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STUDIES ON THE PHILIPPINE CRABRONINAE, REVISION AND ADDITION, WITH AN ANNOTATED KEY TO THE SPECIES (HYMENOPTERA SPHECIDAE)

By K. TSUNEKI

S Y N O P S I S

New material of the Philippine Crabroninae was studied and some questionable specimens of the previous material were revised, with the following results:

New genus and species: Crorhopalum cornicum.

New species: Isorhopalum leytense, Rhopalum (Rhopalum) ovale, R. (R.) bukidnon, R. (R.) baguione, Piyuma mindanaonis, Crossocerus (Blephalipus) mindanaonis, Ectemnius (Iwataia) rugosellus, Ect. (Iw.) makahambus, Ect. (Iw.) bukidnon and Ect. (Iw.) iliganensis.

New subspecies: Crossocerus (Blepharipus) nitidicorpus philippinicus.

Isorhopalum mayoni: Tsuneki, 1984a (nec Leclercq) was changed to Isorhopalum leytense sp. nov.

Ectemnius (Cameronitus) djurodzin Tsuneki (1984a) was synonymized with Ectemnius (Policrabro) forestus Leclercq, 1958.

Ectemnius (Cameronitus) bogorensis sens. Tsuneki, 1984a, was changed to Ectemnius (Iwataia) makahambus sp. nov.

Ectemnius (Iwataia) rugosus Tsuneki, 1984a, including aberratio was separated into three species.

Dasyproctus puncticeps Tsuneki, 1984a, was synonymized with D. yorki philippinicus as its slightly aberrant form.

Dasyproctus toxopterus Leclercq was synonymized with D. townesi as its slightly deviated male.

Dasyproctus yorkoides: Tsuneki, 1984a, ♂ → D. townesi Leclercq, ♂.

Dasyproctus yorkoides Leclercq, 1972 (normal form) → D. vaporus Leclercq, 1963 (aberrant form).

Taxonomically vaporus has the priority and yorkoides is suppressed.

Dasyproctus sculpturatus Tsuneki (♂) → D. vaporus Leclercq, (♂).

Dasyproctus palawanensis Tsuneki (♂) → D. vaporus palawanensis Tsuneki.

During the spring and summer vacations of 1983 the Fukui Party of the members of the Japan Hymenopterists Association, Miss C. Nozaka, Messrs T. Tano, H. Kurokawa and T. Murota, made a seventh and a eighth expeditions to the Philippines to study the wasp fauna of the Islands and sent to me the collected specimens of the Crabroninae and Philanthinae for identification.

On this occasion, together with the study of the new material, I reviewed the specimens that were already recorded, and attempted to make a key to the Crabroninae species of the Philippines.

The study of the Crabroninae of the Philippines is still quite incomplete and in this sense it is not as yet the time to arrange the known species in a key, because it will have to be inserted with many species and repeatedly rearranged. On the other hand, however, the key will aid the students for their further studies of the Philippine fauna and will have significance in being the basis for the future completion. For such a purpose I added some annotation to each species (within parenthesis) in order to give the students some confidence about their identification that is done without consulting the original description and the related references. However, it is always necessary for the final determination to refer to the original descriptions, because my annotations are, as a rule, simpler than the descriptions and without sufficient illustrations.

As to the taxonomic problems dealt with in the present paper it must particularly mentioned that I finally determined to treat Eupliloides as a distinct genus, separating it from Crossocerus, as was already done by J. Leclercq. I was also strongly

tempted to give the separate subgeneric rank to species groups of nigritarsus and embeliae of Ectemnius (Cameronitus), to make clear the scopte and the characters of subgenus Cameronitus, but here it was postponed.

Of the species hitherto known from the Philippines Ectemnius (Cameronitus) bogorensis Leclercq is not clear as to its specific distinctions. E. bogorensis of the Philippines (Leclercq, 1963) seems to include some that are different from the species of Java, Singapore and South India. If the described punctation of the mesoscutum is realized somewhat stronger and closer, it seems to come to include some species of my Ectemnius (Iwataia), e. g. E. (I.) rugosus and rugosellus (ref. Leclercq's comments on the male of the Philippine bogorensis; 1963, p. 27). However, among the Philippine specimens that agree in general with the described characters of bogorensis, are included some species that can be separated not only in the external distinctions, but also in the characters of the male genitalial structure. In the present paper I separated these strictly from each other. As a result Ectemnius (Cameronitus) bogorensis tarawakanus Tsuneki, 1976 was changed to E. (Iwataia) tarawakanus and E. (C.) bogorensis: Tsuneki, 1984a (SPJHA, 28) was shifted to E. (Iwataia) makahambus n. sp. Among the Philippine specimens dealt with by me I could not find any one that strictly agrees with his bogorensis in the punctation of the mesoscutum. But this species is included in the key, because it was recorded by the authority from the Philippines.

In the list of the Philippine species which follow the name topped with an asterisk shows that the new specimens of the species are examined during the course of the present investigation. As to the references to each species they are confined, as a rule, to those which include description, explanation or the specimen records of the Philippine species and the simply listed ones are all omitted, because these are of little use to identify the species concerned.

As to the abbreviations used in the descriptions and the key of the present paper they are same as those that are usually used by the present author (ref. p. 28).

RECORDS AND DESCRIPTIONS

1. ENCOPOGNATHUS (ENCOPOGNATHUS) ALCATAE LECLERCQ, 1963

Encopognathus (Encopognathus) alcatae Leclercq, Bull. Ann. Soc. R. Ent. Berg., 99(1): 40, 1963 (♀, Mindoro: Alcate).

2. ENCOPOGNATHUS (ENCOPOGNATHUS) ESOTERUS LECLERCQ, 1963

Encopognathus (Encopognathus) esoterus Leclercq, Bull. Ann. Soc. R. Ent. Berg., 99 (1): 41, 1963 (♀, Luzon: Mt. Baguio).

* 3. VECHTIA RUGOSA PALAWANA TSUNEKI, 1976

Vechtia rugosa palawana Tsuneki, Steenstrupia (Copenhagen), 4: 108, 1976 (♀, Palawan). Vechtia rugosa palawana: Tsuneki, SPJHA, 28: 20, 1984a (13 ♀ 53 ♂, Luzon; 1 ♀ 3 ♂, Negros; 3 ♂, Leyte; 10 ♀ 63 ♂, Mindanao)

Specimens examined: 7 ♀ 8 ♂, Palawan (Calacuasan, Aborlan, Iwahig), 29.III.-3.IV. 1983, T. Tano and T. Murota; 6 ♀, Mindanao (Bukidnon, Lanao der Norte), 2-7.VIII. 1983, C. Nozaka, H. Kurokawa and T. Murota.

* 4. NIWOH TARSATUS TSUNEKI, 1984

Niwoh tarsatus Tsuneki, SPJHA, 28: 20, 1984a (1⅓ ♀ 35 ♂, Mindanao, 20 figs.).

Specimens newly examined: 2 ♀, Mindanao (Bukidnon: Makahambus Cave; Misamis Or. Claveria), 6-8.VIII.1983, T. Murota.

5. ISORHOPALUM MAYONI LECLERCQ, 1963

Isorhopalum mayoni Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 77, 1963 (1 ♀ 1 ♂, Luzon)

6. ISORHOPALUM PALAWANENSE TSUNEKI, 1976

Isorhopalum palawanensis Tsuneki, Steenstrupia (Copenhagen), 4: 115, 1976 (1 ♀ 1 ♂, Palawan, 9 figs.).

Remarks. In the original description figures of clypeus (♀ ♂), mandible, pronotum, G1 (dorsal and lateral in ♀ and dorsal in ♂), GT5 and 6 (♀) and hind tibia (♂) are given, here the clypeus of both sexes are reproduced: Figs. 1 (♀) and 2 (♂).

1 ♀ ♂ 2

7. ISORHOPALUM BASILANUM LECLERCQ, 1981

Isorhopalum basilanum Leclercq, Bull. Ann. Soc. R. Belge Ent., 117: 177, 1981 (♀, Basilan).

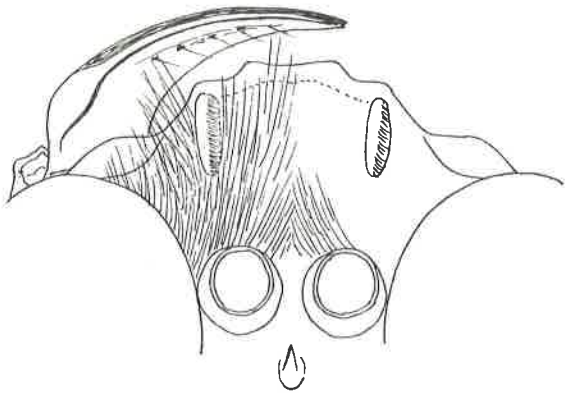
Remarks. The present species is characterisitc in that the head and thorax are without puncture, very finely coriaceous and mat. In the structure it resembles closely palawanense Tsuneki, 1976, but differs from it in that the lateral teeth of the quadridentate apical margin are much more strongly produced and the body and appendages are much more broadly yellow maculated as given in the key.

8. ISORHOPALUM LEYTENSE SP. NOV.

Isorhopalum mayoni: Tsuneki (nec Leclercq), SPJJIA, 28: 13, 1984 (♂, including description).

Because of the general agreement in the characters as far as described I identified the two male specimens from Is. Leyte with mayoni Lecercq, with a query on the structure of the clypeus. Now it seems, however, that the tolerance of the uncertainties in the identification is too great and so the specimens are supplementarily redescribed as new in the following:

♂. Length 7-8 mm. Clypeus: Fig. 3, in oblique lateral view with left mandible: Fig. 4. Lateral longitudinal ridges on the disc are markedly raised and very characteristic, with top without silvery hair, smooth and shining; mandible as shown in Fig. 3 and 4, it is at base very broad, then abruptly curved inward and strongly narrowed, with anterior margin strongly carinate, the carina near base roundly and highly incrassate; antennal flagellum with each joint not particularly thickened, slightly brownish above and ferruginous beneath, A3 very slightly longer than wide at apex and others are not longer than wide except ultimate joint which is 1.7 times as long as wide at base, supraantennal denticle present, short but acute, head seen from above with relative HW:HL at middle and at eye =100:76:66, OOD:Od:POD:OCD=10:10:6:23, supra orbital foveae located along eyes and at intermediate level between fore and hind ocelli, its anterior part joins with inner orbital furrow and indistinct. Pronotum seen from above: Fig. 5, with lateral margins deeply incised anteriorly, ante-coxal tubercle of prosternum strongly toothed, with apex rounded, occipital margin seen from above strongly roundly emarginate; mesoscutum along admedian line till about middle distinctly furrowed and parapsidal sutures deeply impressed, scutellum subquadrate, slightly convergent posteriorly. Propodeum with lateral carinae, the carinae not reaching spiracles, area dorsalis not distinctly margined with furrow or carina, but well defined by its gentle elevation, median furrow broad, connected with that of posterior inclination where it becomes very deep, side divided by oblique line into two parts, anter-



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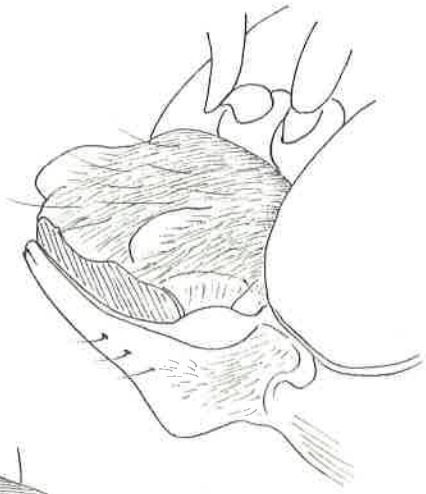

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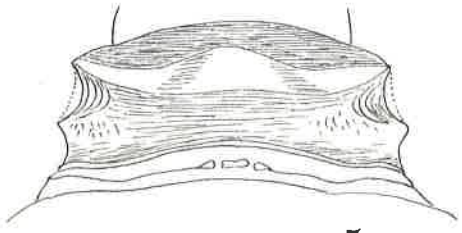

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ior depressed and falttened area and posterior raised area, as in some species of Rhopalum. G1 slender and long, with apical third suddenly and strongly swollen into oviform node, much longer than hind trochanter + femur (30:22) and as long as GT2+3, relative width at minimum and at maximum about 1:3, G2 at base very narrow, about a third the width of petiolar node and straightly enlarged posteriorly, at its basal third above deeply impressed longitudinally; fore and mid legs without particular modification, hind tibia markedly clavate, relative width at base and at apical maximum in posterior view =2:7, in lateral view =1:8, with about 7-8 very short indistinct spinules on outer side of apical area.

Black, yellow are A1, tubercle, apices narrowly of all trochanters, a spot at apex of fore and mid femora, a stripe on outer side of fore tibia, basal ring of mid tibia, fore T1-2, mid T1; fore femur apically broadly, rest of fore tibia and tarsus, apices of mid femur and tibia and hind tibial spurs ferruginous; base of hind tibia and rest of mid tarsus dark brown; tegula translucent- and basal plate of fore wing opaque- dark brown. The hair on clypeus silvery, very long and not dense.

Upper frons and vertex very finely, rather sparsely covered with piliferous punctures, pro-, mesonotum and scutellum, postscutellum microgranulate or microcoriaceous, half mat, mesopleuron on epimeral area sparsely, on the rest closely covered with piliferous, very minute points, area dorsalis coarsely, longitudinally - obliquely rugoso-striate, rugae and their intervals microsculptured, not shining, sides also microcoriaceous.

♀, unknown.

Holotype: ♂, Leyte, lake-side of Imerda, 19.IV.1982, T. Tano leg. (Coll. Tsuneki).

Paratype: 1 ♂, same data (Coll. Tano).

CRORHOPALUM GENUS NOV.

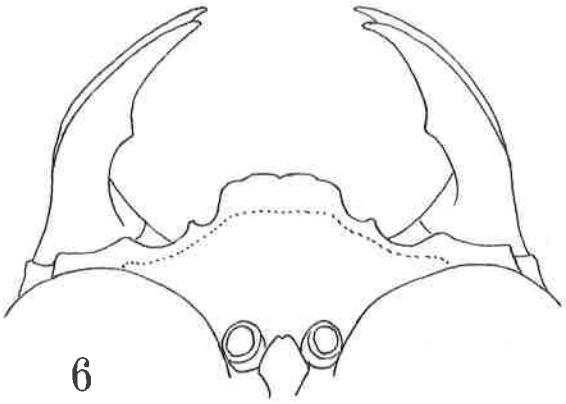
Close to Rhopalum s. l. and may be a subgenus of it, but is deviated from it in having a tooth, though a blunt one, on the inner margin of the mandible and strange in the structure of epicnemial furrow of the mesopleuron and on the male pygidial area. Based upon these (♂ alone) it was dealt with as a new genus.

