

Studies on the *Dermaptera* of Philippines

BY

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INTRODUCTION.

The present paper is based on a collection of *Dermaptera* made by an expedition from the Field Museum of Natural History, Chicago, U. S. A., in Philippine Islands during the years 1946-47. This interesting collection was placed at authors disposal by the courtesy of Dr. Henery Dybas.

Altogether 46 species —excluding 7 identified upto generic level only— belonging to 28 genera have been dealt with, out of which 14 species are new to science and two others are reported for the first time from the area.

The *Dermaptera* fauna of Philippine Islands does not seem to have been explored well as yet. Borelli studied it at some length and published his results in an excellent series of seven notes (1915-18, 21, 23 and 26). Prior to his work only a few species were either described or recorded from this region. In the recent years Brindle (1966-67) and Ramamurthi (1967) have added some more species. As a result of these studies, about 100 species have been reported occurring in these Islands. But keeping in view the diverse topographical conditions, abundance of rich and varied forests which these Islands present, the known fauna does not seem to be adequate. The bulk of the material recorded here comes from Mindanao Island alone. And the presence of so many new taxon in the collection treated in the present report, itself suggests the richness of the fauna.

SYSTEMATIC ACCOUNT.

PYGIDICRANOIDEA

PYGIDICRANIDAE

PYGIDICRANINAE

1. *Cranopygia bakeri* (Borelli, 1921) (figs. 9, 10).

Acraina bakeri Borelli, 1921. *Boll. Mus. Zool. Anat. comp., Torino*, t. XXXV, n.º 736, pág. 1 (♂; Philippine Islands, Mindanao).

Acraina bakeri Borelli.—Borelli, 1923. *Boll. Zool. Anat. comp., Torino* (N. S. 13), t. XXXVIII, pág. 5 (♂, ♀; Philippine, Surigao, Mindanao).

Cranopygia bakeri (Borelli).—Hincks, 1959. *Syst. Mon. Derm.*, 2, pág. 104 (comb. nov.).

Material examined: MINDANAO, Davao Province, E. slope Mt. McKinley, 1 ♂, 1-6-IX-1946, 3300-3850 ft.; 1 nymph, IX-1946, 3300 ft.; 1 nymph, 14-VIII-1946, 4000 ft.; leaf axils of bush *Pandanus*; Todaya, E. slope Mt. Apo, 2 nymphs, XI-1946, 2800 ft. (H. Hoogstraal leg.).

Remarks: The adult ♂ specimen agrees well with Borelli's (1921) original description and subsequent diagnostic characters given by Hincks (1959). The ♂ genitalia is being figured here for the first time. Virga is very long and coiled with a row short bristles for a short distance, a little before apex. In this character it differs from *C. horsfieldi* (Kirby) and *C. sarawacensis* Hincks.

2. *Cranopygia variegata* Brindle, 1966.

Cranopygia variegata Brindle, 1966. *Ark. Zool.*, t. XVIII, pág. 439 (♂, ♀; Philippine Islands, Mindanao, Momungan, Pt. Bango; Kolambugam and Surigao).

Material examined: PALAWAN Is., S. slope Mt. Balabag, Mantalingajan Range, 1 ♂, 4-17-V-1947, 2800 ft.; Puerto Princesa, 1 nymph, 27-IV-1947, sea level, second growth forest, under bark (H. Hoogstraal leg.).

3. *Tagalina* sp.

Material examined: MINDANAO, Davao Province, E. slope Mt. Mckinley, 1 nymph, 15-IV-1946, 4000 ft., leaf axils of *Pandanus* (H. Hoogstraal and D. Heyneman leg.); 2 nymphs, 14-VIII-1946, 4000 ft., leaf axils of bush *Pandanus*; 1 nymph, 14-VIII-1946, 3300-4300 ft. (H. Hoogstraal leg.); 1 nymph, 22-VIII-1946, 5400 ft., in logs (F. G. Werner leg.); 1 nymph, IX-1946, 3000 ft., 2 nymphs, 3-X-1946, open forest, on tree trunk, larva emerged from hole in place of foreleg; Todaya, E. slope Mt. Apo, 1 nymph, XI-1946, 2800 ft.; Sitigo, Taglawig, Maco, Tagum, 1 nymph, X-1946, at sea level original dipterocarp forest (H. Hoogstraal leg.); PALAWAN, S. slope, Mt. Balabag Mantaligajan Range, 1 nymph, 4-17-V-1947, 2800 ft., 1 nymph, 10-V-1947, 5100 ft., mossy forest (F. G. Werner leg.).

DIPLATYIDAE

DIPLATYINAE

4. *Diplatys hoogstraali* nov. sp. (figs. 1-4).

Holotype ♂, Mckinley, E. slope Mt. Davao Province, Mindanao, Philippines (Field Museum of Natural History, Chicago).

Material examined: MINDANAO, Davao Province, E. slope Mt. Mckinley, holotype ♂, 1-IX-1946; 3300 ft., second growth forest, allotype ♀, IX-1946, 3200 ft., beating shrubs, dipterocarp forest; paratypes 3 ♂♂, 1-IX-1946, 3300 ft., second growth forest; 1 ♂, 1-IX-1946, 3400 ft., under bark; 2 ♀♀, 26-28-IX-1946, 3300 ft., second growth forest, chopped out of tall stumps; Mainit, E. slope Mt. Apo, 1 ♂, XI-1946; 4000 ft., original forest (H. Hoogstraal leg.).

All types in the Field Museum of Natural History, Chicago except two paratypes 1 ♂, 1 ♀ with the author at Zoological Survey of India, Calcutta.

♂: General colour yellowish brown; antennae dark brown apically; pronotum with a light yellow band laterally and posteriorly;

elytra blackish near apex; tibiae black; abdomen sometimes shaded with black. Head, pronotum, elytra and legs with long and short yellow hairs.

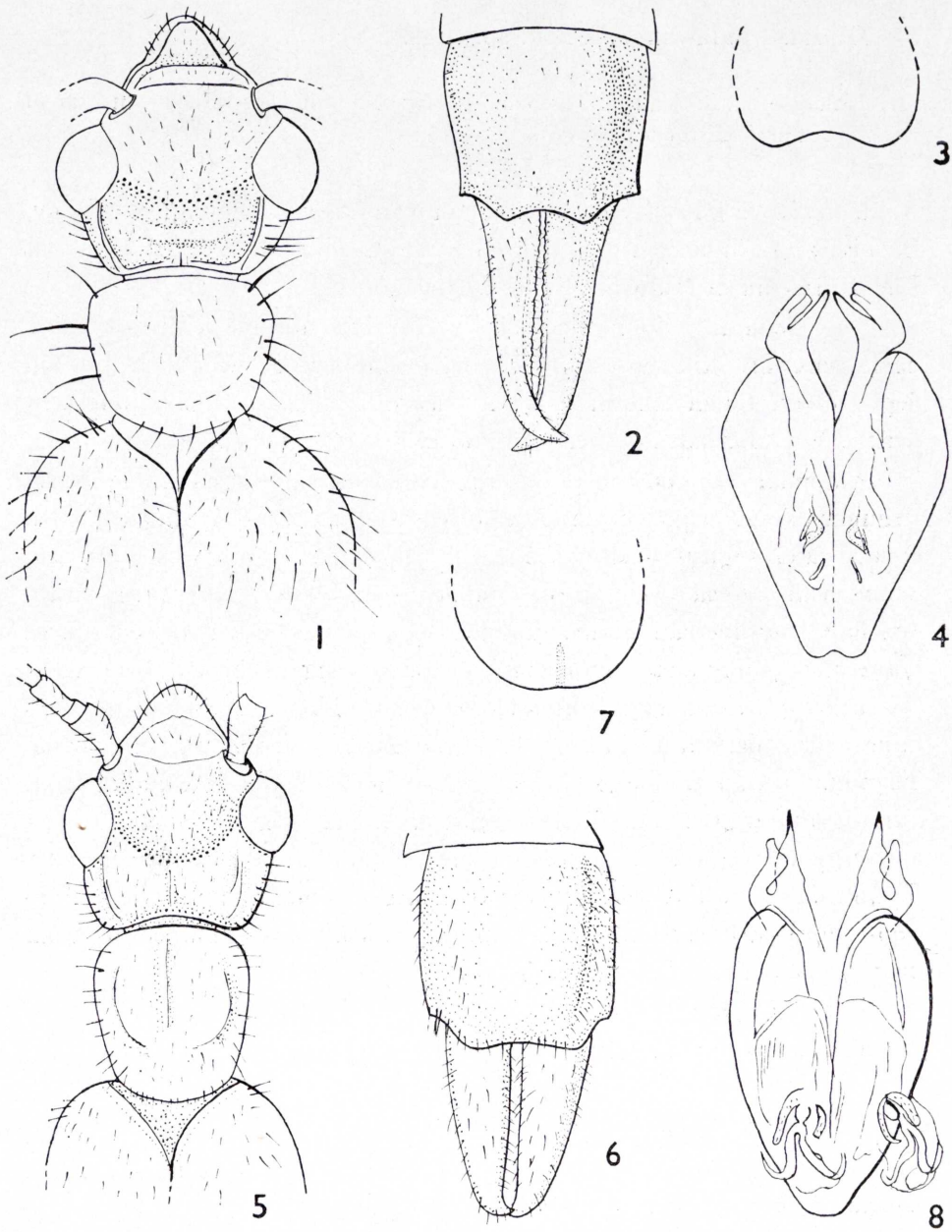
Antennae 15 (+?) segmented; 1st stout, about as long as 2nd, 3rd and 4th together; 2nd small; 3rd slightly longer than 4th and almost equal to 5th; 6th a little longer than 3rd; succeeding segments long and slender. Head triangular, frons tumid, sutures obsolete, occiput depressed, post-ocular carina distinct and reaching almost to posterior margin which is emarginate in middle; eyes prominent, longer than genae. Pronotum somewhat rounded, slightly narrowed posteriorly, median suture faint; prozona tumid and metazona flat. Scutellum distinct. Tegmina three times longer than pronotum. Wings slightly longer than pronotum. Abdomen slender, slightly expanded posteriorly. Ultimate tergite, convex above, longer than broad, gently narrowed apically, posterior margin between the bases of forceps sinuate in middle and as well as laterally above the roots of forceps and oblique. Penultimate sternite with posterior margin broadly rounded, hardly emarginate in middle. Forceps with branches somewhat depressed and contiguous, tapering apically with incurved pointed apices which cross, inner margin finely crenulate. Genitalia (fig. 4).

♀: General colour and other characters almost similar to ♂. Eyes less prominent. Frons less tumid, occiput weakly depressed and sutures faint. Abdomen comparatively less slender, not narrowed apically; ultimate tergite more narrowed posteriorly. Forceps unarmed at internal margin.

Measurements (in mm):

	Holotype	Allotype	Paratypes	
	♂	♀	4 ♂♂	3 ♀♀
Length of body (without forceps).	9.20	9.58	7.90-9.30	8.80-10.90
Length of forceps	1.35	1.90	1.10-1.45	1.25- 1.75

Remarks: This species comes close to *Diplatys komodensis* Beï-Bienko (1965), described from Komodo Island, Indonesia, but differs in general colouration; posterior margin of penultimate sternite and the genitalia especially the shape of parameres.



Figs. 1-8.—*Diplatys hoogstraali* nov. sp., ♂: 1) head, pronotum and portion of elytra; 2) ultimate tergite and forceps; 3) penultimate sternite; 4) genitalia. *Diplatys palawanensis* nov. sp., ♂: 5) head, pronotum and portion of elytra; 6) ultimate tergite and forceps; 7) penultimate sternite; 8) genitalia (figs. 1-3; 5-7 and 4, 8 same scale).

5. *Diplatys palawanensis* nov. sp. (figs. 5-8).

Holotype ♂, R. Valley, Tigoplan, Palawan, Philippines (Field Museum of Natural History, Chicago).

Material examined: PALAWAN, Palawan Prov., Tigoplan R. Valley, Brooke's pt., holotype ♂, V-1947, 700 ft. (F. G. Werner leg.); at Field Museum of Natural History, Chicago.

♂: General colour blackish brown; pronotum with a yellow band laterally and posteriorly; elytra and wings yellowish brown, legs yellow, tibiae and tarsi with traces of black. Finely pubescent with a few long hairs on head, pronotum, elytra and wings.

Antennae broken, only 10 segments on right remaining, basal segment stout, equal to 2nd and 3rd together; 3rd cylindrical; 4th conical and slightly shorter than 3rd; 5th equal to 3rd; rest long and cylindrical. Head with frons tumid, transverse, transverse suture obsolete and median suture distinct; post-ocular ridge present; eyes large and prominent. Pronotum about as long as broad, contracted posteriorly with margin rounded, sides straight, median sulcus very faint; prozona tumid and well differentiated from flat metazona. Tegmina, wings and legs normal. Abdomen slender, expanded from 7th to 9th tergites. Ultimate tergite about as long as broad, convex above, posterior margin feebly sinuate in middle and oblique laterally. Penultimate sternite with posterior margin sinuate in middle. Forceps depressed, subcontiguous tapering apically and hooked, internal margin unarmed. Genitalia (fig. 8).

♀: Unknown.

Measurements (in mm):

	Holotype ♂
Length of body (without forceps)	10.6
Length of forceps	0.9

Remarks: With Hinck's (1955, pág. 80) key to the species of *Nigreiceps* group it comes close to *D. angustatus* Burr in having the outer lobe of parameres shorter than inner but differs in the shape of penultimate sternite and the details of structure of genitalia.

6. **Diplatys** sp.

Material examined: MINDANAO, Davao Province, E. slope Mt. McKinley, 1 ♀, 22-VIII-1946, in logs (F. W. Werner leg.).

Remarks: In the absence of a ♂ it is not possible to place this specimen accurately to specific level.

ECHINOSOMATINAE

7. **Echinosoma philippinense** Hincks, 1959.

Echinosoma philippinense Hincks, 1959. *Syst. Mon. Derm.*, t. II, pág. 156, figs. 148-150 (♂, ♀; Philippine Islands).

Material examined: MINDANAO, Davao Province, Caburan, Caburan, 1 ♀, I-1947, sea level, second growth forest (H. Hoogstraal leg.); Cotabato province, Burungkot, Upi, 1 ♂, 1-6-I-1947, 1500 ft. (F. G. Werner leg.); PALAWAN IS., Puerto Princesa, 1 ♀, 11-V-1947, sea level, on *Pandanus*, 2nd growth forest (H. Hoogstraal leg.).

Remarks: These specimens agree well with the original description given by Hinck's (1959). The wings tip are provided with a brown or black spot.

8. **Echinosoma sumatranum** (Haan, 1842).

Forficula (Echinosoma) sumatranum Haan, 1842. *Verh. nat. Gesch. Orth.*, pág. 241 (♂, ♀; Sumatra).

