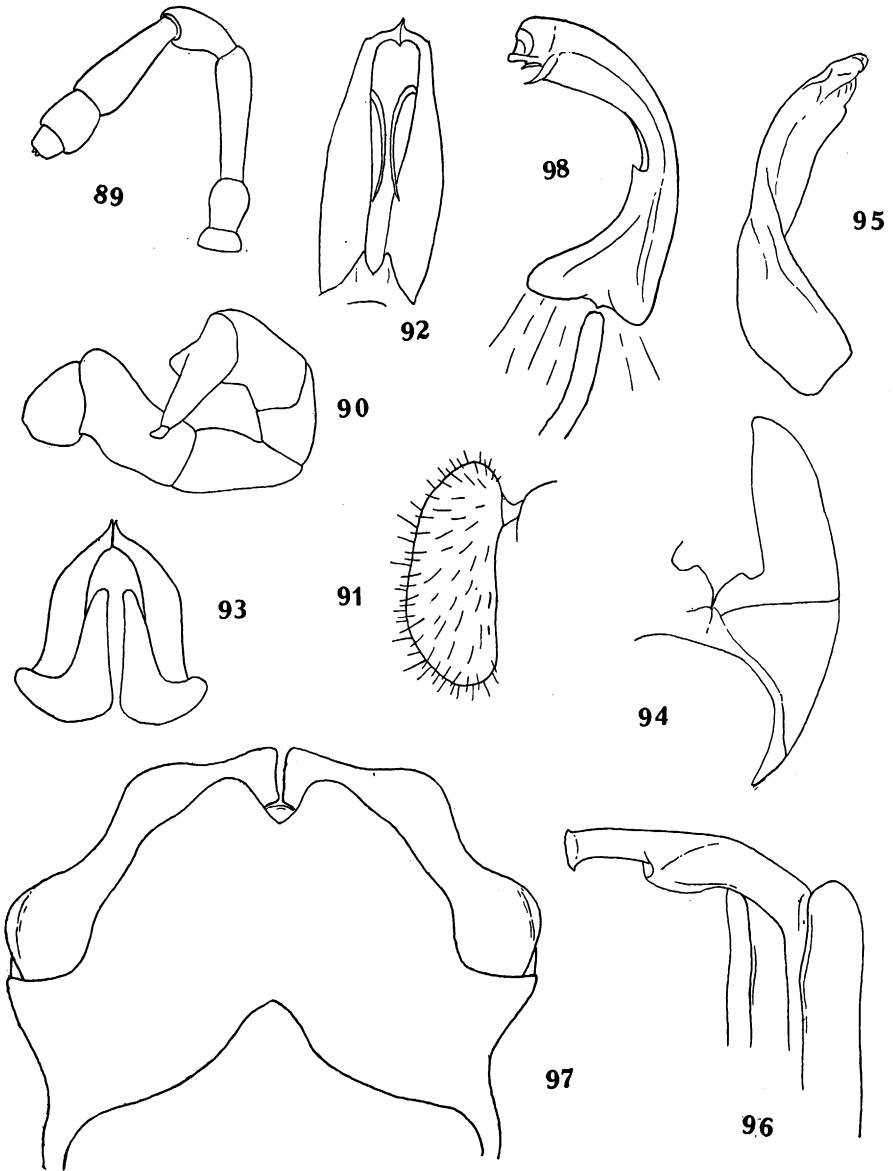
- Fig. 61. *Papuosoma prodelum*, new species, right gonopod, subventral view.  
 Fig. 62. *Idem*, left gonopod, submesial view.  
 Fig. 63. *Papuosoma typonotum*, new species, right gonopod, ventral view.  
 Fig. 64. *Caloma agametum*, new species, right gonopod, ventral view.  
 Fig. 65. *Xenosoma atyches*, new species, sternal process of fifth segment of male, caudoventral view.  
 Fig. 66. *Idem*, right gonopod, ventral view.  
 Fig. 67. *Idem*, right gonopod, *in situ*, ectal view.  
 Fig. 68. *Xenosoma sonandrum*, new species, right gonopod of male, ventral view.