Generic type: Crorhopalum cornicum sp. nov.

9. CROMHOPALUM CORNICUM SP. NOV.

♂, 9-9.5 mm. Black; with strong plumbeous shine on mesoscutum and scutellum; articulations of fore and mid legs, fore tibia in front broadly, mid tibia on median part in front vaguely and fore and mid T1-2 except each brownish apex pale yellowish white (in paratype only fore tibia in front narrowly yellowish white and fore tarsus wholly brown), mouth parts, tibial spurs and rest of fore and mid tarsi brown. Hair on clypeus and interantennal plate silvery, very short pile covering body and legs silky white.

Head from above transverse, with sides rounded, W:L(at middle and at eye)=100:58:65, occipital margin fairly strongly emarginate, clypeus, mandible and interantennal plate: Fig. 6, enlarged interantennal plate in vertical view from dorsal side: Fig. 7, apical half roundly reflected and obliquely raised forwards, occipital carina low, not reaching hypostomal carina and not toothed at the ends, A3,4,5 equal in length, A3=AW×1.8, pronotal collar: Fig.8, scutellum almost quadrate, on mesopleuron episternal furrow broad and deep, coarsely foveolate, anterior bank of the furrow highly raised till near top of prepectus with the margin finely carinate, prepectus narrow, ridge-like, anteriorly indistincly turned to epicnemial area (in the Philippine species of Rhopalum s.l. prepectus is usually very narrow as in this species, different from most of the Formosan and the Japanese species in which prepectus is fairly broad), top of prepectus in lateral view bluntly ridged, but the top carina of the episternal furrow



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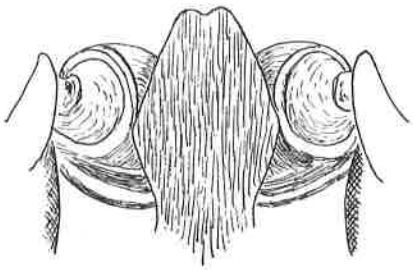

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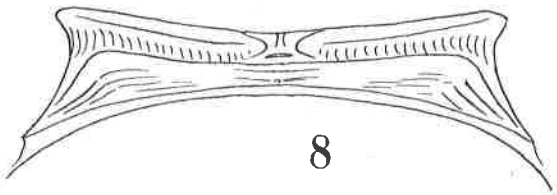

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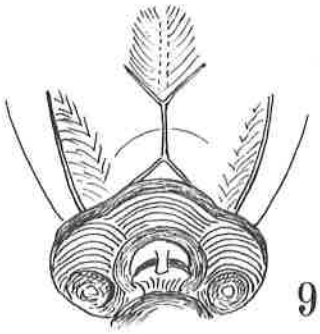

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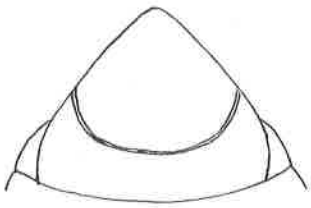

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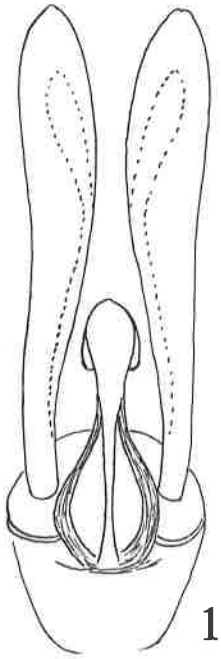

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is directed posteriorly and not well visible seen from the side, mesocoxal rim raised to carina, accompanied with strongly foveolated furrow in front, at the top of coxa the carina highly raised into a strong tooth which is well defined when the thorax is seen from above, but this is not the precoxal carina; lateral carinae of propodeum developed only on sides of posterior aspect, area dorsalis not margined, but with comparatively broad median furrow, socket rim of gastral petiole well developed, broad, raised dorsally, with median top angulate (Fig. 9), side of propodeum divided by an oblique line into anterior depressed, flattened area and posterior gently raised area which is on anterior half further divided by a shorter oblique line into anterior roundly raised area and posterior flattened area, located beneath lateral carina of propodeum, this area at posterior end margined below with a short carina and transversely, strongly rugoso-striate. Gl long, as long as GT2+3, longer than hind trochanter + femur (40:35), apical swelling strong, thrice as great as the minimum width before spiracles, in form oval and more than a third of the length of Gl; exposed pygidial area: Fig. 10, basal line finely, distinctly carinate, while lateral margins simply acutely edged; genitalia in dorsal view: Fig. 11 (stipe comes to be seen obliquely), paramere without fringe of hairs; hind tibia clavate, with about 10 strong spinules on outer side.

Frons and vertex very finely and sparsely punctured, surface strongly shining, mesoscutum and scutellum finely, somewhat more closely punctured, surface by basic plumbeous lustre not strongly shining, mesopleuron finely, fairly closely, distinctly punctured, shining, area dorsalis on propodeum at base coarsely foveolate and on narrow basal area longitudinally, finely, feebly rugulose, thence posteriorly sparsely covered with very fine piliferous punctures, sides smooth and polished.

♀, unknown.

Holotype: ♂, Mindanao, Bukidnon, Sungco, 28-29.VII.1983, T. Murota leg. (Coll. Tsuneki).

Paratype: 1 ♂, same as above, H. Kurokawa leg. (Coll. Kurokawa).

10. RHOPALUM (CALCEORHOPALUM) CANLAONI LECLERCQ, 1963

Rhopalum (Calceorhopalum) canlaoni Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 73, 1963 (1 ♀, Luzon).
Rhopalum (Calceorhopalum) canlaoni: Tsuneki, SPJHA, 28: 13, 1984a (4 ♀ 1 ♂, Leyte, 1 ♀ 2 ♂, Luzon).

11. RHOPALUM (CALCEORHOPALUM) SIMALURENSE (MAIDL, 1925)

Crabro (Rhopalum) simalurense Maidl, Ent. Mitt., 14(5-6): 391, 1925 (♀, Is. Simalur, east of Sumatra).
Rhopalum (Calceorhopalum) simalurense: Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 70, 1963 (8 ♀, Negros).

12. RHOPALUM (RHOPALUM) AVEXUM LECLERCQ, 1963

Rhopalum (Rhopalum) avexum Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 65, 1963, (2 ♀ Luzon, others India).
Rhopalum (Rhopalum) avexum: Tsuneki, SPJHA, 28: 13, 1984a (1 ♀ 3 ♂, Luzon).

13. RHOPALUM (RHOPALUM) MINUSCULUM LECLERCQ, 1963

Rhopalum (Rhopalum) minusculum Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 64, 1963 (1 ♂, Basilan).

14. RHOPALUM (RHOPALUM) DECAVUM LECLERCQ, 1963

Rhopalum (Rhopalum) decavum Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 67, 1963 (1 ♀, Sibuyan).

15. RHOPALUM (RHOPALUM) SUCCINEICOLLARE (TSUNEKI, 1952)

Crabro (Rhopalum) succineicollare Tsuneki, Jour. Fac. Sci. Hokkaido Univ., Ser. VI, Zool., 2(1): 120, 1952 (♀, Japan).
Rhopalum (Rhopalum) succineicollare: Tsuneki, Etizenia (Fukui Univ.), 51: 27, 1971 (1 ♀, Formosa).
Rhopalum (Rhopalum) succineicollare: Tsuneki, Steenstrupia (Copenhagen), 4: 117, 1976 (1 ♀, Palawan).

16. RHOPALUM (RHOPALUM) PETERSENI TSUNEKI, 1976

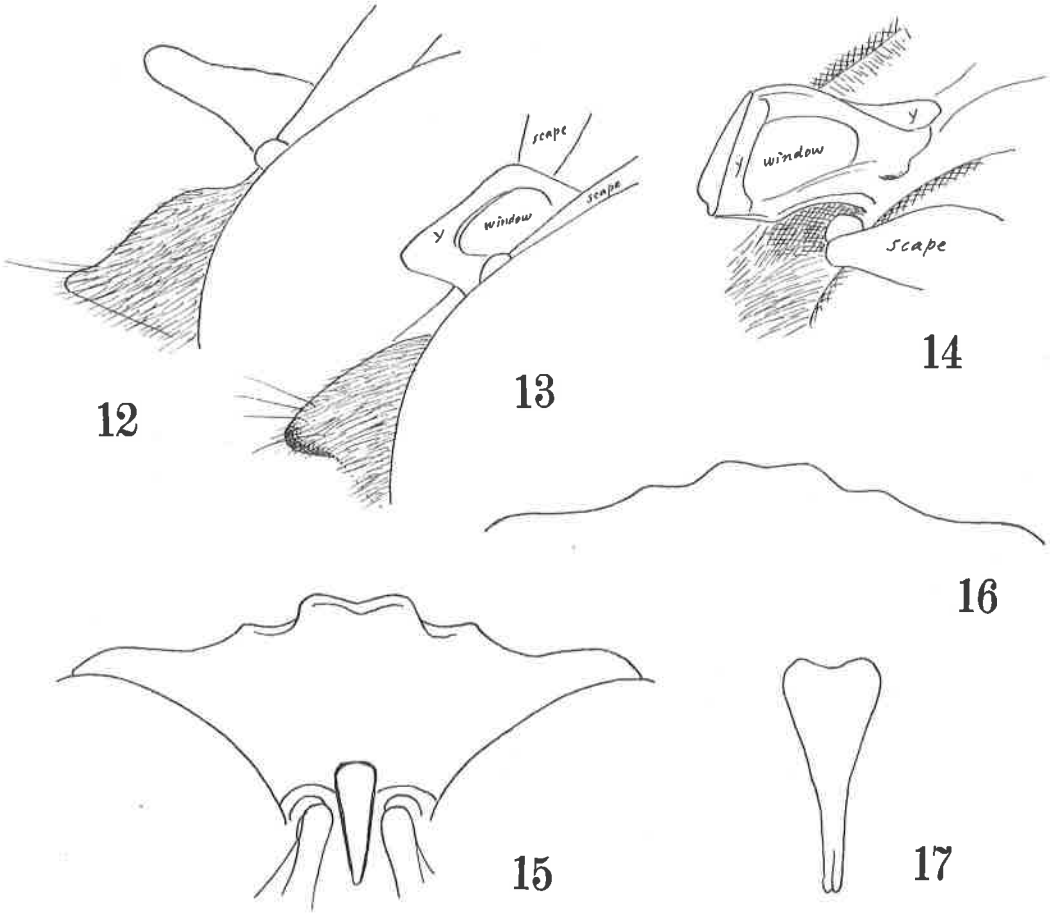
Rhopalum (Rhopalum) peterseni Tsuneki, Steenstrupia, 4: 117, 1976 (1 ♀, Tawitawi).

Remarks. Interantennal tubercle in this species is dentiform, markedly produced, seen from left side it is as given in Fig. 12.

* 17. RHOPALUM (RHOPALUM) DOMESTICUM WILLIAMS, 1928

Rhopalum domesticum Williams, Philip. Jour. Sci., 35: 101, 1928 (♀, Luzon).
Rhopalum (Rhopalum) domesticum: Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 63, 1963 (1 ♀, Mindanao, 1 ♂ Luzon, 2 ♂ Negros).
Rhopalum (Rhopalum) domesticum: Tsuneki, SPJHA, 28: 13 (5 ♀ 3 ♂, Luzon).

Specimens newly examined: 1 ♂, Palawan, Baheli, 31.III.1983, T. Tano leg.



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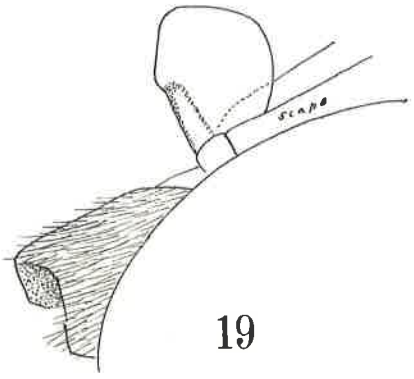
Remarks. In the present species apical margin of clypeus: Figs. 15 (♀) and 16 (♂), interantennal plate in lateral view: Fig. 13, in oblique lateral view to observe the full form: Fig. 14, ground colour translucent whitish, including a large transparent window, y shows yellow coloured area, in vertical view as in Fig. 15, apical margin sometimes entire as in this, but sometimes emarginate or incised (Fig. 17).

The specimen from Palawan differs from those of Luzon in that trochanters and femora of fore and mid legs are broadly dark brown above (in Luzon specimens sometimes fore femur brown above), gastral petiole is on basal fourth black and the usaul white turns into translucent pale brown and is restricted to less than a fourth before apical black area and the ventral ferruginous red of gaster is confined to narrow central area alone. In other characters including the interantennal plate, however, no noteworthy difference can be observed.

* 18. RHOPALUM (RHOPALUM) OVALE SP. NOV.

♂, 4.5-5.0 mm. Shining black; pale lemon yellow (near to white) are mandible largely, A1 completely, A2 beneath (above brown), humeral tubercle, (no yellow spot on tegula), basal half of G1 (translucent), from apices of coxae apically completely of fore and mid legs (except arolia), apex of hind coxa and base of trochanter and basal ring of hind tibia; antennal flagellum beneath excpet ultimate joint broadly yellowish, tegula and basal plate of wing translucent pale brown, the latter with a large dark brown mark at the centre, rest of hind trochanter brown; gaster at central part and at apex beneath ferruginous red, the red extended dorsally between GT2 and 3 to form narrow band. Hair on clypeus silvery.