Material examined: MINDANAO, Davao Province, Todaya, E. slope Mt. Apo, 1 ♀, 27-X-1946, 2800 ft. (H. Hoogstraal and D. Heyneman leg.).

Remarks: Borelli (1915, 1916) has already recorded this species from Luzon Is. (Manila); Palawan Is. (Puerto Princesa) and Mindanao Is. (Davao) in Philippine.

9. **Echinosoma convolutum** Hincks, 1959.

Echinosoma convolutum Hincks, 1959. *Syst. Mon. Derm.*, t. II, pág. 152, figs. 140-141 (♂, ♀; Burma; Annam, Tonkin).

Echinosoma convolutum Hincks.—Brindle, 1967. *Ark. Zool.*, t. XX, n.º 7, pág. 155.

Material examined: MINDANAO, Davao Province, Caburan, Caburan, 1 ♂, 5-I-1947, sea level, under bark, ravine forest (H. Hoogstraal leg.), Todaya, E. slope Mt. Apo, ♀, 27-X-1946, 2800 ft., under bark of log in cornfield (H. Hoogstraal and D. Heyneman leg.); PALAWAN Is. Puerto Princesa, 1 ♂, 27-V-1947, sea level, 2nd growth forest (H. Hoogstraal leg.).

Remarks: In the ♀ specimen wings are black, without any spot

10. **Echinosoma** sp.

Material examined: LUZON, Los Baños, Laguna, 3 nymphs, 5-V-1947 (F. G. Werner leg.).

Remarks: These immature specimens belong to *Sumatranum*-group of the Indo-Australian Region (Hincks, 1959, pág. 146) in having the abdomen unicolourous and pygidium acuminate posteriorly.

11. **Echinosoma** sp.

Material examined: MINDANAO, Davao Province, E. slope Mt. Apo, 1 nymph, 27-X-1946, 2800 ft., under bark from log in cornfield (H. Hoogstraal leg.); Todaya, E. slope Mt. Apo, 1 nymph, 27-X-1946, 2800 ft. (H. Hoogstraal and D. Heyneman leg.).

Remarks: Two light yellow longitudinal stripes are quite distinct on the abdomen of both the specimens and thus these belong to *Yorkense*-group (Hincks, 1959, pág. 136). Pygidium is acuminate posteriorly.

LABIOIDEA
CARCINOPHORIDAE
CARCINOPHORINAE

12. **Euborellia plebeja** (Dohrn, 1863).

Labidura plebeja Dohrn, 1863. *Stettin. ent. Ztg.*, t. XXIV, pág. 322 (♀; Java).

Euborellia plebeja (Dohrn).—Hebard, 1927. *Proc. Acad. nat. Sci. Philad.*, t. LXXIX, pág. 27.

Material examined; MINDANAO, Davao Province, Maco, Tagum, 1 ♂, 13-X-1946, sea level, flying over log pile in hot sun; 1 ♀, X-1946, sea level (H. Hoogstraal leg.).

Remarks: The specimens before me are shining blackish brown. Elytra and wings are fully developed but lighter in colour. Sides of abdominal segments in ♂ are convex and lack longitudinal carina.

Measurements (in mm):

	♂	♀
Length of body (without forceps)	9.4	8.7
Length of forceps	1.5	1.5

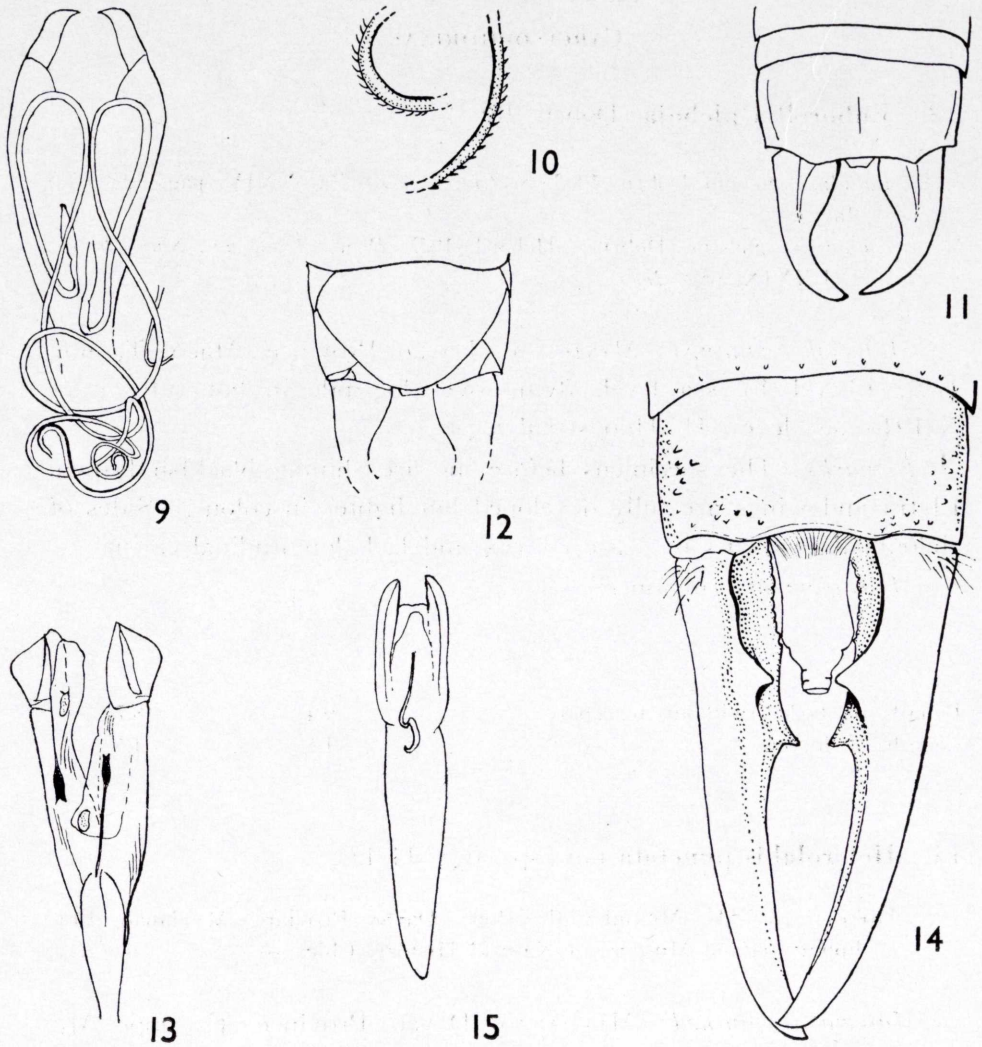
13. **Heterolabis punctata** nov. sp. (figs. 11-13).

Holotype ♂, Mt. Mckinley, E. slope, Davao Province, Mindanao, Philippines (Field Museum of Natural History, Chicago).

Material examined: MINDANAO, Davao Province, E. slope Mt. Mckinley, holotype ♂, VIII-1946, 3000 ft., humus, original forest; paratype 1 ♂, 5-IX-1946, 3000 ft., in humus, dipterocarp forest, 1 nymph, 22-VIII-1946, 5400 ft., in logs (F. G. Werner leg.), 2 nymphs, 22-VIII-1946, 1-IX-1946, 3300 ft., second growth forest (H. Hoogstraal leg.).

Holotype ♂ at Field Museum of Natural History, Chicago and paratype 1 ♂ with the author at Zoological Survey of India, Calcutta.

♂: Colour dark blackish brown, frons with a dark black patch, pronotum lighter on sides, a few pre-apical antennal segments yellow,



Figs. 9-15.—*Cranopygia bakeri* (Borelli), ♂ : 9) genitalia; 10) a portion of virga showing bristles. *Heterolabis punctata* nov. sp., ♂ : 11) ultimate tergite and forceps; 12) penultimate sternite and forceps; 13) genitalia. *Nesogaster bidentatus* nov. sp., ♂ : 14) ultimate tergite and forceps; 15) genitalia (figs. 11, 12 same scale).

legs yellow, femora with black patch in middle. Paratype slightly lighter in colour with head and abdomen reddish.

Head about as long as broad, with micro-reticulations, sutures feebly marked, posterior margin very slightly emarginate in middle. Antennae 16 segmented, pubescent; 1st segment club shaped; 2nd small; 3rd long and cylindrical; 4th clavate, smaller than 3rd; 5th equal to 3rd, rest gradually increasing in length. Pronotum smooth, quadrat, anteriorly equal in width to head, posteriorly slightly widened, sides straight, posterior margin briefly rounded, median suture well marked. Meso- and metanotum sparsely punctate. Elytra and wings absent. Abdomen with tergites impresso punctate, very finely pubescent, a little expanded posteriorly, sides of segments 7th to 9th obtuse, ecarinate, rugosly punctate. Ultimate tergite transverse, comparatively smoother, median sulcus faint, laterally with a longitudinal fold, area above and below it rugose; posterior margin straight in middle, laterally oblique and slightly sinuate. Pygidium scarcely visible from above. Penultimate sternite triangular with posterior margin rounded. Forceps weakly asymmetrical, remote and heavy at base, then gradually tapering to incurved and pointed apices, trigonal in basal one third only, inner margin smooth, flat ventrally. Genitalia (fig. 13).

Remarks: The shape of parameres and virga justify its inclusion in the genus *Heterolabis* Borelli, 1912 hitherto restricted to Brazil only. From *H. brasiliensis* Borelli, 1912 it differs by its smaller size and total absence of carina on the sides of abdominal segments; the shape of penultimate sternite being rounded at the posterior margin; the ultimate tergite with a distinct lateral fold and the branches of forceps remote at base and incurved in apical half only.

Of the other species of *Carcinopharinae* known from Philippines, the generic position of *Anisolabis recurvus* Borelli, 1915 is not certain since the genitalia is unknown. The described species, however, differs from it as follows: (i) Smaller size, 15.6 mm (*vs.* larger 22.7 mm in *A. recurvus*); (ii) head and pronotum smooth (*vs.* punctate); (iii) tubercular folds on 3rd and 4th abdominal segments indistinct (*vs.* indistinct on 3rd and distinct on 4th); (iv) penultimate sternite with posterior margin rounded (*vs.* truncate), and (v) internal margin of forceps smooth (*vs.* largely dentate).

14. *Epilandex peterseni* Ramamurthi, 1967.

Epilandex peterseni Ramamurthi, 1967. *Ent. Medd.*, t. XXXV, pág. 234, figs. 6-8 (♂, ♀; Philippine and Bismark Isls.).

Material examined: MINDANAO, Davao Province, E. slope Mt. Mckinley, 1 ♀, IX-1946, 3300 ft., 2nd growth and dipterocarp forest (H. Hoogstraal and F. G. Werner leg.).

Remarks: Agrees well with the original description, except forceps which are very finely crenulate at internal margin for a short distance basally.

15. *Epilandex* sp.

Material examined: MINDANAO, Davao Province, E. slope Mt. Mckinley, 2 nymphs, 22-VIII-1946, 5400 ft., in logs (F. G. Werner leg.).

L A B I I D A E
NESOGASTRINAE

16. *Nesogaster aculeatus* (Bormans, 1900).

Labia aculeata Bormans, 1900. *Ann. Mus. Stor. nat. Genova*, t. XX, pág. 456 (♂, ♀; British New Guinea).

Forficula miranda Bormans. In Burr, 1903. *Ann. Mag. nat. Hist.*, ser. 7, t. XI, pág. 269.

Nesogaster aculeatus (Bormans).—Burr, 1908. *Ann. Mag. nat. Hist.*, ser. 8, t. I, pág. 46.

Nesogaster atrops Rehn, 1946. *Proc. Acad. nat. Sci. Philad.*, t. XCVIII, pág. 231.

Nesogaster apoensis Rehn, 1946. *Proc. Acad. nat. Sci. Philad.*, t. XCVIII, pág. 235.

Material examined: MINDANAO, Davao Province, Mainit, E. slope Mt. Apo, 1 ♂, XI-1946, 4300 ft., on trees and rotten log, original forest (H. Hoogstraal leg.).

Remarks: The ♂ specimen before me is having well developed wings which are dark brown, with a yellow circular spot at base close to external margin.

17. **Nesogaster bidentatus** nov. sp. (figs. 14, 15).

Holotype ♂, Mt. Apo, E. slope, Todaya, Davao Province, Mindanao, Philippines (Field Museum of Natural History, Chicago).

Material examined: MINDANAO, Davao Province, Todaya, E. slope Mt. Apo, holotype ♂, paratype ♂ Cotabato, Province, Upi, 6-I-1947, 1500 ft., under chips (H. Hoogstraal leg.).

Holotype ♂ at Field Museum of Natural History, Chicago and paratype 1 ♂ with the author at Zoological Survey of India, Calcutta.

♂: Colour shining yellowish brown, antennae dark brown with one or two apical segments yellow; pronotum paler on sides, elytra paler laterally in basal two-thirds; legs yellow with femora and tibiae dark brown in basal half and abdomen shaded with black.

Head as long as broad, frons tumid, sutures faint, hind margin sinuate in middle. Eyes black, almost equal to basal antennal segments and smaller than genae in length. Antennae 11 or 12 segmented; 1st long and stout; 2nd small; 3rd cylindrical, almost as long as 1st and longer than the rest which are conical. Pronotum square, anterior margin straight, sides straight and a little reflexed, posterior margin subtruncate, sulcus faint, prozona tumid and metazona flat. Elytra smooth, almost as long as pronotum or very slightly longer, keeled at costal margin. Wings absent. Legs normal. Abdomen smooth, gradually widening from base to 7th tergite afterwards slightly contracted, tubercular folds on 3rd and 4th tergites weak. Ultimate tergite strongly transverse, smooth, with a slight depression close to posterior margin which is raised and incrassate, tumid elevation present corresponding to bases of forceps and with small tubercles on it above as well on sides, sides straight and hind margin trisinate. Penultimate sternite ample with posterior margin round and emarginate in middle. Pygidium prominent reaching upto the inner dorsal tooth of forceps, strongly sloping at base, sides slightly emarginate in middle, oblique posterior margin undulate with a blunt broad tubercle at apex. Forceps with branches straight, slightly curved in apical

one-third only, tapering gradually from base to pointed, incurved apices which meet or cross, inner margin dorsally forming a concave ridge in basal one third and terminating with a pointed triangular tooth; ventrally finely crenulate in basal one fourth and afterwards smooth with a triangular tooth at about middle, a few golden yellow hairs present at base, branches flat ventrally. Genitalia (fig. 15).

♀ : Unknown.

Measurements (in mm):

	Holotype ♂	Paratype ♂
Length of body (without forceps)	6.4	4.6
Length of pygidium	0.7	0.4
Length of forceps	2.9	1.9

Remarks: The described species appears to be closely allied to *N. intermedius* Borelli, from Borneo, with which it differs by the presence of a row of small tubercles along the posterior margin of 7th to 9th tergites; weak prominences on ultimate tergite, above the roots of forceps and undulate oblique posterior margin of pygidium. The forceps in *N. bidentatus* are also different in having an inner dorsal ridge in basal one-third ending in a tooth and crenulate at inner ventral margin with a tooth at middle. It has some resemblance with *N. aculeatus* (Bormans) but the shape of pygidium and the armature of forceps are quite distinctive.