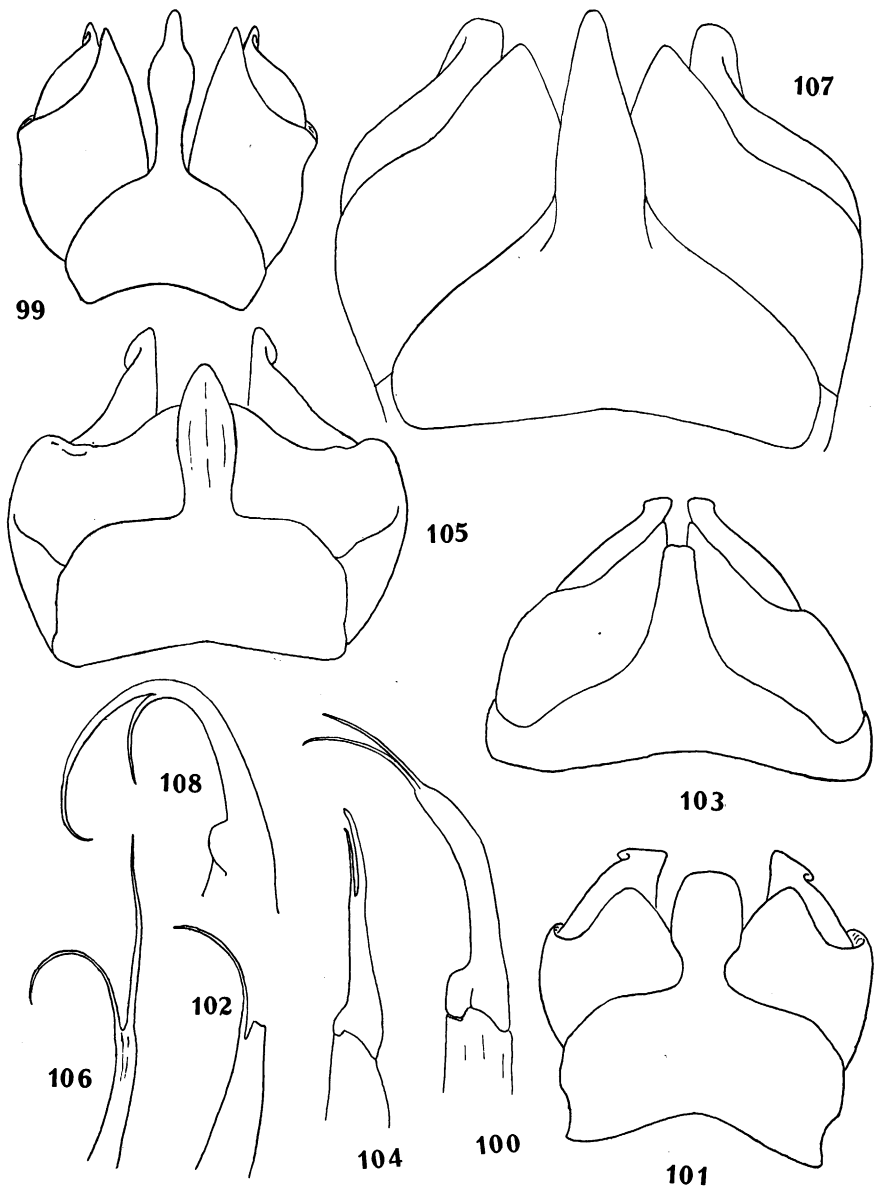
- Fig. 69. *Platyrhacus (Platyrhacus) acmophorus*, new species, second right keel in outline.  
 Fig. 70. Idem, twelfth right keels in outline.  
 Fig. 71. Idem, left gonopod of male, ectal view.  
 Fig. 72. *Platyrhacus (Platyrhacus) doormanpadus*, new species, twelfth right keel.  
 Fig. 73. Idem, last tergite in outline.  
 Fig. 74. Idem, left gonopod, ventral view.  
 Fig. 75. Idem, left gonopod, distal view.  
 Fig. 76. *Platyrhacus (Platyrhacus) parabates*, new species, twelfth right keel.  
 Fig. 77. Idem, right gonopod, ventral view.  
 Fig. 78. *Platyrhacus (Platyrhacus) relaxus*, new species, twelfth right keel.  
 Fig. 79. Idem, right gonopod, ventral view.