Apical margin of clypeus: Fig. 18, disc medianly not carinate, interantennal plate in lateral view (from left side): Fig. 19, it is translucent pale brown in colour, without transparent window; OOD:Od:POD=10:7:4, fore ocellus slightly smaller than others, frontal furrow distinct, stronger at verge to scapal basin where both sides appear roundly



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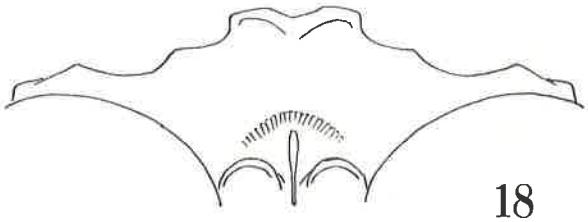

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elevated, occipital carina low and very weak, gradually disappeared before reaching hypostomal carina. A3,4,5 subequal in length, each slightly longer than wide, on A6 and on any of the following joints there is no excavation and prominence beneath. Pronotal collar on anterior margin bluntly, thickly raised and medianly distinctly incised, lateral corners rounded, prescutellar furrow broad and deep, with bottom line not foveolate, postscutellar furrow deep, lunate in form, with bottom line minutely crenate, on mesopleuron no trace of omaulus present, but episternal furrow deep and strongly foveolate, precoxal carina absent, but mesocoxal socket rim highly raised above and in dorsal view appearing highly toothed; area dorsalis not enclosed, medial furrow comparatively broad and deep, sometimes margined on both sides with fine carinae, the area at base transversely, irregularly and not strongly foveate, posterior inclination medianly deeply furrowed as usual, lateral carinae confined to sides of extreme apical area alone. G1 slightly shorter than hind trochanter and femur combined (30:35), when length is 30 relative widths at base, at minimum before spiracles, at maximum (at a fourth from apex) and at apex =6:4:9:5. Pygidial area nearly trapeziform, with sides gently outcurved and finely and weakly carinate; legs without modification.

♀, unknown.

Holotype: ♂, Mindanao, Bukidnon, Sungco, 28-29.VII.1983, T. Murota leg. (Coll. Tsuneki).

Paratype: 1 ♂, Palawan (Iwahig), 30.III.1983, T. Tano (Coll. Tano).

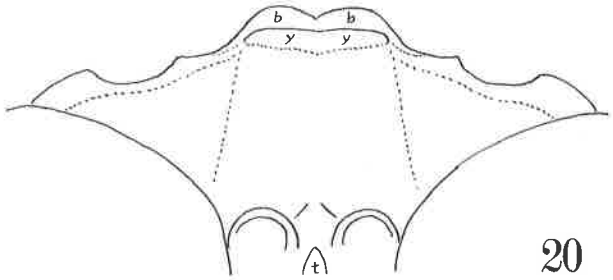
19. RHOPALUM (RHOPALUM) PARCIMONIUM LECLERCQ, 1963

Rhopalum (Rhopalum) parcimonium Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 68, 1963 (1 ♂, Luzon).

20. RHOPALUM (RHOPALUM) BUKIDNON SP. NOV.

♀. 5.5 mm. Black; pale yellowish white are mandible except brownish apical area, a narrow band just behind medio-apical margin of clypeus (Fig. 20, y), A1 completely, A2 except pale brown dorsal side, A3-12 beneath, apical margin of nape region of pronotum which is hidden in the normal posture of the wasp under head, a spot on translucent pale brown tegula, broad basal plate of fore wing completely, small one of hind wing, G1 on basal half, fore and mid legs from apices of coxae completely except black arolia, apex of hind coxa, base of hind trochanter and basal 2/5 of hind tibia; rest of hind trochanter and hind tibial spurs brown; gaster from apical part of GS2 apically ferruginous red beneath, the red forming a band at intersegmental areas of GT2-3, 3-4 and 5-6, and sides of GT6 also wholly red, pygidial area brown, a flat subquadrate small patch at base in middle of GT2 also red, appearing like a window. Hair on clypeus silvery.

Ocellar triangle slightly lower than the equilateral, fore ocellus slightly smaller, ocellar area gently depressed and flattened, OOD: Od:POD=10:6:4, frontal furrow fine but distinct, occipital carina runs close to hypostomal carina, interantennal tubercle small, subtriangular, not highly raised, covered with silvery hair, quite inconspicuous, clypeus: Fig. 20 (b brown, y yellow, t interantennal tubercle), with colouration very remarkable (? constant) median area of disc within the dotted lines roundly elevated; A3 slightly shorter than A4 which is as long as A5, A3=AW×1.3, A4,5=AW×1.5, pronotum with antero-lateral corners rounded, central area transversely raised and interrupted in middle by the longitudinal furrow, prescutellar and postscutellar furrows broad and deep, the latter lunate in form, both not foveolated at bottom, area dorsalis of propodeum not margined, but with distinct medial furrow, lateral carinae of the segment only at apical part of posterior inclination defined, side divided by an oblique line into two parts, anterior ventral and posterior dorsal, the former depressed and flat, the latter on anterior half raised and on posterior half depressed, the dividing line at posterior half finely carinate and distinct; G1 with relative width at base, at minimum, at maximum (located at a fourth of total length from apex) and at apex, when its length is 30, 6:4.5:9:5.5, under the same scale hind-trochanter+femur= 33; pygidial area nearly equilateral triangle in form, apex minutely rounded, with lateral margins straight and finely carinated; hind tibia strongly clavate, with about 10 strong spinules on outer side; transverse radial vein of fore wing oblique to costa.



20

Punctures on head very fine and sparse, on mesoscutum much stronger and closer, the difference is very marked, mesopleuron and dorsal part of propodeal side smooth and polished, metapleuron below and ventral part of propodeal side bluntly, feebly and longitudinally striate, area dorsalis smooth and shining, on basal weak furrow not foveolate, pygidial area mat.

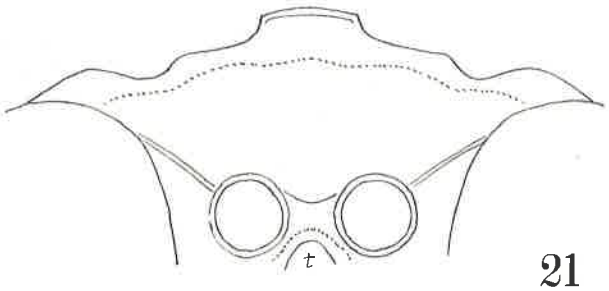
♂, unknown.

Holotype: ♀, Mindanao, Bukidnon, Sungco, 28-29.VII.1983, T. Murota leg. (Coll. Tsuneki).

* 21. RHOPALUM (RHOPALUM) BAGUIONE SP. NOV.

♀. 5.5 mm. Black; pale yellowish white are mandible except apical brownish red, Al, pronotal tubercle, a minute spot on tegula, basal half of Gl, fore leg except extreme base of coxa and arolium, mid leg except basal half of coxa and arolium and apical half of coxa, basal half of trochanter and broad basal ring (more broadly extended on inner side) of hind leg. Antennal flagellum sparrow brown, paler beneath, tegula translucent pale brown, almost clear hyaline, basal plates of wings yellowish brown, of which fore wing plate has a large central brown mark, gaster except whitish area almost completlly ferruginous red beneath, the red extended dorsally at intersegmental areas of GT2-3 and 3-4 to turn to a narrow band respectively and covers completely G6. Hair on clypeus silvery.

Ocellar disposition as in bukidnon, fore ocellus almost similar in size to hind ones, depression of ocellar area weaker than in this species, frontal furrow broad and weak, OOD:Od:POD=10:6:5, occipital carina very weak and disappeared without approaching hypostomal carina, clypeus: Fig. 21, apical marginal area broadly smooth and polished, without medial carina on disc, antennal socket rims distinctly separated from inner orbits and from each other, interantennal tubercle (t in the Figure) very low, very indistinct. A3<4=5, A3=AW×1.2, A4,5=AW×1.8. Pronotal collar at anterior margin bluntly ridged and medianly interrupted with furrow, the anterior ridge narrowed, lowered and ended at each side, but in some condition lateral corners appear slightly produced sideways, pre- and postscutellar furrows generally as in bukidnon, but the latter not so widened as lunate in form, on propodeum area dorsalis and lateral carinae as in bukidnon, the former at base obliquely, coarsely striate, side of propodeum divided into two parts as in bukidnon, but here the separating line is strongly sinuate and the posterior carinate part shorter. The form of Gl also similar, but in length Gl=hind trochanter+femur; pygidial area in form equilateral triangle, lateral margins straight and finely, weakly carinate; hind tibia similar, transverse cubital vein of fore wing almost perpendicular to costa.



21

Punctures on upper frons distinct and close, while on mesoscutum slightly weaker, though similarly distinct and close, with surface more shining, mesopleuron below sparsely covered with very minute piliferous points, metapleuron more distinctly, but sparsely punctured, side of propodeum smooth and polished, pygidial area mat.

♂, unknown.

Holotype: ♀, Luzon, Baguio-City, Mines View Park, 26.III.1978, T. Murota leg. (Coll. Tsuneki).

22. PIYUMOIDES NARCISSUS LECLERCQ, 1963

Piyumoides narcissus Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 63, 1963 (2 ♀, Mindoro and Samar).

23. PIYUMA BUTUANA LECLERCQ, 1963

Piyuma butuana Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 59, 1963 (♀ Sibuyan, Negros, Mindoro; ♂ Mindanao and Borneo).
Piyuma butuana: Tsuneki, SPJHA, 28: 20, 1984 (3 ♀ 2 ♂, Mindanao, 1 ♂ Luzon).

* 24. PIYUMA PROSOPOIDES MAKILINGI (WILLIAMS, 1928)

Crabro makilingi Williams, Phil. Jour. Sci., 25(1): 100, 1928 (♀ Luzon).

Piyuma makilingi: Leclercq, Bull. Ann. Soc. R. Ent. Belg., 87(1): 51, 1951.
Piyuma makilingi: Leclrrcq, Ibid., 99(1): 59, 1963 (6 ♀ Basilan, 1 ♀, Mindanao, 1 ♀, Negros).
Piyuma prosopoides makilingi: Tsuneki, Steenstrupia (Copenhagen), 4: 108, 1976 (2 ♀ 1 ♂, Tawitawi).
Piyuma prosopoides makilingi: Tsuneki, SPJHA, 28: 19, 1984a (12 ♀ 15 ♂ Luzon, 7 ♀ 18 ♂ Mindanao, 2 ♀ Negros).

Specimens newly examined: 3 ♀ 1 ♂, Mindanao (Bukidnon: Sungco, Palirig; Lanao der Sur: Malawi), 3 ♀ 4 ♂, Palawan (Puerto Princesa, San Rafael, Aborlan, Calacuasan) 28.VII-1.VIII.1983 and 25.III.-1.IV.1983.

Remarks. In maculation no difference is observed between the specimens from Mindanao and from Palawan (the female with legs broadly maculated with yellow and the male bears the maculae of the legs much less developed than in the female).

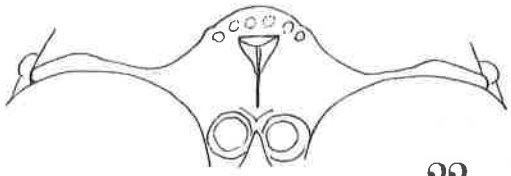
The male genital organs of this species are characteristic in that the paramere is densely covered beneath with soft pale ferruginous pubescence.

* 25. PIYUMA MINDANAONIS SP. NOV.

The present species (♂) is similar in appearance to P. prosopoides makilingi (Williams), having the completely black gaster and broadly black legs, but morphologically in the structure of the clypeus, antenna, G1 and genitalia rather close to P. butuana Leclercq. However, it differs from butuana not only in colouration, but also in the structure of the male genitalia, namely, here the genitalial paramere lacks the fringe of such strong hair as observed in butuana.

♂, 4.5 mm. Black; yellow are A1, collar and tubercle of pronotum, anterior half of tegula, a broad band on scutellum, apices of femora (in fore extended basally beneath), fore and mid tibiae completely, hind tibia except apical black mark and all T1-2; rest of tarsi except black arolia, mandible apically broadly, antennal flagellum beneath, rest of tegula (translucent) and basal plates of wings pale brown, wings hyaline. Hair on clypeus silvery, genae beneath without such tuft of long hair as observed in prosopoides makilingi.

Head seen from above similar in form and ocellar characters to the two species compared, but supraorbital foveae are here much less distinctly outlined, clypeus: Fig. 22, similar to butuana in that apical margin of median lobe is broadly roundly produced anteriorly, with a median carina and its apical lamina on disc, but differs in the lack of lateral angles of apical margin in the present species, marginal punctation also different, here punctures stronger, larger, forming a transverse series and not irregularly scattered. Antenna similar to that of butuana in that A5-11 not produced at each apex to form a serrate margin and A13 not dilated, enlarged and obliquely truncate at apex (as done in prosopoides makilingi), but differs from butuana slightly in that at median area slightly more strongly incrassate - apparently apically much slenderer. Mandible bidentate at apex, with a blunt tooth on inner margin, occipital carina not reaching hypostomal carina and gradually lowered apically; precoxal carina of mesopleuron as in compared species, at lower end turned forward, enclosing a small pit, but not extended further. On propodeum area dorsalis not enclosed (in butuana enclosed with very weak fine furrow and in makilingi obscurely margined with dotted line), lateral carina distinct, reaching close to spiracles; G1 slightly longer than wide at apex, but not constricted between G1 and 2 as done in markilingi, in this respect it is similar to butuana. Paramere of genitalia not covered beneath with long dense pubescence as in makilingi, not fringed with long stiff hair as in butuana, only with a few hairs on inner margin beyond middle.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Upper frons finely (but not very finely), fairly closely punctured, punctures rather indistinct in outline, mesoscutum slightly more largely, more strongly and distinctly punctured, mesopleuron similarly, but much more sparsely punctured, area dorsalis smooth and polished, with a few scattered fine punctures, but punctures gradually increased outwards and on lateral areas fairly close.

♀, unknown.
Holotype: ♂, Mindanao, Bukidnon, near Malaybalay, 26 or 30.VII.1983, T. Murota leg. (Coll. Tsuneki).

26. CROSSOCERUS (ABLEPHALIPUS) NOONADANUS TSUNEKI, 1976

Crossocerus (Ablephalipus) noonadanus Tsuneki, Steenstrupia (Copenhagen), 4: 110, 1976 (1 ♂, Palawan, 12 figs.).

27. CROSSOCERUS (PAROXYCRABRO) SOTIRUS LECLERCQ, 1963

Crossocerus (Paroxycrabro) sotirus Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 3, 1963 (2 ♀, Mindanao, no fig.).

28. CROSSOCERUS (PAROXYCRABRO) MEGACEPHALUS TSUNEKI, 1976

Crossocerus (Paroxybelus!) megacephalus Tsuneki, Steenstrupia, 4: 109, 1976 (1 ♀, Tawitawi).