18. *Nesogaster dybasi* nov. sp. (figs. 16-18).

Holotype ♂, Mt. Apo, E. slope, Baclayan, Davao Province, Mindanao, Philippines (Field Museum of Natural History, Chicago).

Material examined: MINDANAO, Davao Province, Baclayan, E. slope Mt. Apo, holotype ♂, allotype ♀, paratypes 4 ♂♂, 3 ♀♀ and 6 nymphs, 13-XI-1946, 6500 ft., ravine or original forest, 1 ♀ (forceps broken), 4 nymphs, XI-1946, ca. 7000 ft.; Mt. Apo, 1 ♀, XI-1949, 6800 ft. (H. Hoogstraal leg.); Baclayan River Camp; Meran, E. slope Mt. Apo, 1 ♂, 5-XI-1946, 600 ft., original forest (F. G. Werner leg.); E. slope Mt. McKinley, 1 ♀, 8-IX-1946, mossy forest; 1 nymph, 14-IX-1946, 3300 ft., second growth forest (H. Hoogstraal

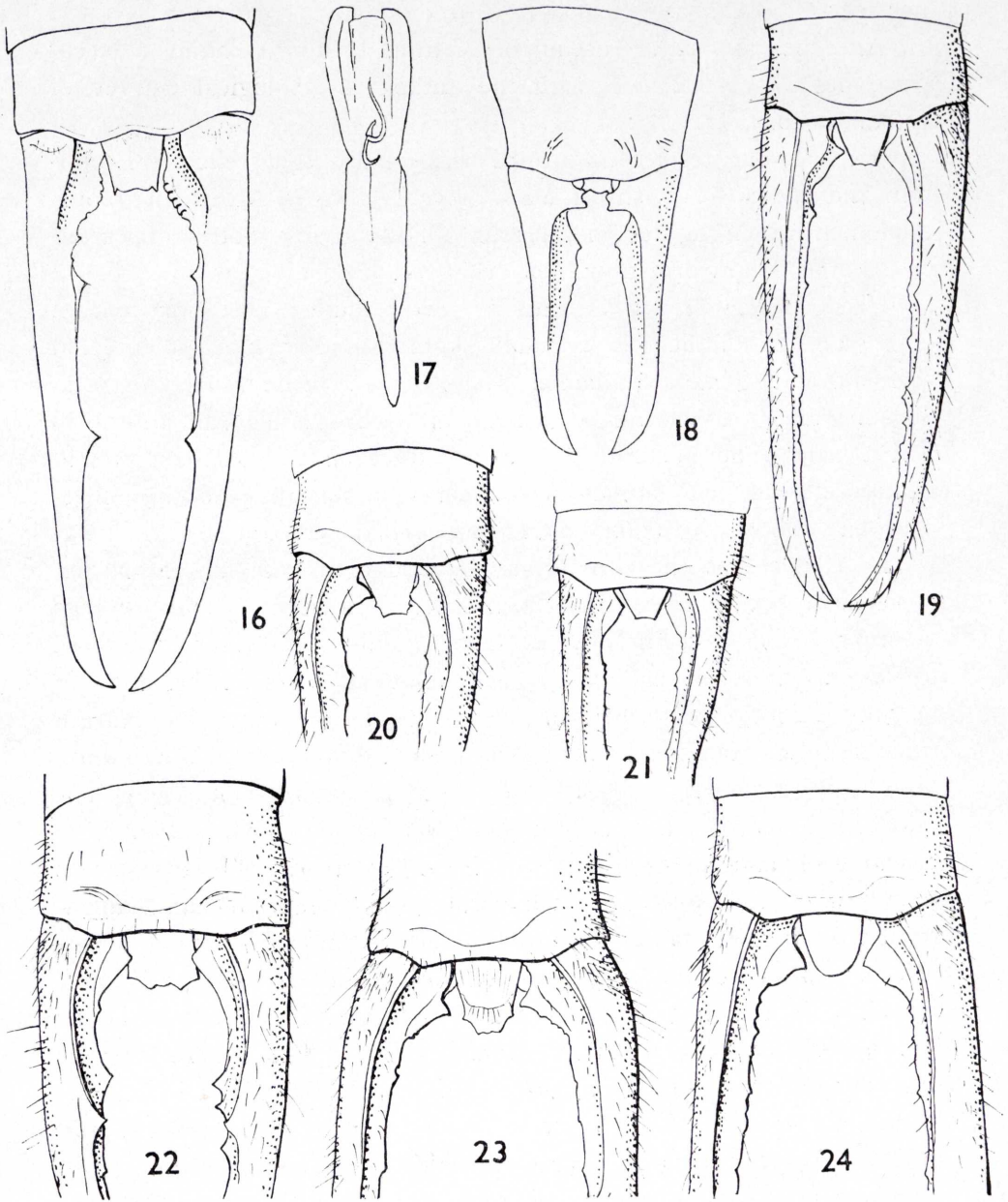
leg.); 1 ♀, 15-IX-1946, 3300 ft., second growth forest (F. G. Werner leg.).

All types at Field Museum of Natural History, Chicago; except paratypes 2 ♂♂, 2 ♀♀ with the author at Zoological Survey of India, Calcutta.

♂: Shining testaceous brown, occasionally light yellow. Pronotum and elytra yellowish on sides. Legs yellow or brown in colour. Abdomen brown, lighter on sides and middle giving spotted appearance. Forceps dark brown or light yellowish brown.

Head triangular, frons tumid, sutures faint, posterior margin emarginate in middle. Eyes small, slightly smaller than 1st antennal segment and genae. Antennae 12-14 (?) segmented, hairy, typical of the genus. Pronotum square, about as broad as head anteriorly and a little wider posteriorly, median suture faint, sides straight and gently reflexed, hind angles prominent with margin gently rounded; prozona weakly convex in middle, not well differentiated from metazona. Elytra smooth with a distinct keel along the costal margin, posteriorly truncate; a small triangular scutellum visible. Wings wanting. Abdomen finely punctulate, gradually widening from base to 7th tergite, after that narrowing; tubercular folds on 3rd and 4th tergites weak. Ultimate tergite with punctation faint, hind margin trisinate and incrassate, median suture faint or obsolete. Pygidium prominent, declivent at base, sides straight, slightly converging apically, hind margin undulate (in some specimens undulation is more pronounced and angles less so) with angles acute. Forceps remote and heavy at base, long, cylindrical slightly tapering and almost straight with apices faintly incurved, inner margin at base with a serrated lamellation extending dorso-ventrally, at about basal one-third, armed with a triangular teeth placed ventrally and another similar one placed dorsally a little beyond middle. Penultimate sternite transverse with posterior margin rounded and emarginate in middle. Genitalia (fig. 17). Length: body, 7.1-9.4 mm; forceps, 3.8-5.4 mm.

♀: Agrees in most characters with ♂ excepting some minor differences as noted below. Pronotum proportionally wider than long; ultimate tergite weakly transverse, strongly narrowed apically; pygidium not so prominent, basally with two pointed tubercles, laterally emarginate in middle, hind margin convex with angles acute. Forceps simple and straight, tapering with apices pointed and gently incurved, a faint ridge present in basal two-third, proximal inner la-



Figs. 16-24.—*Nesogaster dybasi* nov. sp., ♂ : 16) ultimate tergite and forceps; 17) genitalia; ♀ : 18) ultimate tergite and forceps. *Irdex nitidipennis* (Bor-mans), ♂ : 19-24) ultimate tergite and forceps showing variation in pygidium and armature of forceps (figs. 19-24 same scale).

mellation with apex bifid and followed by a deep concavity terminating into a pointed tooth after that margin finely crenulate only for a short distance. Length: body, 6.3-10.8 mm; forceps, 2.5-5.0 mm.

Remarks: This species comes close to *Nesogaster mounseyi* Burr but differs in having the abdomen finely punctate and slightly dilated from base to 7th tergite; pygidium narrowed apically with margin undulate and angles acute; forceps with an inner ventral tooth at basal one third and another similar one dorsally a little beyond middle.

SPONGIPHORINAE

19. *Irdex nitidipennis* (Bormans, 1894) (figs. 19-24).

Spongophora nitidipennis Bormans, 1894. *Ann. Mus. Stor. nat. Genova*, t. XIV, pág. 382 (♂; Carin Cheba, 900-1.100 m).

Irdex nitidipennis (Bormans).—Burr, 1911. *Deutsch. Ent. nat. Bibl.*, t. II, pág. 59.

Irdex nitidipennis var. *laminiiformes* Borelli, 1932. *Bull. Raffles Mus.*, n.º 7, pág. 30.

Irdex nitidipennis var. *linguiformes* Borelli, 1932. *Bull. Raffles Mus.*, n.º 7, pág. 80, fig. 5 (♂, Selangor; ♀ Perak).

Irdex nitidipennis var. *brachyphyge* Boeseman, 1954. *Zool. Verhand.*, n.º 21, pág. 65, fig. 17 c.

Material examined: MINDANAO, Davao Province, E. slope Mt. Mckinley, 1 ♂, 1 ♀, VIII-1946, 3000 ft., 2 ♂♂, 4 ♀♀, VIII-1946, 3000 ft., second growth forest, 4 ♂♂, 3 ♀♀, 14-IX-1946, 3300 ft., second growth forest, 1 ♂, 8-IX-1946, 7000 ft., mossy forest, 2 ♀♀, 1-6, 24-IX-1946, 3000-3850 ft. (H. Hoogstraal leg.), 1 ♂, IX-1946, 3300 ft., second growth forest (F. G. Werner leg.), Todaya E. slope, Mt. Apo, 1 ♀, IX-1946 (H. Hoogstraal leg.), 1 ♀, 23-X-1946, 2000 ft., at light; PALAWAN, Is., S. slope Mt. Balabag, Mantalingajan Range, 1 ♂, 1 ♀, 4-V-1947, 2800 ft. (F. G. Werner leg.).

Remarks: This species appears to be extremely variable in the inner armature of forceps and the pygidium. The pygidium in normal form is a rectilinear plate, narrowed apically with hind margin truncate. In the present series it is either rounded, sinuate or undulate posteriorly. In some specimens two minute points, placed laterally, a little before apex, are also present and occasionally postero-lateral

angles are also produced into minute points thus giving it a star-shaped appearance resembling very much *Apovostox stella* (Bormans).

Originally described from Burma it has since been known to occur in India, Sumatra, Java, Bali, Borneo and Philippine Islands.

20. *Apovostox elongatus* nov. sp. (figs. 25-27).

Holotype ♂, Mt. Apo, E. slope, Mainit, Davao Province, Mindanao, Philippines (Field Museum of Natural History, Chicago).

Material examined: MINDANAO, Davao Province, Mainit E. slope Mt. Apo, holotype ♂, XI-1946, 4300 ft.; E. slope Mt. Apo, Baclayan, allotype ♀, 13-XI-1946, 6500 ft., ravine forest; E. slope Mt. McKinley, paratypes 1 ♀, 30-IX-1946, 3400 ft., under bark (H. Hoogstraal leg.); 1 nymph, 14-IX-1946, 3300 ft., second growth forest, 1 ♀, 22-VIII-1946, 3400 ft., in logs (F. G. Werner leg.).

All types at Field Museum of Natural History, Chicago, except paratype 1 ♀ with the author at Zoological Survey of India, Calcutta.

♂: General colour dark blackish brown; size fairly large for the genus. Long and short pubescence present all over the body.

Head triangular, sutures obsolete, frons tumid, posterior margin very slightly emarginate in middle; eyes large, equal in length to genae and 1st antennal segment. Antennae 13 segmented, 3rd segment long and cylindrical; 4th subconical, slightly shorter than 3rd; 5th subconical, equal to 3rd; 6th longer than 5th and rest cylindrico-conical almost equal to 6th. Pronotum about as long as broad, sides not reflexed, straight, hind angles and margin well rounded, median sulcus faintly marked, prozona weakly tumid and weakly differentiated from flat metazona. Elytra well developed, about twice as long as pronotum, humeral angles weak, hind margin feebly concave, smooth and thickly pubescent. Wings half as long as elytra, thickly pubescent. Legs yellow with femora slightly blackish, hind tarsi with 1st segment equal to 2nd and 3rd together. Abdomen feebly punctate, long and short pubescence present, almost parallel sided, weakly convex. Ultimate tergite transverse, smooth, sides straight, posterior margin incrassate, feebly emarginate between the bases of forceps and faintly tumid above the roots of forceps and with a slight depression in between, close to hind margin, median sulcus faint and short.

Pygidium a little less than one half of the total length of forceps, sides parallel, apical margin thickened and emarginate, angles acute. Forceps long and straight, tapering backwards with apices acute and gently incurved, trigonal in basal two-third only, inner ventral margin near base faintly crenulate for a short distance terminating into a short tooth, afterwards smooth except for a short tooth at apical third; inner dorsal margin smooth in basal half only, afterwards provided with irregularly placed minute teeth. Genitalia (fig. 26).

♀: Agrees with ♂ in most characters excepting weakly transverse ultimate tergite, narrowed posteriorly; pygidium weakly prominent, sides and posterior margin faintly concave. Inner ventral margin of forceps with a faint tooth at basal one-third and another at about middle, afterwards faintly crenulate; inner dorsal margin smooth.

Measurements (in mm):

	Holotype	Allotype	Paratypes	
	♂	♀	♀	♀
Length of body (without forceps) ...	6.8	7.7	7.1	7.5
Length of forceps	3.4	3.1	2.5	3.3
Length of pygidium	1.2	0.7	0.6	0.9

Remarks: Differs from all the known species of the genus by the shape of pygidium. It has a close resemblance to *Irdex nitidipennis* var. *laminiformes* which possesses almost similar pygidium but the shape of parameres is markedly different.

21. *Spongovostox semiflavus* (Bormans, 1894).

Spongovostox semi-flava Bormans, 1894. *Ann. Mus. Stor. nat. Genova*, t. XIV, pág. 385 (♂, ♀; Carin - Cheba, 900-1.100 m; Carin Gheçu, 1.300-1.400 m).

Material examined: PALAWAN IS., Puerto Princesa, 3 ♀♀, 23-24-IV-1947, sea level, second growth forest, on leaf of tree (H. Hoogstraal leg.); MINDANAO, Davao Province, Davao City, 1 ♀, 1-II-1947, near sea level; Caburan Caburan, 1 ♀, 23-I-1947; sea level, Todaya, E. slope Mt. Apo, 1 ♀, XI-1946, 2800 ft., second growth costal forest (H. Hoogstraal leg.).

Remarks: In Philippine it has already been recorded from Palawan Is.