- Fig. 80. *Platyrhacus (Psaphodesmus) conifer*, new species, eighteenth and nineteenth left keels.  
 Fig. 81. Idem, left gonopod, submesial view.  
 Fig. 82. *Platyrhacus (Psaphodesmus) conformatus*, new species, twelfth right keel in outline.  
 Fig. 83. Idem, left gonopod, caudomesial view.  
 Fig. 84. Idem, left gonopod, ectal view.  
 Fig. 85. *Platyrhacus (Psaphodesmus) ethodus*, new species, twelfth left keel.  
 Fig. 86. Idem, right gonopod, ventral aspect.  
 Fig. 87. *Platyrhacus (Psaphodesmus) fratrellus*, new species, twelfth right keel.  
 Fig. 88. Idem, left gonopod, subanterior view.



- Fig. 89. *Metapidothrix javana*, new species, antenna in outline.  
 Fig. 90. Idem, third left leg of male, view a little ventrad of caudal.  
 Fig. 91. Idem, left ninth leg of male, *in situ*, anterior aspect.  
 Fig. 92. Idem, gonopods, anteroventral view.  
 Fig. 93. Idem, gonopods, caudal view.  
 Fig. 94. *Javolus purmerendus*, new species, anterior gonopod, anterior view.  
 Fig. 95. Idem, posterior gonopod, caudal view.  
 Fig. 96. Idem, posterior gonopod, *in situ*, apical portion, mesial view.  
 Fig. 97. *Spirobolellus wachlerinus*, new species, anterior gonopods, cephalic aspect.  
 Fig. 98. Idem, right posterior gonopod, cephalic aspect.



- Fig. 99. *Dinematocriscus acompus*, new species, anterior gonopods and sternite, cephalic aspect.  
 Fig. 100. *Idem*, posterior gonopod, caudal aspect. (More enlarged than fig. 99.)  
 Fig. 101. *Dinematocriscus eupistus*, new species, anterior gonopods, cephalic aspect.  
 Fig. 102. *Idem*, apical position of posterior gonopod in which outer prong is broken off, caudal aspect.  
 Fig. 103. *Dinematocriscus gonethus*, new species, anterior gonopod, cephalic aspect.  
 Fig. 104. *Idem*, left posterior gonopod, caudal aspect.  
 Fig. 105. *Dinematocriscus kangeanus*, new species, anterior gonopods and sternite, cephalic aspect.  
 Fig. 106. *Idem*, apical portion of right posterior gonopod, cephalic aspect.  
 Fig. 107. *Dinematocriscus hadleyi*, new species, anterior gonopods and sternite.  
 Fig. 108. *Idem*, left posterior gonopod, caudal aspect.