29. CROSSOCERUS (CROSSOCERUS) APONIS TSUNEKI, 1984

Crossocerus (Crossocerus) aponis Tsuneki, SPJHA, 28: 17, 1984a (1 ♀ 6 ♂, Mindanao, figs. of clypeus and male genitalia).

30. CROSSOCERUS (CROSSOCERUS) SLIMMATUS LECLERCQ, 1963

Crossocerus (Crossocerus) slimmatus Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 9, 1963 (1 ♂ 1 ♀, Luzon, no fig.).
Crossocerus (Crossocerus) slimmatus: Tsuneki, SPJHA, 28: 18, 1984a (5 ♀ 18 ♂, Luzon).

31. CROSSOCERUS (CUPHOPTERUS) APOSANUS TSUNEKI, 1984

Crossocerus (Cuphopterus) aposanus Tsuneki, SPJHA, 28: 14, 1984a (1 ♂, Mindanao, Mt. Apo, 7 figs.).

Remarks. This species is exceptional to Cuphopterus in having a well developed precoxal tooth on mesopleuron. In the original description figures of clypeus, mandible, GS7, hind coxa, fore femur, tibia and T1 are given.

* 32. CROSSOCERUS (BLEPHARIPUS) NITIDICORPUS PHILIPPINICUS SSP. NOV.

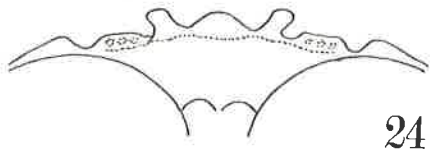
Crossocerus (Coelocrabro) nitidicorpus Tsuneki, Etizenia (Fukui Univ.), 30: 11, 32, 1968 (2 ♂ 6 ♀, Formosa); – : Tsuneki, Ibid., 51: 15, 1971 (23 ♀, Formosa).
Crossocerus (Blepharipus) nitidicorpus: Leclercq, Bull. Ann. Soc. R. Belg. Ent., 109: 288, 1973 (1 ♂, Formosa).

The Philippine race (♀) newly discovered differs from the nominate species occurring in Formosa in that the body is slightly smaller, colouration slightly more melanic and apical margin of clypeus medianly incised to qudridentate structure.

♀, 5.0 mm. Black and shining; pale yellow to white are mandible on basal half of outer side, Al, a line on collar, tubercle, a line at posterior margin of basal plate of fore wing, outer side of fore and mid tibiae, basal half of hind tibia, fore T1-2, mid T1 and basal half of hind T1; mid tibial spurs pale yellowish, hind ones ferruginous, while fore one dark brown, palpi yellowish ferruginous, tegula translucent dark brown, wings almost clear hyaline. Hair on clypeus silvery.
OOD:Od:POD:OCD=5:4:3:11, supraorbital foveae weakly defined, gently concave, located obliquely in front of hind ocelli, each nearly semicircular, or top-rounded isosceles rectangled triangle, with straight basal line directing obliquely forwards and

inwards, frontal furrow comparatively broad and deep, triangular in cross section, with fine bottom line, clypeus: Fig. 23 (cf. Fig. 24 in nominate race), mandible tridentate at apex, A3,4,5 with relative length 8,5,4, A3=AW×2; occipital carina comparatively high, reaching very close to hypostomal carina which is V-shaped, with bottom rounded; pronotal collar with lateral corners distinctly angulate, ante-coxal propleural tubercle toothed, on mesopleuron precoxal tooth absent, on propodeum area dorsalis distinctly enclosed with fine, but deep, crenate furrow, medial furrow broad and deep, but not well outlined, lateral carinae of propodeum defined only on apical half of posterior inclination, G1 longer than wide at apex (5:3), GT2 at medio-basal half deeply roundly hollowed as in nominate race, opaque areas of GS2 very indistinct, not opaque, feebly defined as comparatively large rounded and flattened areas, pygidial area normal, with basal elevation only gentle.

23



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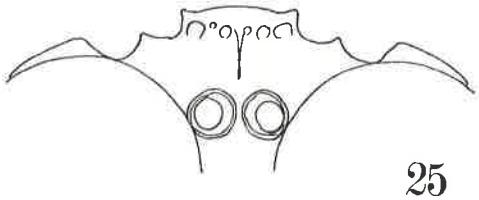

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Head above very finely and very sparsely punctured, mesoscutum finely (but somewhat larger than on frons) and sparsely punctured, prepectus covered with appressed short silvery hair, area dorsalis at base distinctly foveolate, disc polished, GT1-2 polished, GT3,4,5 except apical marginal areas finely and closely punctured.

♂, unknown.

Holotype: ♀, Mindanao, Bukidnon, Sungco, 28-29. VII.1983, T. Tano leg. (Coll. Tsuneki).

* 33. CROSSOCERUS (BLEPHARIPUS) MINDANAONIS SP. NOV.

The present species is similar in appearance to the preceding species, differing from it, however, in many characters as given in the key, especially characteristic is the presence of a strange spatuliformed process beneath head, behind oral fossa at the mid point of the line connecting both the ends of the occipital carina; it is about half the length of fore T1.

♀, 4.0-4.5 mm. Shining black, pale orange yellow are mandible largely, palpi, A1 except inner dorsal short stripe, medianly constricted and finely interrupted band on collar, tubercle, a spot on tegula, posterior marginal lines of basal plates of fore and hind wings, a spot on scutellum (in paratype lacking), a line on postscutellum, articulations of coxae-trochanters-femora-tibiae of all legs, outer side of fore and mid tibiae, basal half of hind tibia, fore and mid tibial spurs, fore and mid T1-4 and hind T1-3; hind tibial spurs and spines of yellowish joints of tarsi pale brown, tegula translucent brown, wings hyaline and hair on clypeus silvery.

OOD:Od:POD:OCD=5:3:2:7, supraorbital foveae elongate triangular, much longer than in preceding subspecies, frontal furrow distinct, deep, clypeus: Fig. 25, disc with a weak median carina, A1 ecarinate, A3,4,5 in relative length 5,4,5, A3=AW×1.4, mandible bidentate at apex, inner margin with a very small triangular prominence before middle, practically without tooth, occipital carina highly raised, ending at the lower margin of the occipital inclination towards occipital foramen, the strange spatulate process present behind oral fossa; each lateral half of pronotal collar gently roundly produced anteriorly, with lateral corners distinctly angulate and shortly pointed, ante-coxal process of propleuron long, slender, rather spinose; on mesopleuron precoxal tooth distinct. Propodeum with lateral carinae, reaching sides of dorsal aspect, but ending far from spiracles, area dorsalis not enclosed with furrow or carina, median furrow broad and weak; G1 about as long as wide, GT2 without medio-basal hollow, GS2 with distinct opaque areas, large, rounded and completely opaque, pygidial area normal

but with basal elevation much higher than in nitidicorpus philippinicus and more close-punctured.

Head above very finely and very sparsely punctured, markedly polished, mesoscutum and scutellum feebly microcoriaceous and very sparsely superimposed with fine (but much larger than on frons) punctures, the microsculpture is in paratype fairly distinct, but in holotype weaker, only under high magnification defined, with surface fairly strongly shining, mesopleuron smooth and polished and very finely, very sparsely punctured, only on postero-ventral area longitudinally, very closely striolate, but prepectus is closely covered with fine piliferous punctures; dorsal area of propodeum smooth and polished except basal series of foveoles, posterior inclination and sides microcoriaceous, on both stronger posteriorly and on the former transversely and arcuately striate in addition; gaster very finely and sparsely punctured, practically impunctate, on GT5 punctures slightly distinct.

♂, unknown.

Holotype: ♀, Mindanao, Bukidnon, Sungco, 28-29.VII.1983, C. Nozaka leg. (Coll. Tsuneki).

Paratype: 1 ♀, same as above, leg. T. Murota (Coll. Murota).

34. CROSSOCERUS (APOCRABRO) AETA PATE, 1944

Crossocerus (Apocrabro) aeta Pate, Lloydia, 6(4): 285, 1944 (♀, Mindanao, Mt. Apo).
Crossocerus (Apocrabro) aeta: Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 4, 1963 (1 ♀, Negros; other localities: N. Borneo, Java, Malaya, S. India).
Crossocerus (Apocrabro) aeta: Tsuneki, SPJHA, 28: 15, 1984a (2 ♂, Mindanao, Mt. Apo, 1 ♂, Luzon).

* 35. EUPLILOIDES ALBOCOLLARIS (ASHMEAD, 1904)

Rhopalum albocollaris Ashmead, Proc. U. S. Natn. Mus., 28: 130, 1904 (♀, recte ♂, Luzon).

A. EUPLILOIDES ALBOCOLLARIS ALBOCOLLARIS (ASHMEAD, 1904)

Crossocerus (Eupliloides) albocollaris albocollaris: Pate, Proc. U. S. Natn. Mus., 48(3): 56, 1946 (♀ ♂, Luzon).
Crossocerus (Eupliloides) albocollaris: Tsuneki, SPJHA, 28: 18, 1984a (partim, including aberrant form).

B. EUPLILOIDES ALBOCOLLARIS PRINCESA PATE, 1946

Crossocerus (Eupliloides) albocollaris princesa Pate, Proc. U. S. Natn. Mus., 48(3): 57, 1946 (1 ♀, Palawan).
Crossocerus (Eupliloides) albocollaris princesa: Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 12, 1963 (♀, Mindoro, Palawan).
Crossocerus (Eupliloides) albocollaris: Tsuneki, APJHA, 28: 18, 1984a (partim).

Specimens newly examined: 1 ♂, Palawan (Baheli), 31.III.1983, T. Tano.

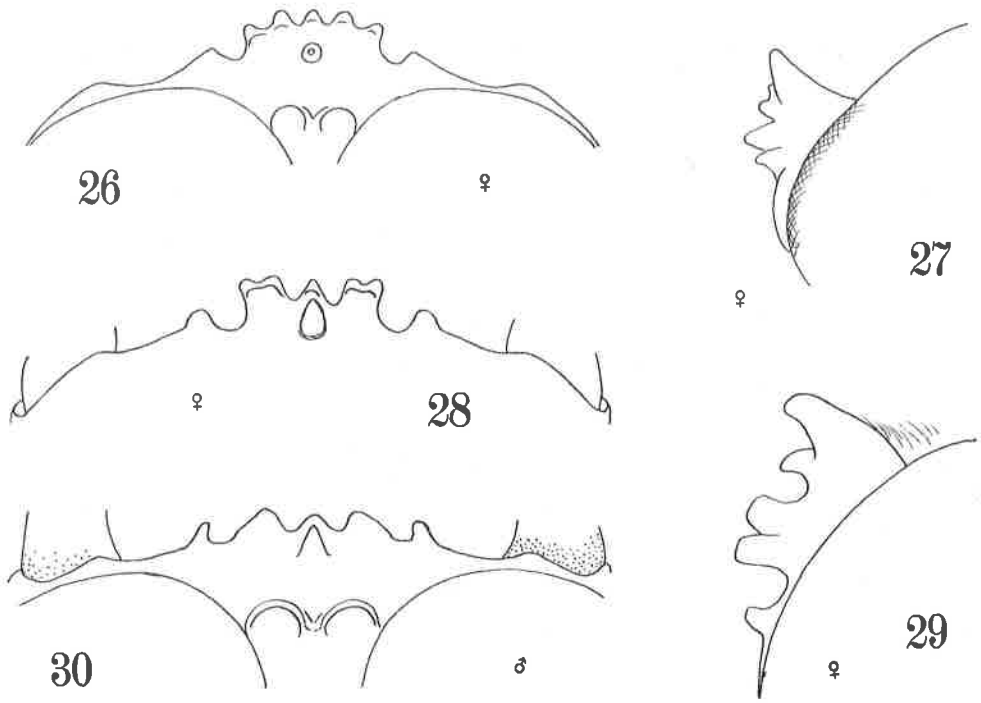
Remarks. Clypeus in albocol. albocollaris ♀: Fig. 26, in oblique lateral view: Fig. 27; in albocol. princesa ♀: Fig. 28, in oblique lateral view: Fig. 29, in ♂: Fig. 30.

36. DASYPROCTUS TOWNESI LECLERCQ, 1963

Dasyproctus townesi Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 20, 1963 (♀ ♂, Luzon, Samar, Mindoro, Negros, Sibuyan, Bililan).
Dasyproctus toxopterus Leclercq, Ibid., p. 21 (1 ♂, Mindanao).
Dasyproctus townesi: Tsuneki, SPJHA, 28: 26, 1984a (2 ♀, Luzon).
Dasyproctus toxopterus: Tsuneki, Ibid., p. 26, 1984a (1 ♂, Luzon).
Dasyproctus yorkoides: Tsuneki, Ibid., p. 27, 1984a (♂, nec ♀).

Specimens reexamined:

Normal form (= townesi): 1 ♀, Luzon, Baguio City, Mines View Park, 1.I.1980, T. Murota; 1 ♀ 1 ♂, Luzon, Prov. Laguna, Pagsanjan, 7,9.VIII.1979, H. Kurokawa; 5 ♂, Luzon, Asin Spa, 16 km from Baguio, 2,5.I.1980, T. Murota; 1 ♂, Mindanao, Cagayan de Oro, Makahambus Cave, 15-16.VIII.1980, T. Murota.



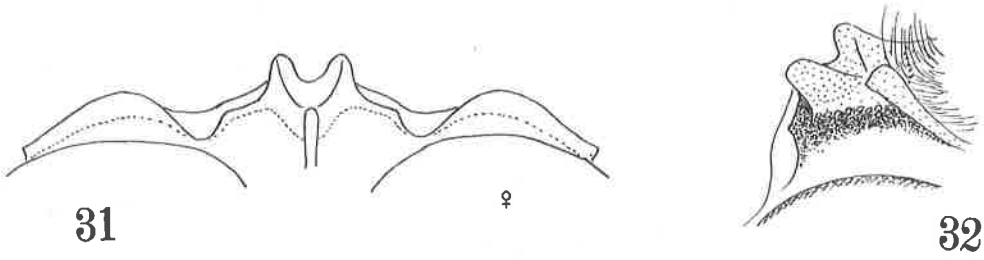
Figs. 26-30. Eupliloides albocollaris (Ashmead), clypeus (26, 27: nominate form; 28-30: ssp. princesa Pate)

Melanic form (= toxopterus): 1 ♂, Luzon, Prov. Laguna, Pagsanjan, 7-9.VIII. 1979, H. Kurokawa; 1 ♂, Mindanao, Cagayan de Oro, Makahambus Cave, 15-16.VIII.1980, C. Nozaka; 2 ♂, Mindanao, Bukidnon, Malaybalay, 800 m, 13.VIII.1980, T. Murota.