Also known from India, Burma, Annam, Tonkin, Sumatra, Borneo, Sarawak, and Formosa.

LABIINAE

22. *Chaetospania fallax* (Bormans, 1894) (fig. 28).

Platylabia fallax Bormans, 1894. *Ann. Mus. Stor. nat. Genova*, t. XIV, pág. 380 (♂, ♀; Carin Cheba, Burma).

Material examined: MINDANAO, Davao Province, Sitio, Taglawig, Maco, Tagum, 1 ♀, X-1946, at sea level, original dipterocarp forest (H. Hoogstraal and Heyneman leg.).

Remarks: Burr (1911) placed this species as synonym of *Chaetospania thoracica* but Hebard (1927, pág. 37) has pointed out certain differences between the two. The present ♀ agrees more closely with the description of the species. Length of body, without forceps, — 7 mm. Length of forceps — 2 mm.

23. *Chaetospania lanceolata* Borelli, 1926.

Chaetospania lanceolata Borelli, 1926. *Res. Biol. Turin*, n.º 5, pág. 72, fig. 6 (♂, ♀; Mindanao, Luzon and Palawan Isls.).

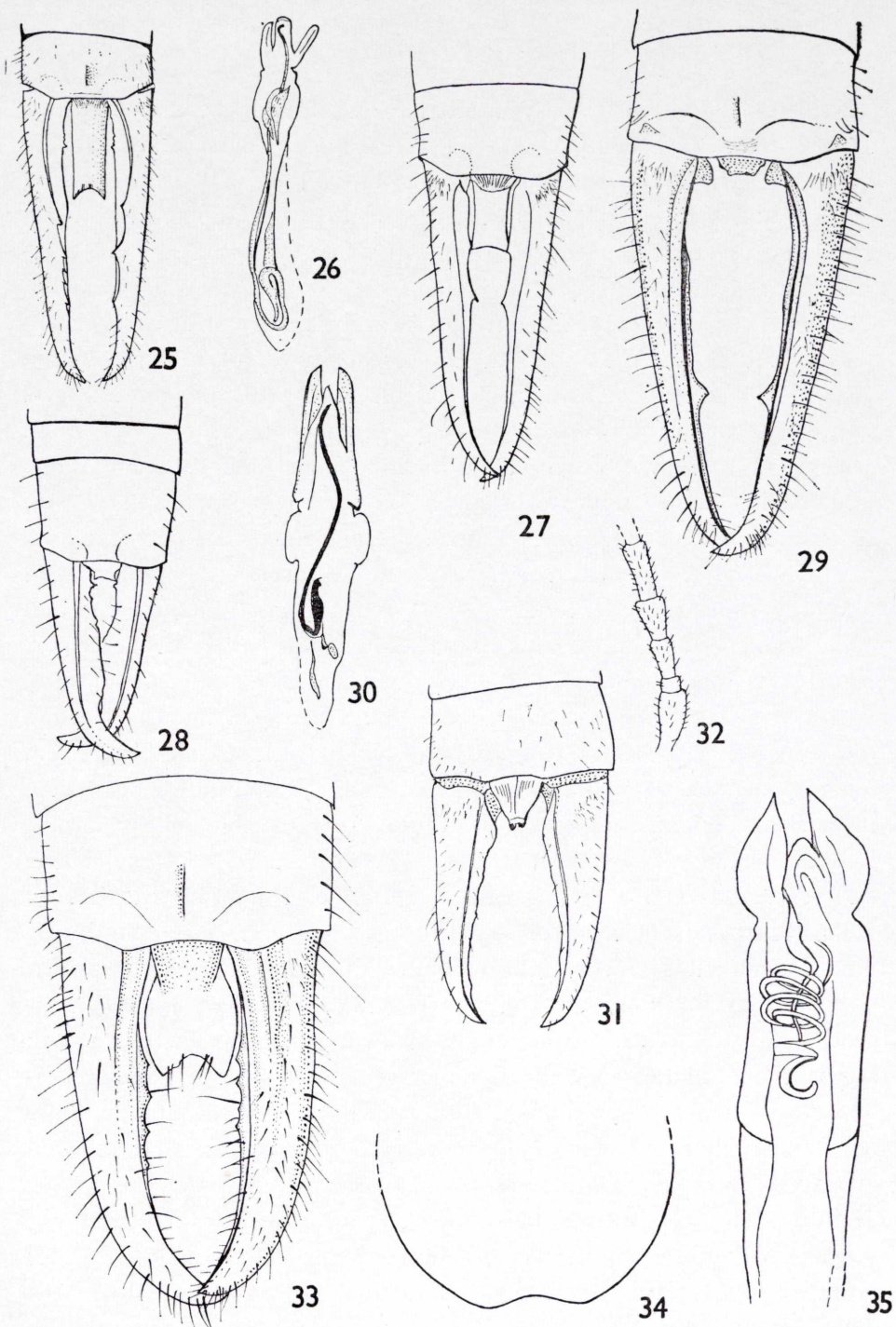
Material examined: MINDANAO, Davao Province, E. slope Mt. Mckinley, 1 ♂, 1-X-1946, 3000 ft., in the leaf axils of climbing *Pandanus* (H. Hoogstraal leg.).

Remarks: This species has already been recorded from Los Baños in Philippines by Borelli (1927, pág. 72). Length of body, without forceps, — 5.7 mm. Length of forceps — 1.9 mm.

24. *Chaetospania hoogstraali* nov. sp. (figs. 29-30).

Holotype ♂, Mt. Mckinley, E. slope, Davao Province, Mindanao, Philippines (Field Museum of Natural History, Chicago).

Material examined: MINDANAO, Davao Province, E. slope Mt. Mckinley, holotype ♂, 8-IX-1946, 7000 ft., mossy forest, allotype ♀,



Figs. 25-35.—*Apovostox elongatus* nov. sp., ♂: 25) ultimate tergite and forceps; 26) genitalia; ♀: 27) ultimate tergite and forceps. *Chaetospania fallax* (Bormans), ♀: 28) ultimate tergite and forceps. *Chaetospania hoogstraali* nov. sp., ♂: 29) ultimate tergite and forceps; 30) genitalia (figs. 26, 27 same scale). *Labia pilicornis* (Motschulsky), ♂: 31) ultimate tergite and forceps. *Labia emarginata* nov. sp., ♂: 32) 1st five antennal segments; 33) ultimate tergite and forceps; 34) penultimate sternite; 35) genitalia (figs. 32-34 same scale).

12-IX-1946, 7800 ft., mossy stunted forest, wet rock, 2 nymphs, 1, 20-IX-1946, 3000, 8000 ft., beating trees, mossy forest; Lake Linau, N. slope Mt. Apo, paratypes 1 nymph, X-1946, 7800 ft., beating shrubs, mossy forest (H. Hoogstraal leg.), 1 ♀, 7 nymphs, 25-X-1946, 7800 ft., vegetation at the edge of Lake, mossy forest (F. G. Werner leg.).

All types at Field Museum of Natural History, Chicago, except paratype 1 ♀ with the author at Zoological Survey of India, Calcutta.

♂ : Head brown, with micro-reticulations, palps and mouth parts lighter in colour; short pubescence present; about as long as broad with hind margin emarginate in middle, transverse suture obsolete and median suture faint; eyes much shorter than genae and 1st antennal segment in length. Antennae 11 segmented; 1st segment long and equal to combined length of 2-4th segments; 2nd small; 3rd and 4th subequal, 5th equal to 3rd, remaining segments long and claviform. Pronotum of same colour as head but lighter in the centre, smooth, as long as broad, narrower than head, sides almost straight, posterior margin feebly rounded; median sulcus distinct; pro- and metazona little differentiated. Elytra shallowly punctured, short and long, golden yellow hairs present, one and a half times longer than pronotum, humeral angles weak, caudal margin obliquely truncate; a small triangular scutellum present. Wings short, of same colour and texture as elytra; pubescent. Legs pubescent, brownish yellow; femora darker in basal three fourth only; tibiae long and cylindrical; hind metatarsal segment slightly longer than 2nd and 3rd together, with a row chitinous hairs on under side. Abdomen faintly pubescent, faintly punctulate, convex, gradually enlarging from base to 9th segment. Ultimate tergite transverse, smooth, a little expanded posteriorly with angles prominent, hind margin in middle and laterally faintly emarginate, tumid above the roots of forceps, close to hind margin with a slight depression inbetween. Pygidium trapezoidal, declivent, laterally with a faint tubercle at about middle, narrowed apically with margin irregular. Penultimate sternite triangular, sides rounded, hind margin emarginate in middle. Forceps brownish with inner margin and apices black, pubescent, long, slightly depressed, tapering towards apex, inner margin below with a ventrally directed triangular tooth near base and another similar one at apical one-third, branches flat ventrally. Genitalia (fig. 30).

♀ : Almost similar to ♂ but colour blackish brown. Wings wan-

ting. Ultimate tergite weakly transverse; pygidium strongly declivent and less prominent with posterior margin feebly convex in middle and angles produced into small points. Forceps at inner dorsal and ventral margins provided with numerous teeth.

Measurements (in mm):

	Holotype ♂	Allotype ♀	Paratype ♀
Length (without forceps)	10.1	10.6	10.2
Length of forceps	4.5	3.3	3.4

Remarks: This species appears to be closely allied to *Chaetospania feae* Bormans but differs by slightly larger size; shape of pygidium and forceps, especially the inner armature of forceps.

25. *Labia curvicauda* (Motschulsky, 1863).

Forficesila curvicauda Motschulsky, 1863. *Bull. Soc. Imp. Nat. Moscou*, t. XXXVI (2), pág. 2, lám. 1, fig. 1 (♂, ♀; Nura Ellia Mountains, Ceylon).

Material examined: MINDANAO, Davao Province, E. slope Mt. McKinley, 2 ♂♂, 2 ♀♀, 23-VIII-1946, 4100 ft., in terminal leaf axils of *Pandanus*, 2 ♀♀, 30-IX-1946, 3400 ft., under bark; Mainit, E. slope Mt. Apo, 1 ♀, XI-1946, 4300 ft., on trees (H. Hoogstraal leg.).

Remarks: A cosmopolitan species already recorded from various localities in Philippines.

26. *Labia pilicornis* (Motschulsky, 1863) (fig. 31).

Forficesila pilicornis Motschulsky, 1863. *Bull. Soc. Imp. Nat. Moscou*, t. XXXVI (2), pág. 2 (♀; Nura Ellia Mountains, Ceylon).

Material examined: LEYTE, P. I., San Jose, 1 ♂, 7-II-1945, at light (Coll. Eugene Ray).

Remarks: Slight variation in the shape of pygidium especially its posterior margin has been recorded by Borelli (1923). The ultimate tergite and forceps are figured here (fig. 31).

27. *Labia emarginata* nov. sp. (figs. 32-35).

Holotype ♂, San Pedro, Calamianes Group, Culion, Philippines (Field Museum of Natural History, Chicago).

Material examined: CULION (Calamianes Group), San Pedro, holotype ♂, III-1947, near sea level (H. Hoogstraal leg.); at Field Museum of Natural History, Chicago.

♂: General colour dark brownish black. Mouth parts and pronotum laterally and posteriorly yellow; tibiae and tarsi light yellow.

Head about as long as broad, tumid, sutures obsolete, hind margin feebly sinuate in middle with angles rounded; eyes shorter in length than 1st antennal segment and genae. Antennae 9 (+?) — segmented; 1st longer than 2nd and 3rd together; 4th subclavate and shorter than 5th (fig. 32). Pronotum about as long as broad, expanded posteriorly, hind margin and angles well rounded, median sulcus faintly marked in anterior half only; prozona tumid and well differentiated from flat metazona. Elytra slightly longer than pronotum, covered with short irregularly arranged hairs, hind margin obliquely truncate. Wings slightly shorter than elytra with similar pubescence. Abdomen slender, similarly pubescent as elytra and wings but sparse. Ultimate tergite transverse, posterior margin emargin between the bases of forceps emarginate and oblique laterally, median sulcus faint. Pygidium prominent, narrowed at base, then expanded, convex at sides, hind margin deeply emarginate with angles acute. Penultimate sternite ample, side convex, posterior margin emarginate in middle (fig. 34). Forceps short, faintly trigonal above near base, afterwards depressed, tapering backwards with apices pointed and gently incurved which meet, inner margin below irregularly toothed, long and short hairs present. Genitalia (fig. 35).

♀: Unknown.

Measurements (in mm):

	Holotype ♂
Length of body (without forceps)	7.4
Length of pygidium	0.4
Length of forceps	1.7

The species of genus *Labia* Leach known from Philippines Isls., can be separated by the following key —based on ♂♂ only—.

- 1 (2) Elytra and wings punctulated **frushstorferi** Burr.
- 2 (1) Elytra and wings smooth.
- 3 (4) Ultimate tergite with two spiniform tubercles extending beyond the posterior margin **boettcheri** Borelli.
- 4 (3) Ultimate tergite without spiniform tubercles at the posterior margin.
- 5 (16) Elytra uniformly coloured.
- 6 (7) General colour dark brownish black, shining, pygidium at posterior margin deeply emarginate **emarginata** nov. sp.
- 7 (6) General colour orange red, blackish brown or reddish, pygidium at posterior margin entire.
- 8 (11) Forceps short and strongly bowed.
- 9 (10) Forceps dilated in basal half only, pygidium not prominent **curvicauda** (Motschulsky).
- 10 (9) Forceps depressed at base and produced into a triangular projection, pygidium prominent **ridens** Bormans var. **cyclolabia** Bormans.
- 11 (8) Forceps elongated and not strongly bowed.
- 12 (13) Pygidium long, broader at base and narrowed apically —sometimes supporting two small tubercles—, forceps crenulate at internal margin ... **pilicornis** (Motschulsky).
- 13 (12) Pygidium square, short and broad, forceps depressed at internal margin to form a flat crenulate plate terminating into a short tooth at apical two-thirds.
- 14 (15) Antennae brown with apical segments yellow, elytra and wings coraceous and blackish brown **ridens** Bormans var. **macrolabia** Burr.
- 15 (14) Antennae yellow with exception of two basal segments which are blackish brown, elytra and wings shining bronze **ridens** Bormans var. **nitens** Borelli.
- 16 (5) Elytra black with a broad yellow band at costal margin and wings yellow with a dark band at sutural margin **mucronata** Stål.

SPARATTINAE

28. *Auchenomus menozzii* Borelli, 1926 (figs. 36-39).

Auchenomus menozzii Borelli, 1926. *Res. Biol., Turin*, n.º 5, pág. 75 (1 ♂, Momungan, Mindanao).

Material examined: MINDANAO, Davao Province, Sitio, Taglawig, Maco, Tagum, 1 ♂, 1-X-1946, sea level, original dipterocarp forest (D. Heyneman leg.); E. slope Mt. Mckinley, 1 ♂, 1-IX-1946, 3000 ft., second growth forest (H. Hoogstraal and F. G. Werner leg.), 1 ♂, 1 ♀, 14-VIII-1946, 4400 ft., in leaf axils of bush *Pandanus* (H. Hoogstraal leg.).