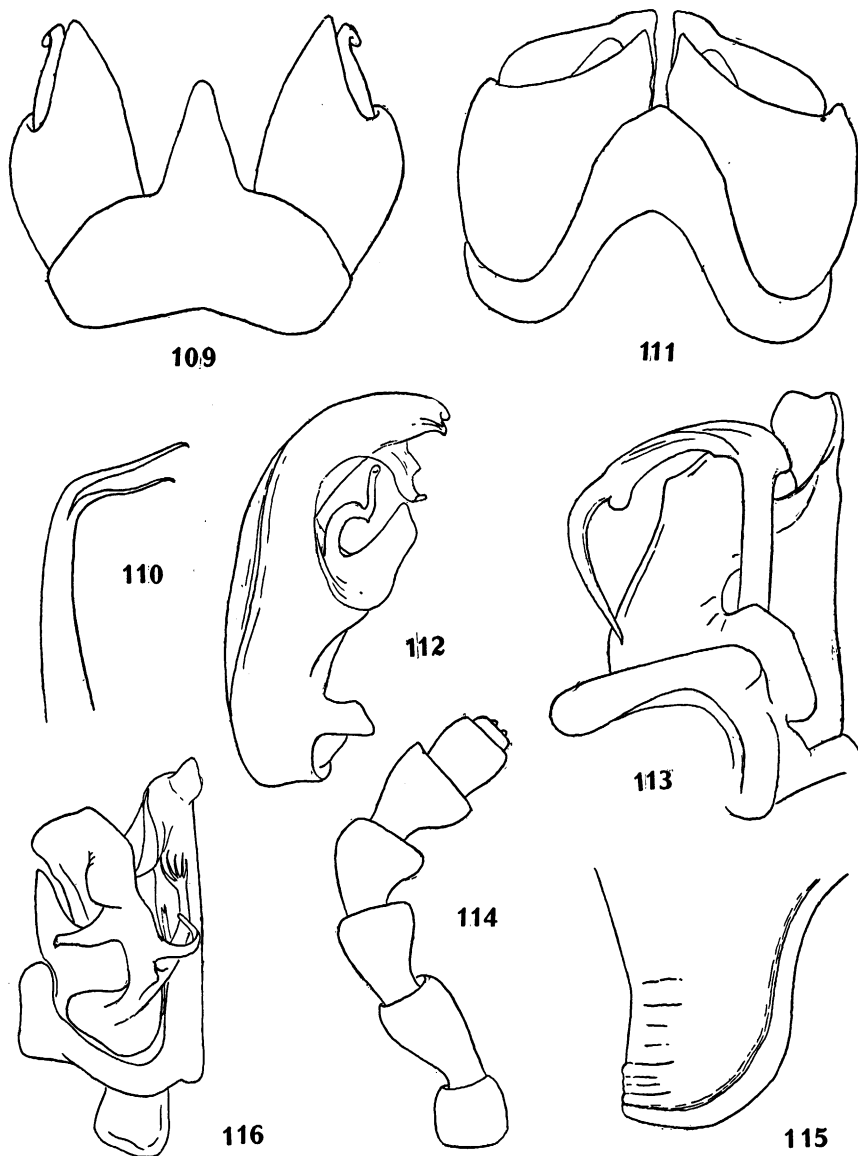


Fig. 109. *Polyconoceras extrusus*, new species, anterior gonopods and sternite of male, cephalic aspect.

Fig. 110. Idem, distal portion of posterior gonopod, caudal aspect.

Fig. 111. *Trigoniulus amnestus*, new species, anterior gonopods, cephalic view.