Remarks. The male specimens listed above except one were errorneously recorded as yorkoides ♂ in No. 28 of the present publication.

The fact that so-called toxopterus is only the melanic form of townesi ♂, as suggested by Leclercq and myself, is confirmed by the detailed comparison of the morphological characters including the male genital organs (paramere comparatively short, with sparse fringe of long hair), as well as by the same collecting data.

Apical margin of clypeus: Fig. 31, medial carina on disc raised into a blunt to tooth at the end, seen obliquely from left side: Fig. 32.



37. DASYPROCTUS VAPORUS LECLERCQ, 1963

Dasyproctus vaporus Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 22, 24 (key), 1963

(♀, Mindanao, Luzon - aberrant form of yorkoides)
Dasyproctus yorki: Leclercq (nec 1956), Ibid., p. 25, 1963 (♀ ♂, Luzon, Mindoro, Panay, Samar, Negros, Mindanao).
Dasyproctus yorkoides Leclercq, Bull. Soc. R. Sci. Liège, 1-2: 109 (key), 122, 1972 (♀ ♂, Luzon, Mindanao, Leyte, Palawan).
Dasyproctus sculpturatus Tsuneki, Steen-strupia, 4: 113, 1976 (♂, Tawitawi, figs.).
Dasyproctus palawanensis Tsuneki, Ibid., p. 114, 1976 (♂, Palawan - ssp.).
Dasyproctus yorkoides: Tsuneki, SPJHA, 28: 27, 1984a (♀, Luzon, Negros, Leyte, Mindanao).
Dasyproctus sculpturatus: Tsuneki, Ibid., 28: 29, 1984a (♂, Mindanao, Negros, Luzon).
? Dasyproctus yorki philippinicus Tsuneki, Ibid., 28: 29, 1984a (♀, nec ♂, Luzon, Samar, Cebu).

Specimens newly examined: 23 ♀ 32 ♂, Mindanao (Bukidnon: Makahambus Cave, Sungco, Malaybalay, Talakag, Mt. View College, Talakag, Dalirig; Lanao der Sur: Marawi; Lanao der Norte: Iligan; Misamis Or.: Claveria), 26.VII.-8.VIII.1983; 5 ♀, Palawan (Aborlan, Quezon, Calacuasan, Iwahig, Puerto Princesa), 28.III.-3.IV.1983.

On D. sculpturatus, yorkoides, palawanensis, vaporus and yorki philippinicus

In the first material examined by me 74 specimens (Luzon 17 and Mindanao 57) and in the second 32 specimens (all from Mindanao) of Dasyproctus sculpturatus Tsuneki, 1976, ♂, are discovered. Strange to say, however, no female specimen bearing the similar characteristic sculpture on the head and thorax can not be discovered in the two series of materials. On the other hand, in the first material 50 specimens (Luzon 23, Negros 4, Leyte 1, Mindanao 22) and in the second 28 specimens (Mindanao 23, Palawan 5) of Dasyproctus yorkoides Leclercq, 1972, ♀, are included (7 specimens recorded as yorkoides ♂ in the first material - SPJHA, 28: 27, 1984a - are based on the misidentification). Collecting data of the specimens of both the species well agree with each other. As there is no other problematical species it seems highly probable that they are the other sex of the same species respectively, although they differ markedly from each other in the punctation or the sculpture of the head and thorax.

Upon reexamining in detail it has been made clear that yorkoides shows a considerable variation in the punctation of the head and thorax. Usually the head and thorax above are fairly closely covered with fine piliferous punctures. Very frequently, however, such surface is sparsely superimposed with very large, rounded, but shallow and superficial punctures. In some specimens such punctures become somewhat numerous and slightly deep, often the puncture-interspaces are raised to weak rugae and the surface turns to quite a different appearance - rather close to the state in sculpturatus (♂) and at the same time to the state of vaporus (♀). Certainly, in these specimens the interocular transverse carina at anterior margin of upper frons are very weak, rather vestigial, just as in vaporus ♀. Three of these specimens from Mindanao I dealt with as an aberrant form of yorkoides ♀ (SPJHA, 28, p. 29). Thus the state of vaporus is not definitely separated from the usual state of yorkoides, but is connected with it by the intermediate variations. There is no doubt, therefore, that vaporus Leclercq 1963 is only an aberration of yorkoides Leclercq 1972, but taxonomically it possesses priority and yorkoides must be replaced with vaporus. (In the following discussion, however, yorkoides is conveniently used to show the normal form and vaporus to show the aberrant one.)

Among the specimens newly collected in the Palawan there are 5 yorkoides, but no sculpturatus (♂), instead are 7 palawanensis (♂) in which the head and thorax are not so strongly and coarsely rugoso-punctate with large punctures as in sculpturatus, but fairly closely and less rugosely covered with somewhat smaller punctures than in sculpturatus (but larger than in agilis), while there is no corresponding palawanensis ♀. The fact, together with the collecting data of the specimens, shows that palawanensis is a local form of yorkoides appeared in the male of Palawan specimens. This conclusion is supported by the fact that sculpturatus and palawanensis agree well not only in the general colouration, but also in the structure of their genital organs with each other. While in yorkoides (♀) collected from Palawan no similar variation in punctation is observed, but in them the medio-apical incision of clypeus is shallower than usual and there is no tendency toward the vaporus-form (large shallow punctures mixed are unobservable).

In the typical specimens that are identified with Dasyproctus yorki ♀ as its loc-

al race, philippinicus, A2 is completely yellow, sometimes, further, even the greater part of A3 and underside of A4 and 5 also yellow, all tibiae except a streak on inner side and all tarsi largely yellow, and the sides of propodeum are much more finely and closely striate than in yorkoides; these characters well agree with the descriptions of yorki Leclercq, 1956, and differ from those of yorkoides Leclercq, 1972. However, in some specimens A2 is brown to dark brown above and tarsi broadly brown (but propodeal sides are invariably finely and closely striate). These differences are the basis for considering them as a local race. The male specieens that are considered this species differ markedly from yorkoides ♂ (=sculpturatus) in the punctation of the head and thorax, in the well developed maculation of the gastral tergites and in the comparatively finer and closer striae on the sides of propodeum (but coarser than in ♀).

These distinctions in both sexes of yorki philippinicus are apparently sufficient enough to separate it from yorkoides at the specific rank. Strange to say, however, the genital organs of this subspecies completely agree in characters with those of yorkoides (=sculpturatus) as far as confirmed under my microscope, suggesting that both are only the different forms of the same species. The suggestion is further supported by the fact that the similar tendency toward vaporus-form is also observed in yorki philippinicus ♀, some specimens show the surface sculpture of the head and thorax that is very close to vaporus ♀ or sculpturatus ♂ and in these the interocular carina above the scapal basin is certainly vestigial (in yorki and yorkoides the carina is originally weaker than usual, sometimes it is not distinctly raised, only bluntly angulated in cross section).

But, in regard to yorki I do not give the final conclusion, because I do not know the specimens of the nominate species and in this the male still remains unknown.

Remarks. In the newly examined specimens of the present species three aberrant forms(= vaporus form) are included, all from Mindanao. Their data are as follows:

1 ♀, Bukidnon, Sungco, 28-29.VII.1983, T. Murota leg.; 1 ♀, Lanao der Norte, near Iligan City, 2.VIII.1983, T. Murota leg.; 1 ♀, Lanao der Sur, Marawi City, 3. VIII.1983, T. Murota leg.

* 37b. DASYPROCTUS VAPORUS PALAWANENSIS TSUNEKI, 1976

Dasyproctus palawanensis Tsuneki, Steenstrupia (Copenhagen), 4: 114, 1976 (♂ Palawan).

Specimens examined: All from Palawan: 1 ♀, Aborlan; 1 ♀ Calacuasan; 1 ♂, San Rafael; 2 ♂, near Brooks Point; 1 ♀ 4 ♂, Iwahig; 1 ♀ 1 ♂, Quezon; 1 ♀ 1 ♂, Puerto Princesa, 23.III. - 3.IV.1983, T. Tano and T. Murota leg.

Remarks. As was suggested in the original description palawanensis is only the local race of vaporus (=yorkoides) ♂ (=sculpturatus) in which the punctures on head and thorax are distinctly smaller than in the typical race (=sculpturatus). While in ♀ which is newly discovered there is no local character in punctation, but in them the medio-apical incision of the clypeus is much shallower than in the typical race (=yorkoides → vaporus).

* 38. DASYPROCTUS YORKI PHILIPPINICUS TSUNEKI, 1984

Dasyproctus yorki philippinicus Tsuneki, SPJHA, 28: 29, 1984a (♀ ♂, figs.)
Dasyproctus puncticeps Tsuneki, Ibid., 28: 32, 1984a (1 ♂, Luzon) (SYN. NOV.)

Specimens newly examined: 1 ♀, Mindanao: Lanao der Sur, Marawi City, 1.VIII. 1983, C. Nozaka leg. (Previous records: 8 ♀ 1 ♂ Luzon, 2 ♀ 5 ♂ Cebu, 1 ♂ Leyte).

Remarks. In the specimen of puncticeps Al is broadly brownish above and this leads to misidentification.

39. DASYPROCTUS ARTISANUS LECLERCQ, 1972

Dasyproctus artisanus Leclercq, Bull. Soc. R. Sci. Liège, 1-2: 112, 1972 (1 ♂ Mindanao)

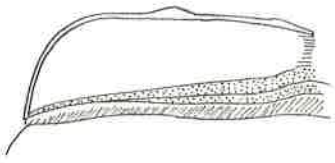
40. DASYPROCTUS PENTHERI LECLERCQ, 1956

Dasyproctus pentheri Leclercq, Bull. Ann. Soc. R. Ent. Belg., 92: 160, 1956 (♀ Ceylon)
Dasyproctus pentheri: Leclercq, Ibid., 99(1): 19, 1963 (S. India, Philippines: Manila)
Dasyproctus pentheri: Leclercq, Bull. Soc. R. Sci. Liège, 1-2: 117, 1972.

* 41. DASYPROCTUS CEVIRUS LECLERCQ, 1963

Dasyproctus cevirus Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 16, 1963 (41 ♂ 59 ♀, Negros, Panay, Samar, Leyte, Palawan, Luzon and Mindanao).
Dasyproctus cevirus: Tsuneki, Steenstrupia, 4: 112, 1976 (1 ♀ 2 ♂, Palawan and Mindanao).
Dasyproctus cevirus: Tsuneki, SPJHA, 28: 26, 1984a (16 ♀ 34 ♂, Luzon, Negros, Leyte and Mindanao).

Specimens newly examined: 6 ♂, Mindanao (Bukidnon near Malaybalay, Lanao der Sur, Marawi; Lanao der Norte near Iligan), 26.VII.-3.VIII.1983; 1 ♂, Palawan (Aborlan), 29.III.1983.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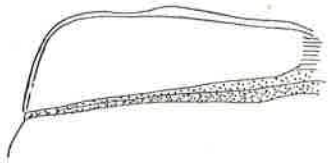
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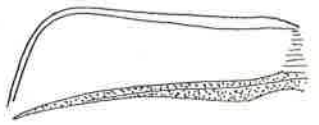
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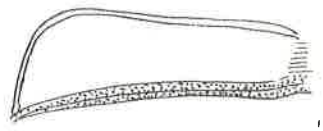
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Remarks. The characters used by Leclercq (1972) to separate cevirus from agilis (= ceylonicus Saussure) in the female sex are considerably variable in both species in the Philippine specimens and by his key the two species of the Islands can not clearly be separated. For the Philippine specimens I changed couplet 32 of his 1972 key as follows:

32 Carina at anterior margin of pronotal collar more or less minutely produced near middle of each half (Figs. 33, 34), hind Tl except pale brownish apex broadly yellow (colour of A3 not always applicable)
cevirus Leclercq, 1963 ♀

-- Carina at anterior margin of pronotal collar not produced anywhere anteriorly, sometimes straight (Fig. 35) and sometimes gently incurved and sinuate (Fig. 36), yellow on hind Tl confined at most to basal half (usually more broadly or wholly brown or dark brown, when it is pale brown it becomes darker apically)
agilis (Smith, 1858) ♀

This species is comparatively common in the Philippines.

42. DASYPROCTUS AGILIS (SMITH, 1858)

Crabro (Rhopalum) agilis Smith, Jour. Proc. Linn. Soc. London, Zool., 3: 18, 1858 (♀ Celebes).
Dasyproctus ceylonicus Saussure, Reise öst. Fregatte Novara etc., Zool., 2: 85, 1867.
Dasyproctus ceylonicus: Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 17, 1963 (♀ ♂ Philippine in distribution is an error).
Dasyproctus agilis: Leclercq, Bull. Soc. R. Sci. Liège, 1-2: 109, 1972 (ref. syn. dis. var.).
Dasyproctus agilis: Tsuneki, SPJHA, 28: 25, 1984a (49 ♀ 75 ♂ Luzon, 2 ♀ 10 ♂ Cebu, 3 ♀ 19 ♂ Negros, 36 ♀ 47 ♂ Mindanao).

Synonyms (Leclercq, 1972): orientalis Cameron, 1890; indicus Saussure, 1892; infantulus Kohl, 1894; reveratus Cameron, 1898; impetuosus Cameron, 1901; philippinensis Ashmead, 1904; funestus Turner, 1917.
Specimens newly collected: 5 ♀ 22 ♂, Palawan (Iwahig, Puerto Princesa, Inagawan,

Aborlan, San Rafael, Brooks Point, Calacuasan), 6 ♀ 15 ♂, Mindanao (Bukidnon: Talakag, Malaybalay, Makahambus Cave, Sungco; Lanao der Sur: Malawi; Lanao der Norte: Iligan), 24.VII. - 8.VIII.1983.

43. DASYPROCTUS NAGUILIANUS TSUNEKI, 1984

Dasyproctus naguilianus Tsuneki, SPJHA, 28: 32, 1984a (1 ♂, Luzon).

44. DASYPROCTUS ALBOMACULATUS TSUNEKI, 1976

Dasyproctus albomaculatus Tsuneki, Steenstrupia (Copenhagen), 4: 114, 1976 (1 ♂ Palawan).