Remarks: Penultimate sternite in ♂ specimen is rugosly striate laterally. Pygidium is black, strongly declivent with two minute tubercles meso-dorsally and the area inbetween is emarginate and hind margin below is straight (fig. 37). Inner margin of forceps is finely serrated followed by a prominent triangular tooth directed ventro-caudad, placed a little before apex. Genitalia (fig. 38).

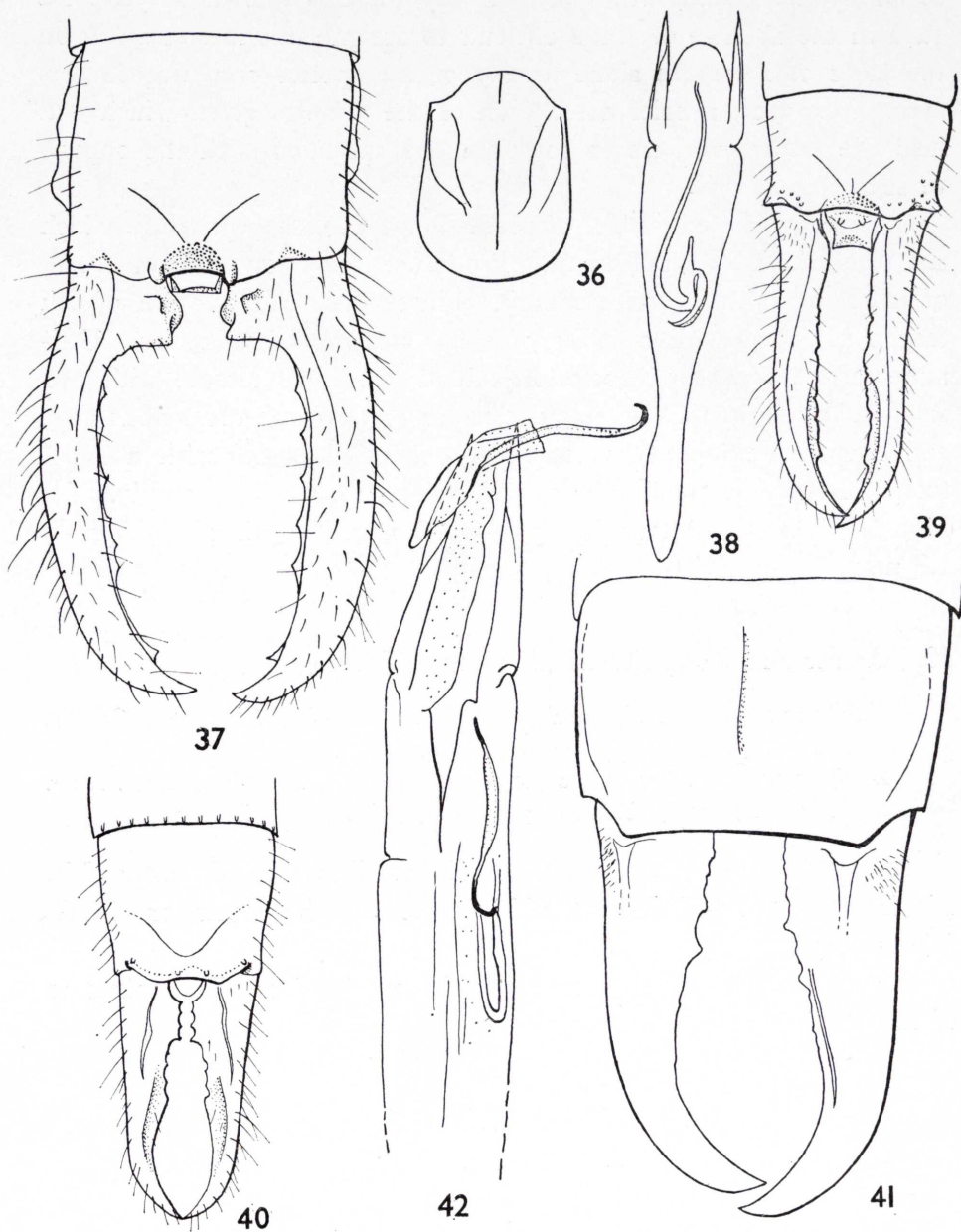
Hitherto the ♀ sex was unknown which is being described below:

♀: Agrees with ♂ in most characters but differs in having the ultimate tergite comparatively more narrowed backwards and tumid above the roots of forceps with a slight depression inbetween close to posterior margin which is emarginate in middle and laterally. Penultimate sternite rounded laterally and posterior margin emarginate in middle. Pygidium prominent, strongly declivent, provided two tubercles meso-dorsally, hind margin feebly emarginate with angles acute. Forceps with branches long, tapering, apices incurved, trigonal, ridge extending from base to apical two-third, inner margin irregularly, serrated. Length of body, without forceps, — 8.4 mm, length of forceps 2.4 mm.

29. *Auchenomus* sp. (fig. 40).

Material examined: MINDANAO, Davao Province, Todaya, E. slope Mt. Apo, 1 ♀, XI-1946, 2800 ft. (H. Hoogstraal leg.).

Remarks: Genus *Auchenomus* Karsch is represented by six species



Figs. 36-42.—*Auchenomus menozzii* Borelli, ♂ : 36) pronotum; 37) ultimate tergite and forceps; 38) genitalia; ♀ : 39) ultimate tergite and forceps; 40) *Auchenomus* sp.; ♀ : ultimate tergite and forceps. *Allostethus vicinus* nov. sp., ♂ : 41) ultimate tergite and forceps; 42) genitalia (figs. 36, 37, 42; 38-40 same scale).

in Philippine Islands but ♀ sex of only there is known as yet. As such in the absence of ♂ it's difficult to assign this interesting ♀ on the basis of literature alone to any of the species occurring in this area. However, a brief description of the same is given which will help the future workers to correlate this specimen with the opposite sex.

♀ : Agrees well with ♀ of preceding species except wings which are blackish yellow, pubescent. Pronotum much longer than broad, of uniform width, anterior margin obtuse. Posterior margin of 9th tergite provided with a series of small compressed tubercles. Ultimate tergite contracted posteriorly, hind margin incrassate with two small tubercles in middle, tumid elevations above the roots of forceps and emarginate inbetween, outer border of elevation with a small tooth. Pygidium small, obtuse. Forceps as seen in fig. (fig. 40). Length of body, without forceps, — 10 mm.; length of forceps — 1.9 mm.

30. ***Auchenomus angusticollis*** Dubrony, 1879.

Auchenomus angusticollis Dubrony, 1879. *Ann. Mus. Stor. Nat. Genova*, t. XIV, pág. 359 (♀ [nec ♂]; Sarawak, Borneo).

Auchenomus angusticollis Dubrony.—Borelli, 1921. *Boll. Mus. Zool. Anat. Comp., Torino*, t. XXXV, pág. 6 (♂; Sandakan, Borneo).

Material examined: MINDANAO, Davao Province, E. slope Mt. Mckinley, 1 ♀, 25-VIII-1964, 6800 ft., beating the vegetation (F. G. Werner leg.).

Remarks: The present record of the species from Philippines is of interest but not unexpected.

FORFICULOIDEA

LABIDURIDAE

LABIDURINAE

31. ***Nala lividipes*** (Dufour, 1829).

Forficula lividipes Dufour, 1829. *Annls. Sci. nat.*, t. XIII, pág. 340 (new name proposed).

Forficula pallipes Dufour, 1820. *Ann. Gen. Sci. Phy.*, Bruxelles, t. V, pág. 316, lám. 116, figs. 7, 7a and 7b (♂, ♀; lower Catalonia, Spain).

Material examined: MANILA, Luzon, 1 ♂, II-1945, near sea level (H. Hoogstraal leg.).

32. **Labidura riparia** (Pallas, 1773).

Forficula riparia Pallas, 1773. *Reise Russ. Reichs*, lám. 11, pág. 727 (shores of Irtysh River, Western Siberia).

Material examined: MINDANAO, Davao Province, Madaum, Tagum, 1 ♂, sea level (F. G. Werner leg.).

ALLOSTETHINAE

33. **Allostethus setiger** Verhoeff, 1904.

Allostethus setiger Verhoeff, 1904. *Arch. Naturgesch*, 1904, pág. 117 (Java).

Allostethus martensi Verhoeff, 1904. *Arch. Naturgesch*, 1904, pág. 117.

Allostethus indicum var. *setiger* Verhoeff.—Boeseman, 1954. *Zool. Verh.*, Leiden, t. XXI, pág. 24.

Allostethus setiger Verhoeff.—Brindle, 1965. *Ann. Mag. nat. Hist.*, ser. 13, t. VIII, pág. 587.

Material examined: MINDANAO, Davao Province, Todaya, E. slope Mt. Apo, 2 ♀ ♀, 27-X-1946, 2800 ft., under bark of log (H. Hoogstraal leg.).

Remarks: In the present specimens lateral ridge of elytra is faintly marked in basal two-third only.

Hitherto known from Thiland, Java and Sumatra, the present specimens constitute the first record of the species from the area.

34. **Allostethus vicinus** nov. sp. (figs. 41, 42).

Holotype ♂, Mt. Mckinley, E. slope, Davao Province, Mindanao, Philippines (Field Museum of Natural History, Chicago).

Material examined: MINDANAO, Davao Province, E. slope Mt. Mckinley, holotype ♂, paratypes 1 nymph, 21-VIII-1946, 3300 ft., much rotted log, original forest, 1 nymph, 1-X-1946, under the bark

of log in *abaca* plantation, 4 nymphs, 30-IX-1946, 3400 ft., under bark (H. Hoogstraal leg.), allotype ♀ and paratypes 1 ♀, IX-1946, 3300 ft., second growth forest, 1 ♀, 26-28-IX-1946, chopped out of tall stumps, second growth forest (F. G. Werner leg.).

All types at Field Museum of Natural History, Chicago except paratype 1 ♀, with the author at Zoological Survey of India, Calcutta.

♂: Head blackish brown, as long as broad, sutures distinct, frons tumid, hind margin straight. Antennae dark brown but segment 16 yellow; 18 segmented, 1st segment shorter than distance between the bases of antennae; 2nd small; 3rd only slightly longer than broad; 4th quadrate; 5th slightly longer than 4th; remaining segments gradually increasing in length distally. Eyes white in colour, prominent. Pronotum black, transverse, all margins straight; median longitudinal sulcus faint; prozona weakly tumid; metazona flat. Elytra dull black, somewhat faintly wrinkled, slightly longer than pronotum; a triangular scutellum visible, caudal margin obliquely truncate. Wings absent. Abdomen black, finely punctulate, gradually increasing in length from base to 8th tergite, series of small compressed tubercles along the posterior margin of tergite 1-4 present. Ultimate tergite, transverse, faintly punctulate, median sulcus short, laterally smooth, posterior margin in middle almost straight. Penultimate sternite transverse, posteriorly obtuse in middle, a faint median longitudinal ridge running along the whole length of sternite present, covered with short, yellow hairs. Pygidium short, hardly visible from above, vertical and triangular in shape. Forceps reddish black with short yellow pubescence, branches weakly asymmetrical, broad and faintly trigonal at base, tapering apically, apices pointed and gently incurved; inner margin irregularly toothed in basal half, afterwards smooth with sharp edges ventrally as well as dorsally. Genitalia (fig. 42).

♀: Almost similar to ♂ except penultimate sternite which lacks median longitudinal ridge.

Measurements (in mm):

	Holotype	Allotype	Paratype	
	♂	♀	♀	♀
Length of body (without forceps) ...	18.7	16.7	17.6	19.4
Length of forceps	3.7	3.7	4.1	3.7

Remarks: With Brindle's (1965, pág. 586) key to the species of genus *Allostethus* Verhoeff, the described species comes close to *Allostethus indicum* (Burmeister) but differs by slightly smaller size; wrinkled elytra; absence of wings; by the presence of minute tubercles along the hind margin of tergites 1-4 and the penultimate ventral segment pubescent, with a broad, median longitudinal ridge extending along the whole length. The details of structure of genitalia especially distal lobes are slightly different in *A. vicinus* nov. sp.

CHELISOCHIDAE
Kinesis Burr, 1907.

Kinesis Burr, 1907. *Trans. ent. Soc. Lond.*, pág. 126.
Type species: *Chelisoches punctulatus* Burr, 1897.

Burr (1907) erected the genus *Kinesis* with *Chelisoches punctulatus* Burr, 1897 from Celebes as the type. The original description of the type is based on a ♀. However, Burr based the diagnosis of his new genus on both ♂ and ♀ without giving any data regarding their locality and measurements. Subsequently, he (1911) figured a ♂ representing full details and later on (1912) recorded a ♂ from Java. There appears to be no further record of this species.

The second species of the genus is *K. mounseyi* Burr (1916). Only ♂ genitalia has been described and figured. Two specimens — ♂ ♂ — of this species from Philippine Is., Mindanao, are present in the British Museum (Natural History), London, one of which bears the type label. This information, as well as the description of the type was made available to me by the courtesy of Mr. A. Brindle, Manchester Museum, Manchester, U. K.

The third species *K. weneri* nov. sp. is being described which can be separated from the other two by the following key.

KEY TO THE SPECIES — ♂ ♂ ONLY—.

- 1 (2) Pygidium distinct; forceps armed at base with a strong obtuse tooth **weneri** nov. sp.
- 2 (1) Pygidium scarcely visible from above; forceps not armed at base.

- 3 (4) Forceps provided with a sharp pointed tooth in middle ...
 **mounseyi** Burr.
 4 (3) Forceps provided with minute teeth ... **punctulatus** (Burr).

35. **Kinesis mounseyi** Burr, 1916 (figs. 43-46).

Kinesis mounseyi Burr, 1916. *J. R. micr. Soc.*, pág. 9, lám. 2, fig. 9 (♂ genitalia).

Material examined: MINDANAO, Davao Province, Baclayan, E. slope Mt. Apo, ♂, XII-1946, 6000 ft., beating trees — dipterocarp forest, ♀, 3-XI-1946, 6500 ft., ravine forest; E. slope Mt. Mckinley, 1 ♂, 7-IX-1946, 6400 ft., in leaf axils of climbing *Pandanus* — mossy forest, 1 ♀, 8-IX-1946, 7000 ft., mossy forest (H. Hoogstraal leg.); 1 nymph, 15-IV-1946, 4000 ft., in terminal leaf axils of *Pandanus* (H. Hoogstraal and D. Heyneman leg.).