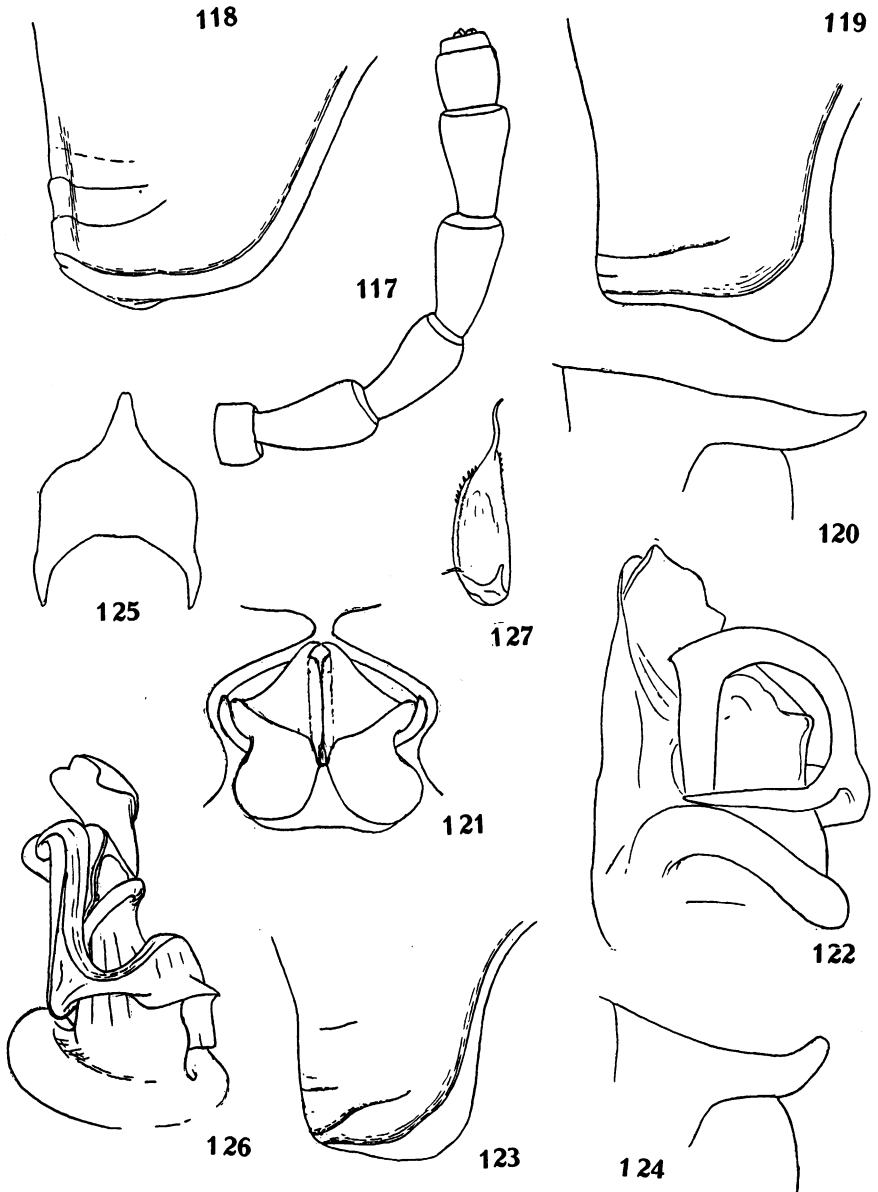
Fig. 112. Idem, right posterior gonopod, caudal view.

Fig. 113. *Thyropygus baweanus*, new species, right gonopods, caudal view.