45. ECTEMNIUS (THREOCERUS) CUERNOSI LECLERCQ, 1963

Ectemnius (Threocerus) cuernosi Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 36, 1963 (2 ♂ 1 ♀, Negros; 3 ♂, Luzon; 1 ♀, Panay).

46. ECTEMNIUS (POLICRABRO) FORESTUS LECLERCQ, 1958

Ectemnius (Policrabro) forestus Leclercq, Bull. Ann. Soc. R. Ent. Belg., 94(3-4): 107, 110, 1958 (♀ ♂, Sumatra, Malaya, Java, Borneo).
Ectemnius (Policrabro) forestus: Leclercq, Ibid., 99(1): 35, 1963 (1 ♀, Samar).
Ectemnius (Policrabro) forestus: Leclercq, Entomotaxonomia, 4(3): 147, 1982.
Ectemnius (Cameronitus) djurodzin Tsuneki, SPJHA, 28: 38, 1984a (12 figs., 5 ♂ Luzon, 1 ♀, Mindanao). (SYN. NOV.).

47. ECTEMNIUS (METACTEMNIUS) APO TSUNEKI, 1984

Ectemnius (Metactemnius) apo Tsuneki, SPJHA, 28: 34, 1984a (1 ♂, Mindanao: Mt. Apo).

48. ECTEMNIUS (APOCTEMNIUS) PHILIPPINENSIS TSUNEKI, 1976

Ectemnius (Apoctemnius) philippinensis Tsuneki, Steenstrupia (Copenhagen), 4: 106, 1976 (6 figs., 2 ♂ Palawan).

49. ECTEMNIUS (METACRABRO) FULVOPILOSELLUS (CAMERON, 1902)

Ectemnius (Metacrabro) fulvopilosellus: Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99 (1): 34, 1963 (syn. ref. redescr., 1 ♀ Negros, 1 ♂ Samar).

* 50. ECTEMNIUS (METACRABRO) IRRIDIFRONS (PÉREZ, 1905)

Ectemnius (Metacrabro) irridifrons: Tsuneki, Steenstrupia, 4: 104, 1976 (1 ♂, Bala-Bac Is.).

Specimens newly examined: 2 ♂, Mindanao: Lanao der Norte, near Iligan City, 2, 4.VIII.1983, T. Murota leg.

Remarks. The male specimens from Mindanao newly examined show slight differences from the Japanese typical one:

Marks (white as in typical) are much better developed, large or broad, present on prepectus, scutellum, postscutellum, much broader on gaster and more broadly extended on legs. Apical prominence on A10-12 beneath almost lacking and brownish tyloidea is also absent beneath; striae on mesoscutum much stronger and coarser, but on sides of propodeum much finer and closer. Thus it forms a distinct geographical race:

SSP. MERIDIONALIS SSP. NOV.

Holotype: ♂, Mindanao, Lanao der Norte, near Iligan, 2 or 4,VIII.1983, T. Murota leg. (Coll. Tsuneki).
Paratype: 1 ♂, same as above (Coll. Murota).

51. ECTEMNIUS (METACRABRO) CHRYSITES (KOHL, 1892)

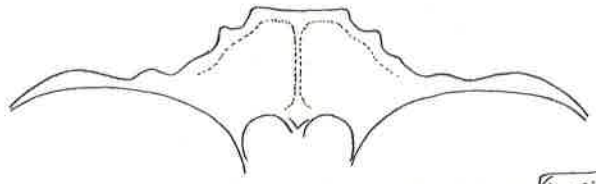
Ectemnius (Metacrabro) butuani Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 33, 1963 (1 ♂, Mindanao).
Ectemnius (Metacrabro) chrysites: Bohart and Menke, World Sphecid., p. 425, 1976 (syn. after Leclercq).
Ectemnius (Metacrabro) chrysites: Leclercq, Entomonomia, 4(3): 147, 1982.

52. ECTEMNIUS (IWATAIA) RUGOSUS TSUNEKI, 1984

Ectemnius (Iwataia) rugosus Tsuneki, SPJHA, 28: 45, 1984a (partim).

Specimens: 1 ♀, Luzon, Asin Spa 16 km from Baguio, 5.I.1980; 1 ♂, same as above (holotype); 1 ♂, Luzon, Baguio, Mines View Park, 1.I.1980; 1 ♂, Mindanao, Bukidnon, Malaybalay, 13.VIII.1980, all leg. T. Murota.

Some supplements to specific characters: Clypeus: Figs. 37 (♀) and 38 (♂). In ♂ pronotal collar in posterior view: Figs. 39 and 40. Frons flat, medianly more or less distinctly furrowed and gently raised toward sides, as a result in-



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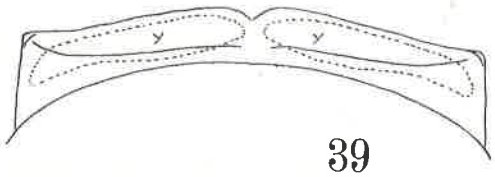

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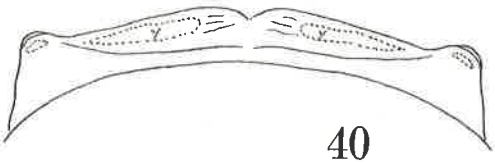

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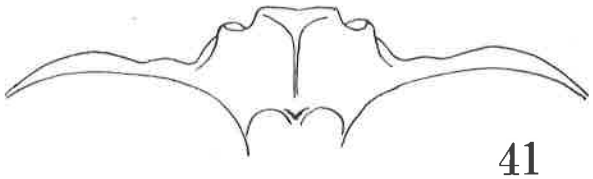
ner margin of supraorbital foveae becomes higher than outer margin which is contiguous to inner orbit. This difference in height is especially marked at enterior end of the fovea, seen from posterior side surface of the fovea obliquely roundly elevated inwards, thus anterior margin of frons appears somewhat tuberculate on each side, just as given by Leclercq (1963) regarding the Philippine males of bogorensis, but the present species is not bogorensis.

* 53. ECTEMNIUS (IWATAIA) RUGOSELLUS SP. NOV.

Ectemnius (Iwataia) rugosus Tsuneki, SPJHA, 28: 45, 1984a (partim).

In my previous paper the specimens of the present species were considered to be within the range of variation of rugosus, but further studies could confirm that they were separable into two groups based upon the characters of punctation and sculpture of the body and colour of the legs, as given in the key. So the detailed comparative

study of the male genital organs was made. It revealed that the paramere in the second group is slightly shorter (twice as long as penis valve, in rugosus slightly more than twice as long as wide) and slightly broader than in rugosus (rather intermediate between rugosus and makahambus). Hereupon the second group was raised to a separate species.



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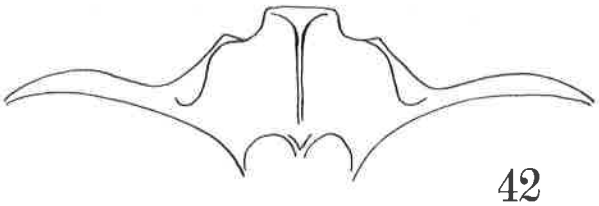

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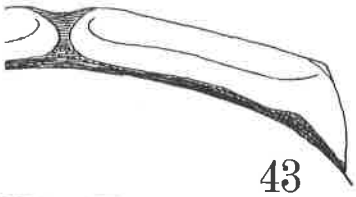

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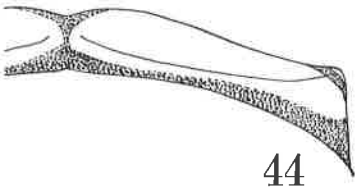

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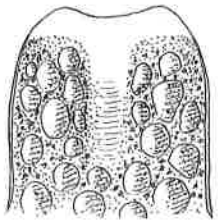

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Some supplements:

Clypeus: Figs. 41 (♀), 42 (♂), pronotal collar in posterior view (right half): Figs. 43 (♀) and 44 (♂), pygidial area (♂): Fig. 45. OOD:Od: POD:OCD=10:5:7:17(♀) and =10:5:9:16(♂), abscissa 1:2 of cubitus =20:5-6(♀), =20:6-6.5(♂). Characteristic structure of frons and supraorbital foveae is as in rugosus ♂

Holotype: ♀, Luzon, Prov. Laguna, Pagsanjan, 7-9.VIII.1978, H. Kurokawa leg. (Coll. Tsuneki).

Paratypes: 1 ♀, Mindanao, Bukidnon, Malaybalay, 13.VIII.1980; 1 ♂, same as holotype; 2 ♂, Mindanao, Cagayan de Oro, Cagayan river side and Makahambus Cave, 15-17. VIII.1980, all leg. T. Murota (Coll. Murota).

54. ECTEMNIUS (IWATAIA) TARAWAKANUS TSUNEKI, 1976

Ectemnius (Cameronitus) tarawakanus Tsuneki, Steenstrupia (Copenhagen), 4: 104, 1976 (1 ♀, Is. Tawitawi).

Remarks. This species differs from bogorensis at least in the punctation of mesoscutum and should be separated from it. But the species may be in the subspecific relationships with E. rugosellus occurring in the Mindanao.

Clypeus: Fig. 46 (♀).

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* 55. ECTEMNIUS (IWATAIA) MAKAHAMBUS SP. NOV.

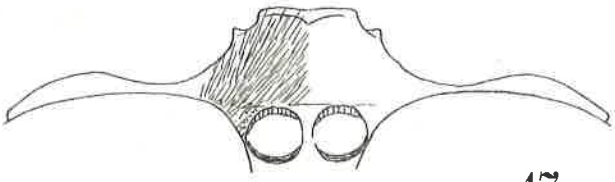
Ectemnius (Iwataia) bogorensis: Tsuneki (nec Leclercq), SPJHA, 28: 41, 1984a (partim).

♀, 9.0 mm. Black and shining, propodeum not mat; lemon yellow are a large mark on outer side of mandible, A1 completely, A2 except a black patch above, collar wholly, tubercle, prepectus, axilla, two large marks on scutellum, postscutellum, comparatively large lateral marks on GT1-5, posteriorly gradually smaller, all trochanters

at apex beneath, fore femur at apex broadly and a patch near base beneath, mid femur from apex to underside, a patch near apex of fore side of hind femur, fore T1 and mid and hind T1-2; apices of all tergites and rest of tarsi pale brown; wings hyaline, hair on clypeus silvery.

OOD:Od:POD:OCD=10:5:7:17, supraorbital foveae gently impressed, long, only slightly shorter than A1 and as wide as ocellar diameter, smooth and polished, with some fine scattered piliferous punctures within, not margined with carina or acute edge on inner side, frons flat, medial furrow very weak, roundly inclined to scapal basin, clypeus: Fig. 47, mandible comparatively short, tooth on inner margin also short, A3 slightly longer than A4, in dorsal view L=AW×2, in lateral view L=AW×1.8. Pronotal collar highly raised, bluntly ridged across middle, in posterior view: Fig. 48, tubercle semispherical, on mesosternum acetabular carina distinctly connected with epicnemial carina; propodeum with lateral carinae, reaching spiracles, area dorsalis enclosed laterally with outcurved carina and posteriorly with transverse carina, but postero-lateral corners broadly open, where the surface is crossed with strong oblique striae, medial furrow shallow and crenate; fore and mid femora broadly rounded out at base beneath, the former flat beneath. Relative length of abscissae 1 and 2 of cubitus 20:5.

Upper frons somewhat finely, fairly closely punctured, punctures anteriorly on



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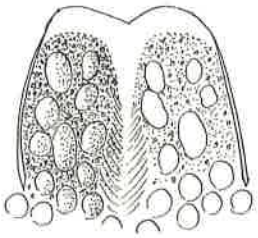

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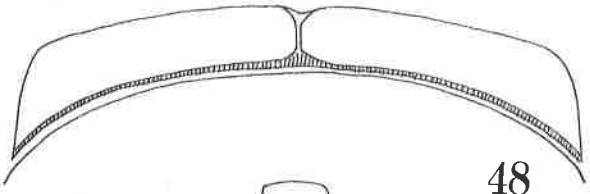

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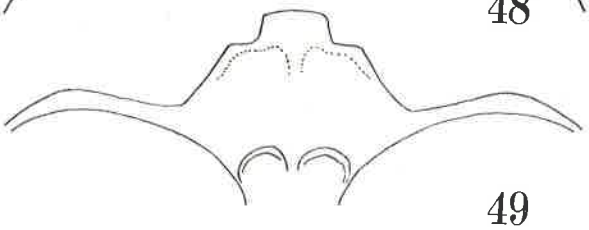

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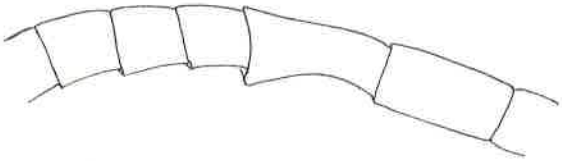

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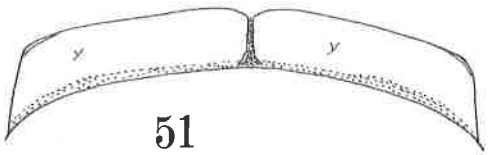

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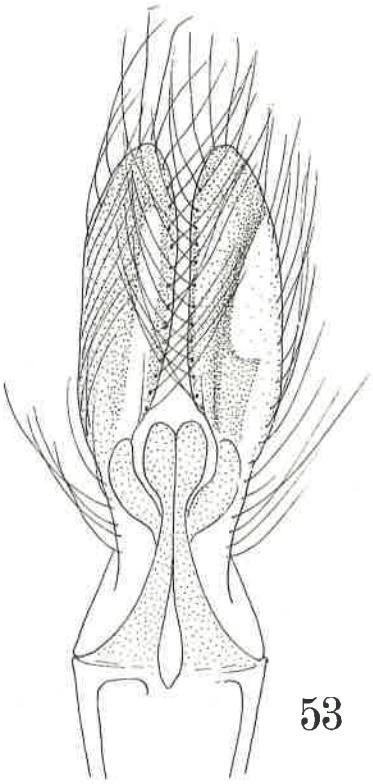

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obliquely inclined verge stronger and closer, posteriorly weaker and arranged in arcuate lines, but with intervalic rugae weak and indistinct, punctures on mesoscutum slightly larger, much stronger, antero-laterally obliquely, as a whole convergently arranged, with interspaces turned into convergent striae, on posterior area punctures are completely replaced with close longitudinal striae, scutellum anteriorly sparsely punctured, posteriorly longitudinally and closely punctate-striate; propodeum at extreme base strongly foveolate, disc of area dorsalis finely (as fine as on frons), fairly closely punctured, on medio-apical part transversely shortly rugulose, outside of area dorsalis obliquely and coarsely, posterior aspect transversely, finely and closely striate; mesopleuron somewhat sparsely (PIS > PD) covered with medium-sized distinct punctures, punctures finer upward and closer and longitudinally subrugose forward, metapleuron and propodeal side longitudinally striate, on the former somewhat coarsely and on the latter very finely and very closely so. GT1 sparsely covered with fine piliferous punctures, punctures finer than those on frons, on GT2 much finer and thence apically punctures very fine, no more than the piliferous points.