♂: Head orange with a brown patch on frons, as long as broad, frons weakly depressed, occiput raised with a pair of dark brown longitudinal furrows, sutures obliterated, in place of median suture a depression present — thus deviding the occiput into two halves, hind angles rounded and margin emarginate. Eyes small and black. Antennae broken, only right basal and on left 10 proximal segments remaining; brown in colour, basal segments long and clavate; 2nd small; 3rd slender; 4th slightly shorter than 3rd, rest long, tapering proximally and expanded distally. Pronotum about as long as head, colour dark brown but lighter in posterior half, sides straight, a little reflexed, hind angles and margins rounded, slightly expanded posteriorly, median sulcus distinct in anterior half only; prozona tumid and metazona slightly depressed. Elytra of same colour as pronotum, smooth, costal keel distinct along the whole length, posterior margin obliquely truncate; a small triangular scutellum visible. Legs brownish orange, femora darker in proximal two-third; tarsi with hairs below, hind metatarsal segment equal to 3rd; 2nd small projecting below, the 3rd. Abdomen dark blackish red, densely punctate, gradually enlarging from base to 7th segment, afterwards again slightly contracted; tubercular folds on 3rd almost lacking and on 4th weakly developed. Ultimate tergite faintly punctulate anteriorly but smooth posteriorly, transverse, gently expanded posteriorly with angles pro-

minent, posterior margin emarginate in middle but oblique laterally above the roots of forceps. Penultimate sternite transverse, slightly sinuate mesad at posterior margin. Pygidium scarcely visible from above, trapezoidal, hind margin straight, very slightly contracted apically. Forceps with branches stout, remote at base, gradually tapering to incurved pointed apices; inner margin at about middle armed with a strong triangular tooth directed upwards and backwards; in lateral view branches slightly raised in middle. Genitalia (fig. 46).

♀: Agrees with ♂ in most characters except head which is smooth, occiput raised, without any longitudinal furrows; pronotum not expanded posteriorly; ultimate tergite strongly narrowed apically; penultimate sternite triangular with hind margin rounded; pygidium rounded. Forceps with branches contiguous, straight, strongly tapering, apices pointed and gently incurved, inner margin finely crenulate in basal one-third.

Variations: Branches of forceps in one ♂ specimen are less stout and horizontal—not raised upwards—and inner tooth is weak and situated in basal one third only.

Measurements (in mm):

	♂	♀
Length of body (without forceps)	9.5-9.9	9.7-10.7
Length of forceps	2.7-3.5	2.2- 2.3

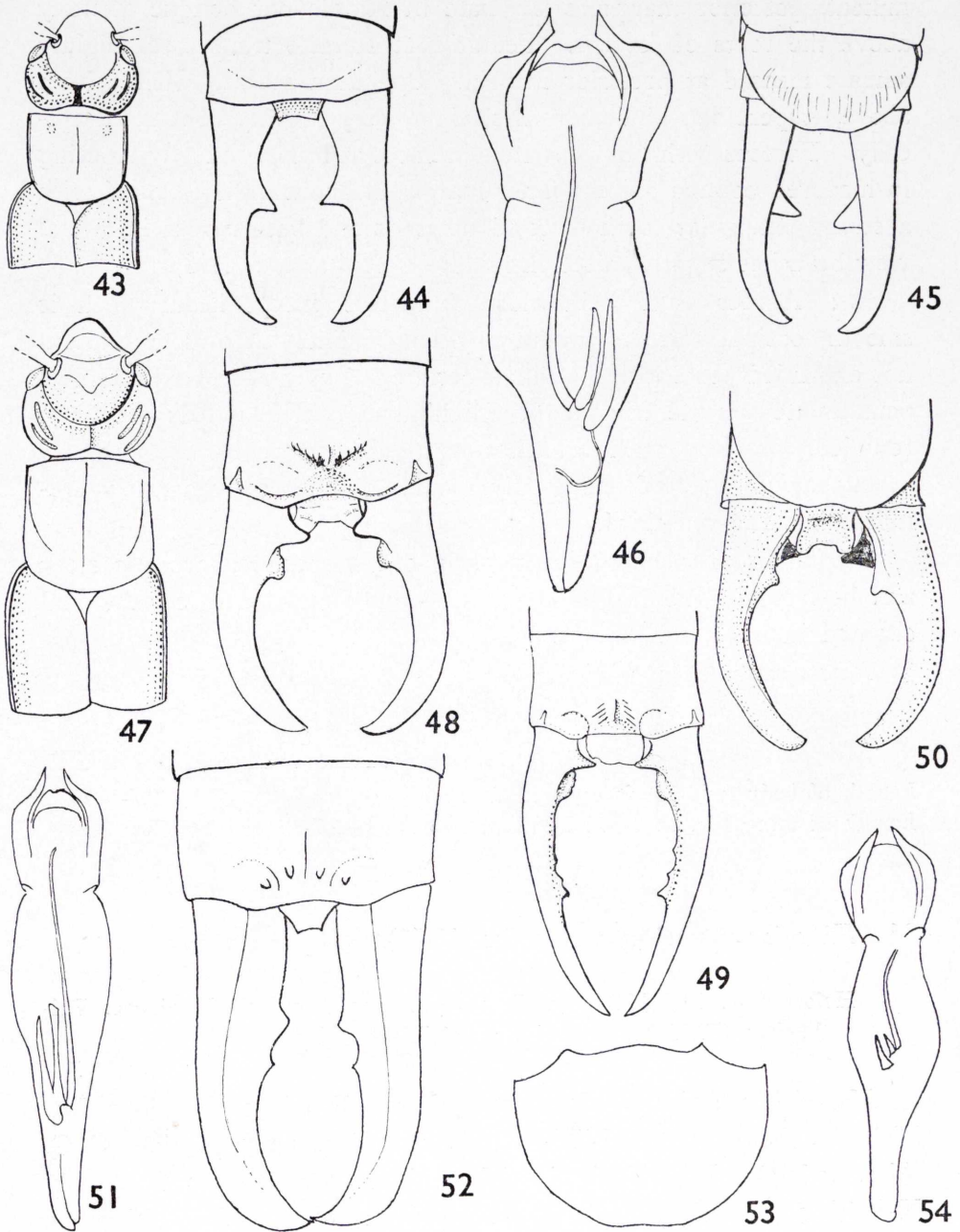
36. **Kinesis wernerii** nov. sp. (figs. 47-51).

Holotype ♂, Mt. Mckinley, E. slope, Davao Province, Mindanao, Philippines (Field Museum of Natural History, Chicago).

Material examined: MINDANAO, Davao Province, E. slope Mt. Mckinley, holotype ♂, 13-IX-1946, 7000 ft., beating vegetation (F. G. Werner leg.); Sitio Taglawig, Maco, Tagum, paratypes 1 nymph, X-1946, sea level, original dipterocarp forest; Lake Linau, N. slope Mt. Apo, 1 ♂, 2-XI-1946, 7800 ft. (H. Hoogstraal and D. Heyneman leg.).

All types at Field Museum of Natural History, Chicago except paratype 1 ♂ with the author at Zoological Survey of India, Calcutta.

♂ (holotype f. *cyclolabia*): Head yellowish orange. Antennae and



Figs. 43-54.—*Kinesis mounseyi* Burr, ♂: 43) head, pronotum and elytra; 44) ultimate tergite and forceps; 45) penultimate sternite and forceps; 46) genitalia. *Kinesis wernerii* nov. sp., ♂: 47) head, pronotum and elytra; 48, 49) ultimate tergite and forceps; 50) penultimate sternite and forceps; 51) genitalia (figs. 43-45, 47-50 same scale). *Chelisochea brevipennis* Borelli, ♂: 52) ultimate tergite and forceps; 53) penultimate sternite; 54) genitalia.

legs brown. Pronotum, elytra, abdomen and forceps blackish red, abdomen gradually becoming darker distally, posterior margin of ultimate tergite, lobes of pygidium, inner proximal tooth and apices of forceps black. Build stout.

Head as long as broad, cardiform, frons depressed, occiput slightly raised with a pair of faint longitudinal furrows, sutures weak, hind angles rounded and margin emarginate. Eyes black and small. Antennae 15 segmented, 1st segment stout; 2nd small; 3rd cylindrical; 4th slightly shorter than 3rd; remaining long and cylindrical, slightly expanded apically and tapering basally. Pronotum as long as broad, very slightly narrowed anteriorly with margin convex, sides slightly diverging posteriorly and reflexed, hind angles and margin rounded, median sulcus faint; prozona slightly tumid, not well differentiated from flat metazona. Elytra smooth, slightly longer than the pronotum, humeral angles weak, posterior margin truncate, a distinct keel running along entire length present, a small triangular scutellum visible. Wings wanting. Legs normal. Abdomen finely and densely punctulate, gradually enlarging from base to 8th tergite; tubercular folds on 3rd tergite obliterated but on 4th tergite weakly marked. Ultimate tergite transverse, almost smooth, gently expanded posteriorly with angles prominent, convex in middle with V shaped ridge bordered by small tubercles of which inner ones slightly bigger, the area below it depressed, tumid above the roots of forceps, posterior margin emarginate in middle and laterally above the roots of forceps oblique and convex. Penultimate sternite punctulate, transverse, broadly rounded posteriorly with slight emargination in middle; manubrium much shorter than the sternite in length, broad, slightly narrowed apically. Pygidium prominent, square, hind margin straight and angles produced into blunt lobes. Forceps with branches remote at base, stout, incurved, apices pointed, inner margin at base armed with a large, obtuse, dorsal tooth extending above the hind angular lobes of pygidium and ventrally also with a rounded tubercle, beyond which margin smooth. Genitalia (fig. 51).

♀ : Unknown.

Variations: Paratype ♂ represents f. *macrolabia* which agrees in most characters with f. *cyclolabia* but build is slender and general colour more blackish brown. Pronotum is quadrate with all margins straight. Pygidium is projecting, almost rounded with hind margin irregular. Branches of forceps are slender, gently curved and strongly

tapering apically; internal margin is armed at base with a triangular, acute tooth and just below it, ventrally a crenulate tubercle is present and at about middle with one or two minute teeth.

Measurements (in mm):

	Holotype	Paratypes	
	♂	♂	nymph
Length of body (without forceps) ...	14.2	10.5	8.7
Length of forceps	3.4	4.3	2.2

37. *Chelisoches morio* (Fabricius, 1775).

Forficula morio Fabricius, 1775. *Syst. Ent.*, pág. 70 ("Insulae Otaheita maris pacifici") (Tahiti).

Material examined: PALAWAN Is., Puerto Princesa, 3 ♂♂, 2 ♀♀, 13-IV-1947, on shore, 2nd growth forest, in leaf axils of *Pandanus*; MINDANAO, Cotabato Province, Cotabato City, 1 ♂, 26-XII-1946, nr. sea level, at light (F. G. Werner leg.); LEYTE, San Jose, 2 ♂♂ and 1 nymph, 1-III-1945, 7, 16-II-1945, at light (Eugene Ray coll.).

Remarks: In the present series colour ranges from black to brownish with intermediate shades. Inner armature of forceps also varies to a great degree giving altogether different appearance which in my opinion represent mere varieties of the same species. However, the shape of ultimate tergite, pygidium and genitalia is almost constant.

A very widely distributed species throughout the Oriental Region.

38. *Chelisoches brevipennis* Borelli, 1923 (figs. 52-54).

Chelisoches brevipennis Borelli, 1923. *Boll. Mus. Zool. Anat. comp., Torino*, t. XXXVIII, N. S., n.º 13, pág. 12 (♂, ♀; Philippine Isls.).

Chelisoches bimammatus Hebard, 1929. *Trans. Amer. ent. Soc.*, t. LV, pág. 338, lám. 12, figs. 1 and 2 (♂, ♀; Batu Caves, Selangar).

Chelisoches brevipennis Borelli.—Borelli, 1932. *Bull. Raffles Mus.*, t. VII, pág. 91.

Material examined: MINDANAO, Davao Province, E. slope Mt. McKinley, 1 ♂, 2 ♀♀, VIII-1946; 1-6-IX-1946, 3300 ft., second

growth forest (H. Hoogstraal leg.); 2 ♀ ♀, IX-1946, 3300 ft., second growth forest (F. G. Werner leg.).

Remarks: The specimens before me are having the abdomen dilated in middle and afterward gently contracted. Pygidium in ♂ is strongly declivent with posterior margin weakly sinuate and angle drawn out into minute points. Penultimate sternite is hardly sinuate posteriorly in middle.

♀ ♀ are slightly larger than ♂ with head black.

Measurements (in mm):

	♂ (1 ex.)	♀ (4 exs.)
Length of pronotum	2.0	2.5- 2.7
Length of elytra	2.8	3.5- 3.7
Length of body (without forceps)	12.6	15.1-16.8
Length of forceps	3.25	4.2- 4.9

Originally described from Philippines it has been known to occur in Malaya also.

39. *Proreus simulans* (Stål, 1860).

Forficula simulans Stål, 1860. *Kongl. Svenska Freg. Eugenie's Resa*, t. I, pág. 320 (♂; Java).

Material examination: MINDANAO, Cotabato Province, Kabaksalan, Pikit, 2 ♂ ♂, 23-XII-1946, near sea level; Davao Province, E. slope Mt. Mckinley, 1 ♀, 13-IX-1946, 7000 ft., beating trees, mossy forest; Madaum, Tagum, 1 ♀, 9-10-X-1946, sea level (F. G. Werner leg.); Todaya, E. slope Mt. Apo, 1 ♀, XI-1946, 2800 ft. (H. Hoogstraal leg.).

Remarks: Out of the two ♂ ♂ before me, in one specimen, elytra is brownish and the characteristic longitudinal yellow band is wanting. Head is orange in colour with occiput weakly raised and provided with two longitudinal streaks of dark brown. Sutures are distinct. Head in ♀ ♀ more depressed and sutures are faint. Pygidium in ♂ is vertical and trapezoidal in shape, very slightly narrowed posteriorly with margin convex mesad and angles bearing minute points whereas in ♀ it is truncate posteriorly and lacking angular points.

A widely distributed species throughout the Oriental Region and already reported from Philippines Is.

Measurements (in mm):

	♂ (2 exs.)	♀ (3 exs.)
Length of body (without forceps)	9.3-12.9	9.3-12.1
Length of forceps	3.6- 6.0	3.6- 4.8

40. **Hamaxas werneri** nov. sp. (figs. 55, 56).

Holotype ♂, Mantalingajan Range, Mt. Balabag, S. slope, Palawan Is., Philippines (Field Museum of Natural History, Chicago).

Material examined: PALAWAN Is., S. slope Mt. Balabag, Mantalingajan Range, holotype ♂, 4-17-V-1947, 2800 ft., forest (F. G. Werner leg.); at Field Museum of Natural History, Chicago.

Head, pronotum, elytra and wings dark brownish black; pronotum yellowish on sides; legs brownish yellow; abdomen and forceps blackish red. Form depressed and pubescent.