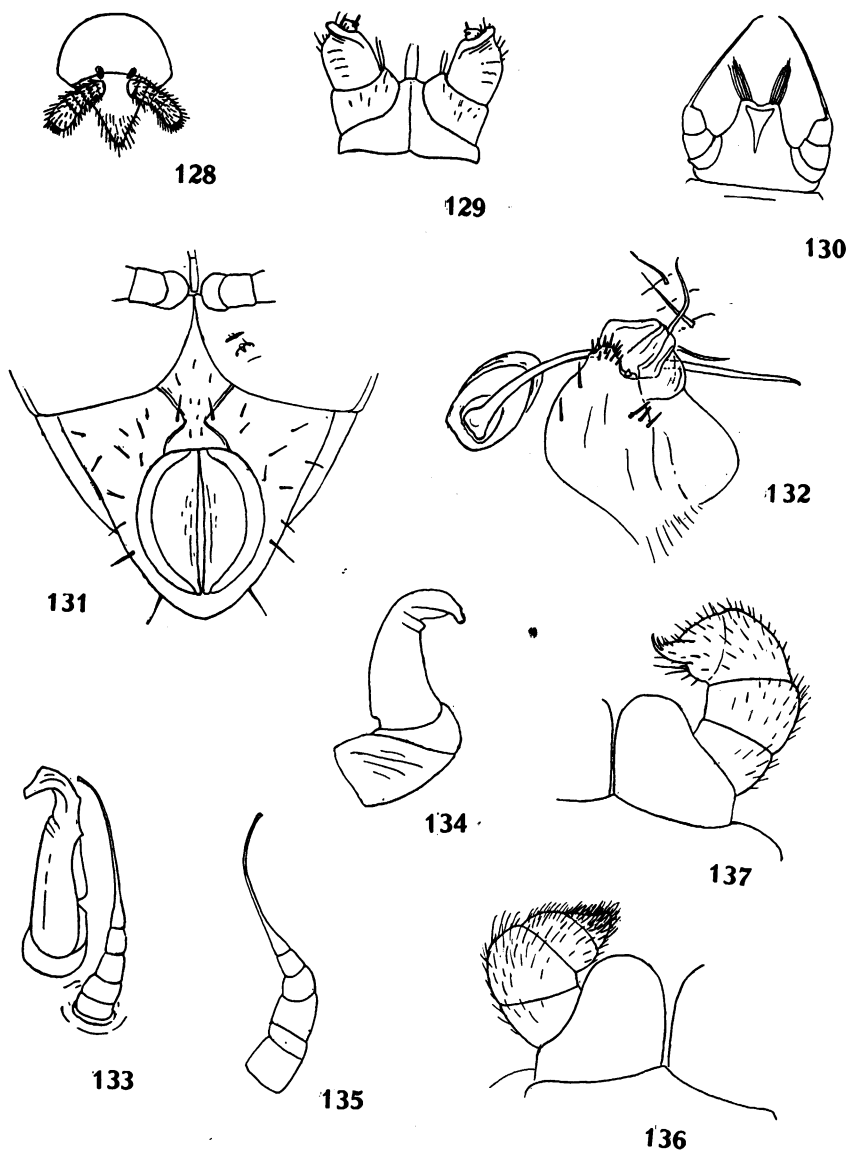
Fig. 114. *Thyropygus cherus*, new species, antenna.

Fig. 115. Idem, lower end of collum, right side view.

Fig. 116. *Thyropygus krakataunus*, new species, right gonopods, caudal view.



- Fig. 117. *Thyropygus magister*, new species, antenna.  
 Fig. 118. *Idem*, lower part of collum, right side.  
 Fig. 119. *Thyropygus karimonus*, new species, lower right side of collum, male.  
 Fig. 120. *Idem*, cauda, lateral view.  
 Fig. 121. *Idem*, right gonopods, caudal view.  
 Fig. 122. *Idem*, right gonopods, subectal view.  
 Fig. 123. *Thyropygus kangeanus*, new species, lower end of collum, right side.  
 Fig. 124. *Idem*, cauda, lateral view.  
 Fig. 125. *Javichus monilus*, new species, sternite of anterior gonopods.  
 Fig. 126. *Idem*, anterior gonopods, *in situ*, ventral view.  
 Fig. 127. *Idem*, left posterior gonopod, cephalic aspect.



- Fig. 128. *Paroconus paurodesmus*, new species, head and collum, anterior view.  
 Fig. 129. Idem, anterior gonopods, cephalic aspect.  
 Fig. 130. Idem, posterior gonopods, caudal aspect.  
 Fig. 131. *Upsilon princeps*, new species, caudal end of body, ventral view.  
 Fig. 132. Idem, left gonopods, subventral view.  
 Fig. 133. *Siphonophora praecisa*, new species, right gonopods, *in situ*, caudal view.  
 Fig. 134. Idem, right anterior gonopod, ectal view.  
 Fig. 135. Idem, right posterior gonopod, lateral view.  
 Fig. 136. *Zinazonium leeuweni*, new species, anterior gonopods, cephalic aspect.  
 Fig. 137. Idem, left posterior gonopod, caudal aspect.