♂. Similar to ♀ in general, slightly smaller, 6-7 mm, ocellar disposition similar, clypeus: Fig. 49, mandible and the tooth on its inner margin comparatively longer, A3 with L:W similar, A3-5 with fine tyloidea beneath and A4-5 gently rounded out beneath, A6 distinctly excavated at base beneath and produced at apex (Fig. 50), A7,8 show similar tendency, but it is weaker, A12 broadly rounded at apex, but laterally compressed, in lateral view acutely pointed. Pronotal collar in posterior view: Fig. 51, pygidial area: Fig. 52, sometimes medianly deeply furrowed, sometimes medianly simply impunctate, genitalia in dorsal view: Fig. 53, legs not modified, abscissae 1 and 2 of cubitus =20:6-7. Structure of supraorbital foveae and colouration as given in the key.

Holotype: ♀, Mindanao, Cagayan de Oro, Makahambus Cave, 15-16.VIII.1980, T. Murota leg. (Coll. Tsuneki).

Paratypes: 2 ♂, same as holotype; 2 ♂, same, but Cagayan river-side, 17.VIII. 1980; 1 ♂, Luzon, Asin Spa, 600 m, 16 km from Baguio, 2.I.1980, all leg. T. Murota (Coll. Murota).

* 56. ECTEMNIUS (IWATAIA) HUKIDNON SP. NOV.

♀. Easily separable from allied species by the form of clypeus and pronotal collar. 8.5 mm. Black, without mat area, small mark on outer side of mandible, A1 in front, apical patch of fore and mid femora, basal patch of fore tibia milky white; medianly broadly interrupted band on collar, tubercle, moderate-sized lateral marks on GT2 and 3 lemon yellow, wings slightly clouded, somewhat strongly so along costa. Hair on clypeus silvery, on head and thorax above greyish black.

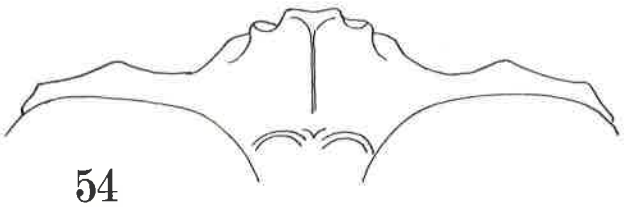
Supraorbital foveae gently impressed, not margined, smooth and shining and scattered with some minute piliferous points, slightly less in width than ocellar diameter and about 3 times as long as Od, median furrow of frons broad and fairly deep, clypeus: Fig. 54, mandible and the tooth on its inner margin comparatively short, A1 bicarinate in front, A2-5 with relative length 8,10,7,6, A3=AW×2, basally markedly narrowed, A5 slightly longer than wide, occipital carina low, running close to, but not reaching hypostomal carina. Pronotal collar in posterior view: Fig. 55, acetabular carina of mesosternum on its outer parts alone feebly defined, metapleuron at upper part markedly roundly swollen. Propodeum with lateral carinae only on apical part of posterior aspect, but the furrow accompanied with it runs upward, reaching about mid point of dorsal aspect, area dorsalis laterally shortly margined with outcurved carina and posteriorly broadly so with broad crenate furrow, leaving postero-lateral areas widely open. Gaster distinctly constricted at each intersegmental area, GT5 apically and GT6 on sides densely covered with brownish setigerous hair.

Punctation on head and thorax as given in the key; scutellum anteriorly sparsely punctured, posteriorly closely longitudinally punctate-striate. Prepectus longitudinally and coarsely rugoso-punctate. Posterior aspect of propodeum sparsely covered with gross punctures on dorsal area and on ventral area transversely rugoso-striate and punctate.

♂, 6-7 mm. Maculae white, on prepects and scutellum sometimes present and sometimes absent, small marks on gaster variable in appearance: present on GT2 alone, on GT1 and 2, or GT1-3 or on GT1-4; a mark on apical area of mid femur varied in development, streak on outer side of tibia also variable in length.

Clypeus: Fig. 56, frontal structure as in rugosus ♂, pronotal collar in posterior

view: Fig. 57, structure of area dorsalis as in ♀, but lateral carinae of propodeum, though weak and feeble, reaching spiracles, pygidial area: Fig. 58, with apical emargination always gentle and curvature of lateral carinae somewhat variable, disc medianly sometimes furrowed, sometimes only impunctate, genitalia (left half) in ventral view: Fig. 59, paramere about twice as long as penis valve, in general structure resembling those of makahambus, but the hair of fringe at inner margin markedly stronger (the hair is much thicker than shown in the figure) and it is varied from 12 to 14 in number.



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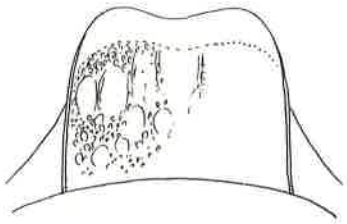

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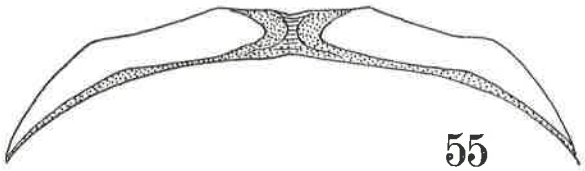

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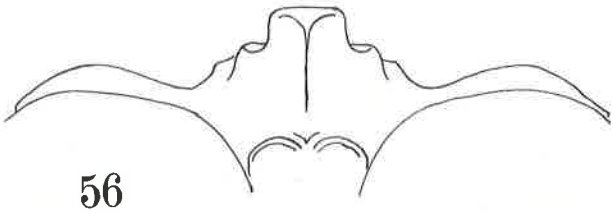

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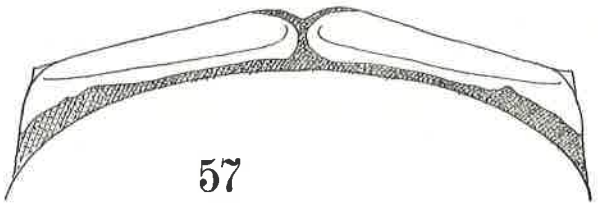

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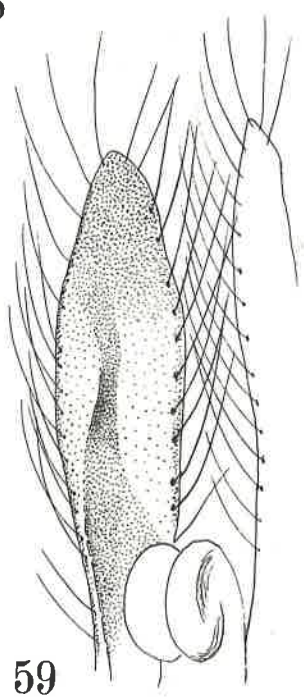

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Punctures on frons large, shallow and sparse, partly mixed with weak rugae posteriorly, anteriorly close and strong, especially on obliquely inclined area. Mesoscutum convergently punctate-striate with gross punctures as in ♀, mesopleuron also longitudinally, closely puntate-rugose, gastral punctation similar in pattern to rugosus and allied species, but generally punctures in the present species are larger and more distinct on GT3 than in these.

Holotype: ♀, Mindanao, Bukidnon, Sungco, 28-29.VII.1983, H. Kurokawa (Coll. Tsuneki).

Paratypes: All from Mindanao: 3 ♂, same as holotype; 4 ♂, Lanao der Sur, Marawi City, 1,3.VIII.1983; 1 ♂, Lanao der Norte, near Iligan City, 2,4.VIII.1983. H.Kurokawa, C. Nozaka, T. Tano leg. (Coll. each collector).

* 57. ECTEMNIUS (IWATAIA) ILIGANENSIS SP. NOV.

Ectemnius (Iwataia) rugosus Tsuneki, SPJHA, 28: 47, 1984a (other specimen: aberrant form, described in remarks)

♂, 6.0-6.5 mm. Black; lemon yellow are Al in front, medianly broadly interrupted band on collar, tubercle, axilla, minute spot on scutellum near axilla, sometimes a short band on postscutellum (in holotype lacking), sometimes a spot on each side of GT1 and 2 (in holotype lacking and in paratype on GT2 on right side alone present), sometimes a patch near apex of mid femur (in holotype lacking) and short streak on outer side of each tibia at base; wings hyaline, hair on clypeus silvery, erect hair on head above and mesoscutum greyish black, on other areas greyish white.

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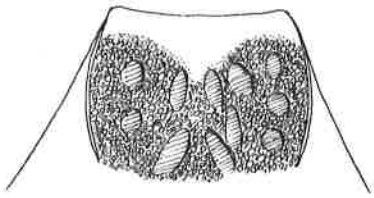

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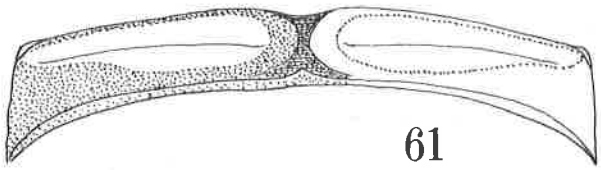

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Clypeus: Fig. 60; OOD:Od:POD:OCD=10:4:11:18, relative length of A2,3,4,5=8,10,9, 8, A6 relatively 6 and gently excavated at base and strongly produced at apex beneath, prominence stronger and more marked than in other allied species, this is partly due to that A6 is comparatively shorter, while A7 and 8 show almost no tendency of basal excavation and apical prominence, dorso-ventral compression of ultimate joint weaker than usual; pronotal collar in posterior view: Fig. 61. Propodeum with lateral carinae, reaching spiracles, area dorsalis as usual: margined at sides with short, fine curved carinae and at apex with wide crenate furrow, with interspaces of both at postero-lateral corners of the area widely open; gaster constricted at intersegmental areas as usual, pygidial area: Fig. 62. Paramere of genitalia rather close in form to that of makahambus, but with marginal bristles somewhat sparser and stronger.

Punctation of the present species was given in detail on p. 47 of No. 28 of the present Publications; to be added to that is: In paratype the striae on area dorsalis are mainly oblique and mixed with sparse fine punctures and that the gastral punctures in the present species are much stronger than in bukidnon ♂ in which they are already stronger than usual.

Holotype: ♂, Luzon, Asin Spa, 16 km from Baguio, 5.I.1980, T. Murota leg (Coll. Tsuneki).

Paratype: 1 ♂, Mindanao, Lanao der Norte, near Iligan City, 2 or 4.VIII.1983, T. Murota (Coll. Murota).

58. ECTEMNIUS (HYPOCRABRO) APOENSIS TSUNEKI, 1984

Ectemnius (Hypocrabro) apoensis Tsuneki, SPJHA, 28: 36, 1984a (1 ♂, Mindanao, Mt. Apo).

Remarks. Wings slightly clouded. Abscissae 1 and 2 of cubitus with relative length 10:4. Paramere of genitalia comparatively short, about 1.3 times as long as penis valve, with hairs of fringe comparatively short and not abundant.

59. ECTEMNIUS (CAMERONITUS) EMBELIAE LECLERCQ, 1958

Ectemnius (Cameronitus) embeliae Leclercq, Bull. Ann. Soc. R. Ent. Belg., 94(5-6): 139, 148, 1958 (♀ ♂, Java, Banka, Sumatra).
Ectemnius (Cameronitus) embeliae: Leclercq, Ibid., 99(1): 28, 1963 (♀ ♂, Panay).

* 60. ECTEMNIUS (CAMERONITUS) PAXINUS LECLERCQ, 1963

Ectemnius (Cameronitus) paxinus Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 29, 1963 (♀ ♂, Negros, Panay, Luzon).
Ectemnius (Cameronitus) nigritarsus paxinus: Tsuneki, SPJUA, 28: 38, 1984a (7 ♀ 32 ♂ Luzon, 1 ♀ 1 ♂ Leyte).

Specimens newly examined: 7 ♀ 11 ♂, Mindanao, Bukidnon (Sungco, Mt. View College, Malaybalay), 26,30.VIII.1983, T. Tano, H. Kurokawa and T. Murota.

61. ECTEMNIUS (CAMERONITUS) PETERSENI TSUNEKI, 1976

Ectemnius (Cameronitus) peterseni Tsuneki, Steenstrupia, 4: 105, 1976 (2 ♀, Palawan).

Remarks. This species may be the local race of embeliae Leclercq, 1958.

62. ECTEMNIUS (CAMERONITUS) BOGORENSIS LECLERCQ, 1958

Ectemnius (Cameronitus) bogorensis Leclercq, Bull. Ann. Soc. R. Ent. Belg., 94(5-6): 142, 151. 1958 (♀ ♂ Java, ♂ Singapore).
Ectemnius (Cameronitus) bogorensis: Leclercq, Ibid., 99(1): 26, 1963 (2 ♀ 2 ♂, Mindanao, Sibuyan, Negros).

Remarks. Based upon the descriptions and key given by Leclercq I identified twice (1976 and 1984a) some specimens of Philippine Ectemnius with bogorensis, but this seems to be misidentification, because my tolerance about the difference in the punctation on the mesoscutum between his species and mine seems to be too great. In bogorensis punctures on mesoscutum are superficial, though they tend to orient longitudinally, without rugae or striae between puncture-series, and moreover, in his species possibly there is no such distinct constriction between gastral segments as observed in mine and possibly there is no such dense long brownish hair on caudal segsegment (because no mention is made about these). Such being the case I separated my previous bogorensis from his in the present paper and dealt with the specimens as different species (tarawakanus and makahambus), placing them under subgenus Iwataia.