Head cardiform, depressed, occiput weakly raised, sutures obsolete, in place of transverse suture a depression present, hind margin sinuate in middle. Antennae partly broken (right basal and on left 10 segments remaining), black, 1st large and narrowed at base; 2nd small; 3rd smaller than 4th which is equal to 5th, remaining segments cylindrico-conical. Pronotum slightly longer than broad, sides briefly and posteriorly well rounded, median sulcus faint; prozona tumid and well differentiated from flat metazona. Elytra slightly longer than pronotum, finely punctulate and from each follicle arising a fine hair, hind margin obliquely truncate. Wings about half as long as elytra with similar colour and texture. Abdomen finely punctulate, dilated at about middle. Ultimate tergite transverse with a V-shape depression in middle posteriorly, a pair of longitudinal tubercles in the anterior part of depression with a short median sulcus in between present, tumid above the roots of forceps with a small tubercle internally, posterior margin faintly emarginate in middle with a pair of minute tubercle in middle a little wide apart and laterally oblique and faintly concave. Penultimate sternite transverse, finely punctulate, posterior margin broadly rounded with slight emargination in middle.

Pygidium short, semivertical, declivent, gently contracted posteriorly, and provided with three minute points, one median dorsal and two ventro lateral and margin itself convex in middle. Forceps with branches remote at base, stout, depressed and almost straight excepting apices which are pointed and incurved, inner margin with a small sharp tooth at basal one third and another similar but slightly larger at apical one third. Genitalia (fig. 56).

♀ : Unknown.

Measurements (in mm):

	Holotype ♂
Length of head	1.5
Width of head	1.15
Length of pronotum	1.1
Width of pronotum	1.0
Length of elytra	1.6
Length of wing	0.7
Length of body (without forceps)	7.0
Length of forceps	1.6

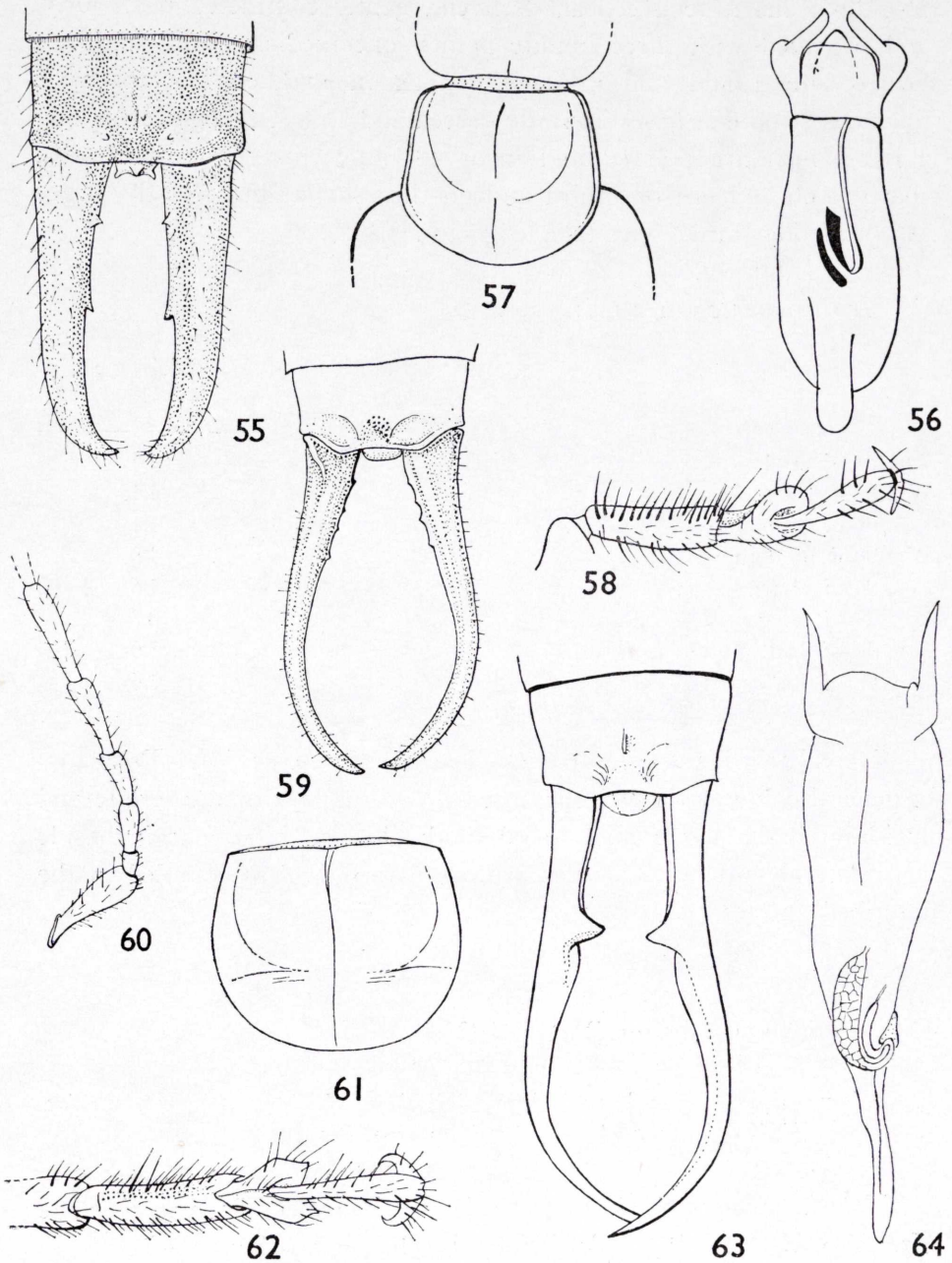
Remarks: This species comes close to *Hamaxas feae* (Bormans) in general colouration, etc. but differs by shape of ultimate tergite and pygidium in having a mid dorsal tooth close to hind margin beside ventrolateral ones. Parameres are comparatively less rounded in the described species.

41. *Hamaxas versicolor* Borelli, 1923.

Hamaxas versicolor Borelli, 1923. *Boll. Mus. Zool. Anat. comp., Torino*, t. XXXVIII, pág. 4 (♂, ♀; Philippine Isls.).

Material examined: MINDANAO, Davao Province, Todaya, E. slope Mt. Apo, 2 ♂♂, 1946, 2800 ft. (H. Hoogstraal leg.).

Remarks: These specimens represent var. *b* of Borelli (1923). Occiput is slightly raised and head sutures are obliterated and posterior margin is emarginate in middle. Antennae are 17 segmented. The posterior margin of penultimate sternite is rounded with a slight emargination in middle.



Figs. 55-64.—*Hamaxas wernerii* nov. sp., ♂: 55) ultimate tergite and forceps; 56) genitalia. *Kosmetar intermedius* Borelli, ♂: 57) pronotum; 58) hind tarsi; 59) ultimate tergite and forceps (figs. 55, 57, 59 same scale). *Timomenus longiforceps* nov. sp., ♂: 60) 1st six antennal segments; 61) pronotum; 62) hind tarsi; 63) ultimate tergite and forceps; 64) genitalia (figs. 60, 62 and 61, 63 same scale).

42. *Hamaxas* sp.

Material examined: LEYTE, P. I. San Jose 1 ♀, 17-I-1947 (Coll. and press by Eugene Ray).

Remarks: General colour is blackish brown and thick pubescence is present all over the body. Elytra and wings are black.

In the absence of ♂ it is not possible to determine this interesting specimen accurately.

FORFICULIDAE
ANECHURINAE.

43. *Allodahlia scabriuscula* (Serville, 1839).

Forficula scabriuscula Serville, 1839. *Hist. Nat. Orth.*, pág. 38.

Material examined: MINDANAO, Davao Province, E. slope Mt. Mckinley, 1 ♂, 30-IX-1946, 3400 ft., under bark, 2 ♀ ♀, 1-X-1946, 3300 ft., under bark of log *abaca* plantation; Sitio, Taglawig, Maco, Tagum, 1 ♀, X-1946, at sea level, original dipterocarp forest; Cotabato Province, Burungkot, Upi, 1 ♀, 6-I-1947, 1500 ft., under chips (H. Hoogstraal leg.).

Remarks: I have compared these specimens with Indian material with which these are agreeing well. The ♀ from Barungkot is dull blackish brown and the remaining specimens are black.

A widely distributed species in South East Asia and China.

44. *Allodahlia coriacea* (Bormans, 1894).

Allodahlia coriacea Bormans, 1894. *Ann. Mus. Stor. nat. Genova*, t. XXIV, pág. 403 (♂; Burma, Carin Cheba).

Material examined: PALAWAN Is., S. slope Mt. Balabag, Mantalingajan Range, 1 ♂, 4-17-V-1947, 2800 ft., 1 ♀, 10-V-1947, 4200 ft., edge of mossy forest; E. slope Mt. Mckinley, 1 nymph, IX-1946, 3300 ft., second growth forest (F. G. Werner leg.); 1 ♀, 14-VIII-1946, 4300 ft., 1 nymph, 30-IX-1946, 3400 ft., under bark,

2 ♀ ♀, 1-IX-1946, 3000 ft.; Todaya, 1 ♀, XI-1946, 2800 ft.; Mainit, E. slope Mt. Apo, 1 ♀, XI-1946, 4300 ft. (H. Hoogstraal leg.).

Remarks: This species was first described from Burma. Subsequently, it has been recorded from India, Tonkin and Borneo. The collection under report constitutes the first record of the species from Philippine Islands.

EUDOHRNINAE

45. *Kosmetor tagalensis* Borelli, 1915.

Kosmetor tagalensis Borelli, 1915. *Boll. Mus. Zool. Anat. comp., Torino*, t. XXX, n.º 697, pág. 6 (♂; Manila).

Kosmetor tagalensis Borelli.—Ramamurthi, 1967. *Ent. Medd.*, t. XXXV, pág. 255 (♀, Philippines, Mindanao; Bismark Islands, New Britain).

Material examined: MINDANAO, Davao Province, Lake Linau, N. slope Mt. Apo, 1 ♂, X-1946, 7800 ft., on surface of lake, mossy forest (F. G. Werner leg.); Baclayan River Camp, Mt. Apo, 1 ♂, 7900 ft., stunted forest (H. Hoogstraal leg.), 2 ♂ ♂, 13-XII-1946, 7000 ft., by beating from stunted growth; Baclayan River Camp, E. slope, Mt. Apo, 3 nymphs, 13-XI-1946, 7700 ft., beating vegetation; Maran, Mt. Apo, 1 ♀, 9-XI-1946, 6000 ft., by beating trees, ferns, original forest (H. Hoogstraal and D. Heyneman leg.).

Remarks: In the present material colour of elytra varies from yellow to yellowish brown with lateral margins darker. Branches of forceps are not hollow above in basal one third as mentioned by Borelli (1915). The inner tooth of forceps is quite prominent in ♂ specimen from Lake Linau. ♀ pygidium is obtuse and branches of forceps are almost straight in basal two thirds but gently incurved afterwards, with apices pointed. Internal margin finely crenulate in basal three quarter only.

Originally described from Philippines (Luzon, Manila) it has recently been recorded from Bismark Islands (New Britain) by Ramamurthi (1967) but on ♀ ♀ only.

46. **Kosmetor intermedius** Borelli, 1918 (figs. 57-59).

Kosmetor intermedius Borelli, 1918. *Boll. Mus. Zool. Anat. comp., Torino*, t. XXXIII, n.º 726, pág. 4 (♂, Imugin N. Viscaya).

Material examined: MINDANAO, Davao Province, Todaya, E. slope Mt. Apo, 1 ♂, 1 nymph, XI-1946, 2800 ft., Mainit, 1 nymph, XI-1946, 4300 ft., E. slope Mt. Mckinley, 1 ♀, VIII-1946, 3000 ft. (H. Hoogstraal leg.); 1 nymph, 19-IX-1946, 3400 ft., beating trees mossy forest (H. Hoogstraal and D. Heyneman leg.).

Remarks: Hitherto this species was known by its type ♂ only. The ♀ sex is described below.

♀: Same as ♂ in most characters except head sutures faintly distinct; ultimate tergite strongly narrowed posteriorly and devoid of tumid elevations corresponding the bases of forceps; pygidium obtusely rounded and branches of forceps less stout, almost straight with apices pointed and incurved, inner margin finely serrated.

Measurements (in mm):

	♂	♀
Length of body (without forceps)	9.5	8.0
Length of forceps	3.1	2.0

OPISTHOSMIINAE

47. **Timomenus longiforceps** nov. sp. (figs. 60-64).

Holotype ♂, Mt. Apo, E. slope, Mainit, Davao Province, Mindanao, Philippines (Field Museum of Natural History, Chicago).

Material examined: MINDANAO, Davao Province, Mainit, E. slope Mt. Apo, holotype ♂, 19-XI-1946, 4300 ft., original forest (H. Hoogstraal leg.); at Field Museum of Natural History, Chicago.

♂: General colour shining black. Head triangular, about as long as broad, tumid, sutures indistinct, posterior margin gently emarginate. Antennae partly broken, only 10 segments remaining, segments 9th and 10th yellowish, segments long and cylindrico-conical. Pronotum as long as broad, anterior margin straight, sides and posterior margin

rounded, median sulcus distinct, prozona weakly tumid and poorly differentiated from flat metazona. Elytra ample, smooth. Wings same as elytra in colour and texture. Legs blackish with tarsi lighter in colour, anterior femora thick; tarsi provided with long and short pubescence ventrally, 1st segment equal to 3rd; 2nd enlarged and divided posteriorly into two triangular lobes. Abdomen brownish black, slightly lighter above, tubercular folds on 4th tergite distinct, moderately convex, narrowed apically, sides of segments obtuse with a faint longitudinal keel on segments 6th and 7th. Penultimate sternite with posterior margin rounded. Ultimate tergite, transverse, strongly sloping and narrowed apically, tumid above the roots of forceps with a depression in between, median sulcus short and distinct, posteriorly in middle, between the roots of forceps and laterally emarginate. Pygidium scarcely visible from above, rounded with two faint longitudinal ridges and the area in between faintly depressed. Forceps remote at base, long and cylindrical, gradually tapering and diverging from base upto middle, then strongly curved so as to leave an elliptical space, apices slightly hooked and pointed which cross each other, exteriorly in basal one third faintly sinuate, branches in profile little raised in middle, internal margin armed above, a little before middle with a triangular, subvertical, posteriorly directed tooth. Genitalia (fig. 64).

♀ : Unknown.

Measurements (in mm):

	Holotype ♂
Length of head	2.0
Length of elytra	3.4
Length of body (without forceps)	15.0
Length of forceps	6.9

Remarks: With Brindle's (1969) key to species of genus *Timomenus* Burr, the described species comes close to *T. ares* Burr from Borneo but differs as follows: (i) Larger size, length of body 15 mm and length of forceps 4.5 mm —*vs.* smaller size, length of body 10.75 mm and length of forceps 4.5 mm in *T. ares* Burr—; (ii) Elytra smooth —*vs.* finely punctulated—; (iii) Pygidium distinct, rounded with two faint ridges —*vs.* pygidium indistinct—; (iv) Branches of

forceps long and cylindrical, strongly curved in apical half so as to enclose an elliptical space, slightly raised and armed at about middle with a semivertical tooth —*vs.* Branches of forceps dilated and depressed at base curved in apical half to enclose circular area, crenulate internally and with an obsolete tooth at middle.

48. **Hypurgus uniformes** Borelli, 1923.

Hypurgus uniformes Borelli, 1923. *Boll. Mus. Zool. Anat. comp., Torino*, t. XXXVIII, N. S., n.º 13, pág. 18 (1 ♂, Surigao, Mindanao; 1 ♀, Tangcolan, Bukindon).

Material examined: MINDANAO, Davao Province, Sibulan, 1 ♂, 23-X-1946, at light (F. G. Werner leg.).

Remarks: The specimen before me agrees well with the original description of the species except that the elytra lacks yellow spot at humeral angle. The inner margin of forceps is crenulate in basal one third. Length of body (without forceps) — 8.5 mm; length of forceps — 2.4 mm.

49. **Eparchus cruentatus** Burr, 1909.

Eparchus cruentatus Burr, 1909. *Ann. Mag. nat. Hist.*, t. IV, pág. 115.

Material examined: MINDANAO, Davao Province, SE. slope Mt. Apo, 1 ♂, 4 ♀ ♀, 23-X-1946, 2000 ft., at light (F. G. Werner leg.); E. slope Mt. Mckinley, 1 ♀, VIII-1946, 3300 ft., second growth forest, 2 ♀ ♀, 14-VIII-1946, 3300-4400 ft., in leaf axils of bush *Pandanus* (H. Hoogstraal leg.); 1 ♀, IX-1946, 3300 ft., second growth forest (H. Hoogstraal and F. G. Werner leg.).

Syntonus Burr, 1910.

Syntonus Burr, 1910. *Fauna Brit. India, Dermaptera*, pág. 199.

Type species: *Syntonus neolobophoroides* (Burr).

Burr (1910) erected genus *Syntonus* for the reception of *Opisthocosmia neolobophoroides* Burr from Ceylon as its "Type" [Burr's diagram (1910, *Fauna Brit. India, Dermaptera*, pl. VII, fig. 62) is

wrong showing fully developed elytra and wings. Mr. John Huxley of British Museum (Natural History), London has very kindly intimated me that "Type" possesses abbreviated elytra and wings are wanting]. Two more species, namely *S. ensifer* Burr from Peru nad *S. montanus* Hincks from Burma have subsequently been recorded.

In the present paper two new specie are being described thus extending the distribution of the genus further eastwards. These may be worked out by the following key.

- 1 (2) Ultimate tergite armed with a median, vertical and pointed spine (Peru) **ensifer** Burr.
- 2 (1) Ultimate tergite devoid of median vertical spine (Oriental species).
- 3 (6) Pronotum rounded posteriorly.
- 4 (5) Sides of abdominal segments acute, a crenulate longitudinal ridge on segments 5-7 present; forceps with branches depressed, straight and serrated internally in basal two third, afterwards strongly tapering, curved and smooth internally **serratus** nov. sp.
- 5 (4) Sides of abdominal segments obtuse, segments 5th and 6th with numerous small tubercles arranged longitudinally; forceps with branches long and cylindrical, almost straight gently curved apically with tip pointed, internally unarmed **simplex** nov. sp.
- 6 (3) Pronotum truncate posteriorly.
- 7 (8) Head sutures indistinct; pronotum nearly square, body puncturation faint; ultimate tergite longer than broad **neolobophoroides** (Burr).
- 8 (7) Head sutures distinct; pronotum slightly transverse, body puncturation heavier; ultimate tergite transverse **montanus** Hincks.

50. **Syntonus serratus** nov. sp. (figs. 65-68).

Holotype ♂, Mt. Apo, Davao Province, Mindanao, Philippines (Field Museum of Natural History, Chicago).

Material examined: MINDANAO, Davao Province, Mt. Apo, holotype ♂ and allotype ♀, XI-1946, 6500 ft. (H. Hoogstraal leg.); at Field Museum of Natural History, Chicago.

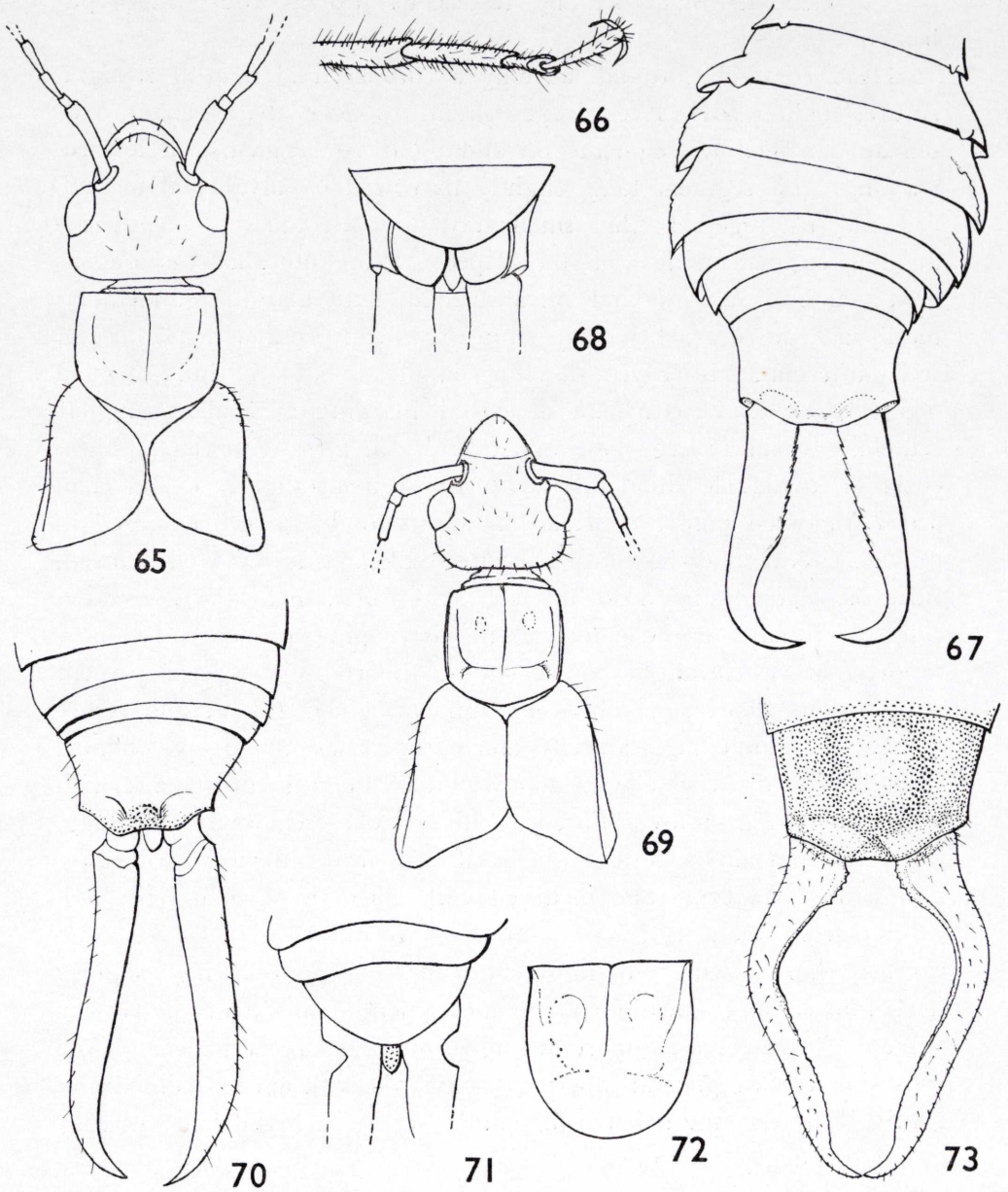
♂ : General colour shining testaceous brown, body finely pubescent.

Head triangular, tumid, as long as broad, hind margin straight, sutures obliterated. Eyes large, slightly longer than genae. Antennae damaged (7 segments on right and 10 segments on left remaining); 1st segment long, slightly narrowed basally, equal to 2nd, 3rd and 4th together; 2nd small; 3rd and 4th equal in length, remaining segments long and rod shaped. Pronotum about as long as broad, anterior margin and sides straight, hind margin rounded, laterally a little reflexed, median suture distinct; pro-and metazona not well differentiated. Elytra as long as head, smooth, hind margin obliquely truncate, ecarinate at costal margin; a small triangular scutellum visible. Legs long and cylindrical, tarsi with thick pubescence on underside; hind tarsi with 1st segment slightly longer than 3rd. Abdomen faintly depressed above, smooth, greatly enlarged in middle, lateral tubercles on 3rd tergite weak and on 4th well marked, sides of segments 4-8 acute but segments 5-7 with a faintly serrated ridge. Ultimate tergite convex, strongly sloping and narrowed posteriorly, broad elevations corresponding the roots of forceps present with a slight depression inbetween, hind margin incrassate and gently sinuate in middle and laterally above the bases of forceps oblique. Pygidium hardly visible from above, obtuse. Penultimate sternite with posterior margin obtuse. Forceps with branches remote at base, long, depressed and almost straight in basal two third, afterwards abruptly and strongly tapering and incurved with apices hooked and pointed, inner margin finely serrate in basal two third only.

♀ : Agrees with ♂ in most characters except following: slightly darker in colour; sides of abdominal segments convex, devoid of any ridge. Ultimate tergite more strongly contracted posteriorly and forceps simple, straight and tapering backwards with apices pointed and gently incurved, internal margin faintly serrate in basal half only.

Measurements (in mm):

	Holotype ♂	Allotype ♀
Length of head	1.6	1.4
Length of pronotum	1.2	1.2
Length of elytra	1.6	1.5
Length of body (without forceps)	9.2	8.4
Length of forceps	3.0	2.5



Figs. 65-73.—*Syntonus serratus* nov. sp., ♂: 65) head, pronotum and elytra; 66) hind tarsi; 67) abdomen and forceps; 68) penultimate sternite. *Syntonus simplex* nov. sp., ♂: 69) head, pronotum and elytra; 70) hind portion of abdomen and forceps; 71) penultimate sternite. *Cordax vandermeermohri* Menozzi, ♂: 72) pronotum; 73) ultimate tergite and forceps (figs. 65, 67, 69-71, 73 same scale).

51. *Syntonus simplex* nov. sp. (figs. 69-71).

Holotype ♂, Mt. Mckinley, E. slope, Davao Province, Mindanao, Philippines (Field Museum of Natural History, Chicago).

Material examined; MINDANAO, Davao Province, E. slope Mt. Mckinley, holotype ♂, 22-VIII-1946, 3300 ft. (H. Hoogstraal leg.); at Field Museum of Natural History, Chicago.

♂: General colour blackish brown; occiput slightly reddish; antennal segments blackish but one or two ante-apical segments partially or wholly whitish. Legs yellowish brown. Body finely pubescent.

Head as long as broad, tumid, hind margin gently sinuate, sutures obliterated. Antennae damaged (9 segments on right and 10 on left remaining), segments long and cylindrical. Pronotum quadrate, as long as broad, anterior margin straight, sides straight and gently reflexed, posterior margin rounded, median suture distinct; prozona gently tumid and metazona flat. Elytra slightly longer than head, posterior margin obliquely truncate, costal margin ecarinate, a small triangular scutellum visible. Wings wanting. Abdomen gently convex, finely punctulate, greatly enlarged in middle, tubercular fold on 3rd tergite weakly and on 4th distinctly marked, sides of abdominal segments with angles obtuse but segments 5th and 6th provided with numerous small tubercles arranged longitudinally. Ultimate tergite contracted and sloping posteriorly, smooth and finely punctulate areas alternating, broad tubercles corresponding bases of forceps present with slightly depressed area in middle. Pygidium rounded, scarcely visible from above. Forceps with branches remote and constricted at base, cylindrical, almost straight, tapering with apices pointed and gently hooked, inner margin unarmed.

♀: Unknown.

Measurements (in mm):

	Holotype ♂
Length of head	1.4
Length of pronotum	1.1
Length of elytra	1.6
Length of body (without forceps)	8.3
Length of forceps	3.3

52. *Opisthocosmia centurio* (Dohrn, 1865).

Opisthocosmia centurio Dohrn, 1865. *Stettin ent. Ztg.*, pág. 79.

Material examined: MINDANAO, Davao Province, E. slope Mt. Mckinley, 1 ♂, 1946, 3300 ft., second growth forest; 1 ♂, 14-IX-1946, 3300 ft., second growth forest; 1 ♂, 8 ♀♀, VIII-1946, 3300 ft., second growth forest (H. Hoogstraal leg.); 3 ♂♂, 4 ♀♀, IX-1946, second growth, mixed and second growth dipterocarp forest (H. Hoogstraal and F. G. Werner leg.); 3 ♂♂, 2 ♀♀, IX-1946, 3300 ft., second growth forest; Todaya, E. slope Mt. Apo, 2 ♀♀, XI-1946, 2800 ft. (F. G. Werner leg.).

Remarks: There seems to be much variation in the intensity of elytral and wing spots. In some specimens these spots, as well as proximal tooth of forceps are wanting. General colour ranges from light brown to dark blackish brown.

53. *Cordax vandermeermohri* Menozzi, 1933 (figs. 72, 73).

Cordax vandermeermohri Menozzi, 1933. *Misc. Zool.*, Sumatra, n.º 77, pág. 3 (♂; Sumatra).

Material examined: PALAWAN Is., S. slope Mt. Balabag, Mantalingajan Range, 2 ♂♂, 4-V-1947, 2800 ft., 1 ♀, 15-V-1947, 2800 ft., at light; MINDANAO, Davao Province, E. slope Mt. Mckinley, 1 ♀, 27-VII-1946, 5400 ft., in logs (F. G. Werner leg.); 2 ♀♀, 8-IX-1946, 7000 ft., mossy forest (H. Hoogstraal leg.).

Remarks: These specimens agree in most characters with the original description of the species excepting some minor variations which are recorded below. Head is smooth and sutures are obliterated or weakly marked. Pronotum in 2 ♂♂ and 1 ♀ from Palawan Is. is hardly longer than broad with hind margin well rounded and not contracted posteriorly.

Elytra and wings are smooth, provided with short stiff hairs all over. Former lacks oval yellow spot and in the specimens from Palawan Is. only, inner angle of wings is yellow.

Hitherto this species was known by its Type ♂ from Sumatra and the present record extends its distribution further eastwards.

Measurements (in mm):

	♂	♀
Length of body (excluding forceps)	13.7-14.2	10.3-11.7
Length of forceps	4.4- 4.7	3.7- 4.6

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