It seems to me, however, that in the Philippine specimens that are called by him bogorensis some closely allied ones to mine may be included, because according to him (1963, p. 27) "les femeles des Philippines se caractérisent par la poncuation mesothoracique nettement plus forte, plus grossière, avec une orientation longitudinale plus accentuée vers le milieu du mésonotum" and in the male "le front présente une particularité trés originale: la limite idéale entre le plan horizontale et le plan vertical est épaissie saillante, ... le front apparaît comme une petite bosse dépassant le bord de l'oeil", very similar to the males of rugosus, rugosellus and bukidnon. "Néanmoins le mésonotum reste dans tous les cas très brillant, avec les espaces entre les points parfaitement lisses". But his description of the Philippine specimens is inadequate (no figure) and we can not presume the true feature. In the key given later I gave characters as far as dealt with by Leclercq.

63. ECTEMNIUS (CAMERONITUS) BOLETUS GEDEHENSIS LECLERCQ, 1958

Ectemnius (Cameronitus) boletus gedehensis Leclercq, Bull. Ann. Soc. R. Ent. Belg., 94(5-6): 151, 1958 (♀ Java).
Ectemnius (Cameronitus) boletus gedehensis: Leclercq, Ibid., 99(1): 28, 1963 (♂ Luzon, Mt. San Thomas, 1980 m, near Baguio).

64. LESTICA (SOLENIUS) LUZONIA LECLERCQ, 1963

Lestica (Solenius) luzonia Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 57, 1963

(1 ♀, Luzon: Mt. Makiling).

* 65. LESTICA (SOLENIUS) CONSTRICTA KROMBEIN, 1949

Lestica (Solenius) constricta: Leclercq, Bull. Inst. R. Sci. Nat. Belg., 32(29): 5, 1956 (1 ♀, Samar).
Lestica (Solenius) constricta: Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 48, 1963 (10 ♀ 50 ♂ Luzon, Samar, Bohol, Mindoro, Negros, Mindanao, Sibuyan, Basilan)
Lestica (Solenius) constricta: Leclercq, Bull. Soc. R. Sci. Liège, 11-12: 678, 1972 (1 ♀ Luzon, 1 ♂ Leyte, 7 ♀ 3 ♂ Mindanao).
Lestica (Solenius) constricta: Tsuneki, SPHA, 28: 47, 1984a (1 ♀ 1 ♂ Mindanao, 5 ♂ Luzon, 2 ♂ Cebu, 1 ♂ Negros).

Specimens newly collected: 3 ♀ 7 ♂, Mindanao: 3 ♀ 3 ♂, Lanao der Norte, near Iligan City, 2, 4.VIII.1983; 2 ♂, Bukidnon, Sungco, 28-29.VII.1983; 2 ♂, Bukidnon, Makahambus Cave, 8.VIII.1983; 1 ♂, Misamis Or., Claveria, 6.VIII.1983, T. Tano, C. Nozaka, H. Kurokawa, T. Murota leg.

Remarks. In the females of the Philippine specimens the clypeal hair is rather silvery, only in some light partly appears brassy.

66. LESTICA (SOLENIUS) COMBINATA LECLERCQ, 1963

Lestica (Solenius) combinata Leclercq, Bull. Ann. Soc. R. Ent. Belg., 99(1): 55, 1963 (1 ♀, Mindanao: Iligan).

ABBREVIATION

Al,2	.....	Antennal joint 1, 2 ....
ACD	.....	Antenno-clypeal distance
AOD	.....	Antenno-ocular distance
AW	.....	Apical width
BW	.....	Basal width
Gl,2	.....	Gastral segment 1, 2 ...
GSl,2	.....	Gastral sternite 1, 2 ...
GTl,2	.....	Gastral tergite 1, 2 ...
HL	.....	Head length
HW	.....	Head width
IAD	.....	Interantennal distance
IODc	.....	Interocular distance at clypeus
IODm	.....	Interocular distance at middle
IODv	.....	Interocular distance at vertx
OCD	.....	Ocelloccipital distance
Od	.....	Ocellar diameter
OOD	.....	Ocellocular distance
PD	.....	Puncture diameter
PIS	.....	Puncture-interspace
POD	.....	Postocellar distance
Tl,2	.....	Tarsal joint 1, 2 ...
WAS	.....	Width of antennal socket
CLL	.....	Clypeal lateral lobe (width)
CML	.....	Clypeal medial lobe (width)
IODi	.....	Interocular distance at eye incision

ANNOTATED KEY TO THE PHILIPPINE SPECIES

1 Mandible notched externoventrally and simple at apex; ocellar triangle broader than long, GT3–4 without lateral carina, GS convex, eyes bare or with indistinct sparse hair (yellow: Al, tubercle, axilla, postscutellum, apices of fore and mid femora, whole of fore and mid tibiae and of all tarsi and outer side of hind tibia; ferruginous: apex of GT5 and whole of GT6 (♀) or apex of GT6 and whole of GT7 (♂), apical margin of other tergites frequently narrowly brownish; clypeus more or less convex, median lobe more or less produced, with a pair of teeth on each side below eye, in ♀ A3=AW×2.5, antero-lateral corner of pronotal collar raised into an obtused tooth, tubercle cone-shaped, mesopleuron very largely rugoso-punctate, PIS < PD, propodeal sides polished, dorsal part foveate-reticulate) – genus Encopognathus Kohl 2

– Mandible not notched externoventrally 3

2 Median lobe of clypeus depressed and produced in trapeziform, apex truncate and comparatively broad, two teeth on each side below eye distinct and similar in strength, disc above median lobe raised and rounded gibbous (frons strongly irregularly punctured, but with shining PIS, supraorbital fovea twice as large as ocellus, area between hind ocelli gently raised and polished, mesoscutum with punctures very large and deep, dense anteriorly and sparse posteriorly, postscutellum with platform, pygidial area reddish ferruginous, with about 20 rounded punctures, PIS shining), much less than 8 mm, Mindoro
Encopognathus (Encopognathus) alcatae Leclercq, 1963 ♀

– Median lobe of clypeus with apical margin strongly emarginate, apparently bidentate, of two teeth below eye the outer is much smaller than the inner and apical margin of clypeus in the first view appears quadridentate, disc above median lobe vaguely carinate (frons grossly punctate-reticulate, without shining PIS, supraorbital foveae very large, more than twice as large as ocellus, area between and behind hind ocelli strongly gibbous, rounded and polished, mesoscutum very grossly rugoso-punctate, mesopleuron similarly punctured, postscutellum without platform, pygidial area pale ferruginous, nearly yellow, surface longitudinally rugoso-punctate and striate), much larger than alcatae, 8 mm, Luzon
Encopognathus (Encopognathus) esoterus Leclercq, 1963 ♀

3 Scapal basin with lateral carinae which extend dorsally to turn to frontal carina 4

– Scapal basin without lateral carinae (usually frontal carina absent, rarely present) 5

4 Frontal carina developed into a downcurved lamina, sternaulus present, extended from lower end of precoxal carina (clypeus apically in middle bidentate, with a strong dentiformed lamina on disc, mandible tridentate at apex in ♀ and bidentate in ♂, without tooth on inner margin, Al acutely unicarinate, occipital carina well developed, forming a complete circle, propodeum with lateral carinae, area dorsalis enclosed with carina, surface very coarsely reticulate; yellow or white: Al in front, medianly broadly interrupted band on collar, tubercle, two spots on scutellum, postscutellum, small lateral marks on GT1–5, tibiae and tarsi partly and in ♂, further, apical mark of fore femur; hair on clypeus silvery, in ♂ on head, thorax and basal half of legs, all beneath, densely covered with long hair, especially long on mid femur beneath, mesoscutum longitudinally, strongly, closely rugoso-striate), 6–8 mm
Vechtia rugosa (Smith, 1857)

A Colour lemon yellow, punctures on head moderately fine
Vechtia rugosa rugosa (Smith, 1857)

B Colour pale yellowish white to white, punctures on head much finer and more delicate (Luzon, Sibuyan, Panay, Mindoro, Palawan, Mindanao)
Vechtia rugosa palawana Tsuneki 1976

– Frontal carina strong but simple, from sides extended weakly downward along inner orbits at scapal basin, but without medial carina (mandible with a tooth on inner margin, at apex tridentate in ♀, bidentate in ♂, clypeus with apical margin complicately duplicate – see SPJHA 28, figs. 22, 33, 34, 35 – pronotal collar flat, acutely carinate at apical margin, with lateral corners toothed, propodeum with lateral carinae, area dorsalis enclosed with carina, surface very coarsely reticulate, gaster normal, not petiolate nor constricted, ♀ with pygidial area, ♂ without; head strongly punctate-reticulate, thorax similar and

added with rugosed striae, gaster microgranulate, in ♂ antenna fringed with long hair and fore leg markedly modified; yellow: Al, lateral bands on collar, tubercle, axilla, two spots on scutellum, lateral marks on GT1-4 or -5 and fairly broadly on legs), 6.5-8.0 mm, Mindanao

Niwoh tarsatus Tsuneki, 1984

5 Palpal formula 5-3, gaster pedunculate, slender, elongate; omaulus sometimes absent, GT1 nodose at apex 6

– Palpal formula 6-4, gaster usually sessile or subsessile, omaulus present . 25

6 Omaulus shortly defined on dorsal part only, just below pronotal tubercle, mesopleuron with a deep depression behind tubercle

– genus Isorhopalum Leclercq 7

– Mesopleuron without acute distinct omaulus, at most bluntly angulate in cross section 12

7 ♀ 8

– ♂ 10

8 Median lobe of clypeus truncate at apical margin, narrow, with lateral teeth broadly separated from medial apex (pronotum without medial furrow, antero-lateral corners produced and toothed, supraantennal denticle present, straight and pointed, A2 slightly longer than A3, from A3 apically no joint longer than wide, area dorsalis strongly ruguloso-coriaceous; yellow: Al, tubercle, apices of fore and mid femora, fore tibia except a brown line, base, apex and a line on mid tibia and fore and mid tarsi; antennal flagellum brown beneath, tegula dark brown, gaster black and dark brown), 7.5 mm, Luzon

Isorhopalum mayoni Leclercq, 1963

– Apical margin of clypeus quadridentate 9

9 Of the four teeth at apical margin of clypeus medial pair much produced, each tooth shortly ridged on dorsal side, the ridge longer in lateral pair (Fig. 1), pronotum thick, with sides medianly triangularly incised, head and thorax microcoriaceous and closely superimposed with fine punctures (occipital carina slightly toothed at each end, supraorbital foveae distinct, OOD: POD:OCD=7:5:11, suprantennal denticle absent, A3 slightly longer than wide, A5 as long as wide, lateral carinae of propodeum defined only on posterior inclination, hind tibia very strongly clavate; yellow: Al in front, tubercle, fore tibia in front; ferruginous: Al above, flagellum beneath, apex of G6, apex of fore femur, rest of fore tibia, fore tarsus and mid T1; tegula and mid tibia dark brown), 6 mm, Palawan

Isorhopalum palawanense Tsuneki, 1976

– Lateral pair of apical teeth of clypeus not more retreated than the medial pair, pronotum not incised in middle of lateral margin, head and thorax very finely coriaceous, without puncture, surface mat (occipital carina without tooth at each end, A3 not or very slightly longer than wide; yellow: Al completely except a short brownish line above, fore femur at apex, fore tibia completely, mid tibia at base and apex and fore and mid T1 wholly; hind leg wholly brown; pile on head and scutum extremely short, but very dense, in some light reddish brown), 6 mm, Basilan

Isorhopalum basilanum Leclercq, 1981

10 Clypeus with a pair of strong longitudinal ridges on disc (Figs. 3 and 4) (Pronotum: Fig. 5, mandible: in Figs. 3 and 4, OOD:Od:POD:OCD=10:10:6:23, yellow: Al, tubercle, apices of trochanters, a spot at apex of fore and mid femora, a stripe on outer side of fore tibia, basal ring of mid tibia and fore T1-2 and mid T1; ferruginous: antennal flagellum beneath, fore femur apically broadly, rest of fore tibia and tarsus, apex of mid femur and of tibia and hind tibial spurs; base of hind tibia and rest of mid tarsus dark brown), 7-8 mm, Leyte

Isorhopalum leytense Tsuneki, sp. nov.

— Clypeus different in structure 11

11 Medio-apical margin of clypeus gently emarginate, disc medio-anteriorly broadly concave (Fig. 2) (Pronotum similar in structure to leytense, mandible not so different in width betwenn base and medial area, OOD:POD:OCD= 11:9:13, showing that head is much less quadrate than in leytense; yellow: Al in front, tubercle, a large apical mark on fore and mid femora behind, all tibiae except brownish inner side and fore and mid T1-3 or -4; hind

tibia at base dark brown), 5.5 mm, Palawan

Isorhopalum palawanense Tsuneki, 1976

— Medio-apical margin of clypeus narrowly truncate, with lateral teeth as in ♀, disc possibly without excavation apically in middle (Pronotum toothed at antero-lateral corners, yellow are as in ♀), 7.5 mm, Luzon

Isorhopalum mayoni Leclercq, 1963

12 Mandible with a short blunt tooth on inner margin (recurrent vein ending beyond middle of cubital cell, episternal furrow with anterior bank raised to top of short prepectus and margined with a fine carina, interantennal plate in form rhombic in vertical view, comparatively large and covered with silvery hair, apical half obliquely raised, with apex minutely incised in middle, pronotal collar at anterior margin bluntly raised, medianly triangularly incised, on lateral areas elevation acute and at each end strongly produced into a tooth, mesocoxal socket-rim acutely carinate and acutely toothed on top, propodeum with lateral carinae on posterior aspect only, area dorsalis not enclosed, G1 as long as GT2+3, strongly nodose at apex, ♂ with pygidial area, in full width of GT7, at base roundly margined with carina and on sides acutely edged, surface gently raised and at apex flatly reflected, in ♂ A3,4,5 equal in length, A3=AW×1.7, clypeus: Fig. 6, upper frons finely sparsely punctured, shining, supraorbital foveae defined, mesoscutum with plumbeous shine, finely closely punctured, but not mat; fore and mid tibiae partly and fore and mid T1-2 white, sometimes only fore tibia partly pale yellow), 9 mm, Mindanao

Crorhopalum cornicum sp. nov., ♂

— Mandible without tooth on inner margin (recurrent vein ending at middle of cubital cell, mesopleuron without omaulus)

- genus Rhopalum Kirby (s.l.) 13

13 Pygidial area of ♀ shiny, greatly narrowed and concave apically, with a distinct longitudinal carina in middle

- subgenus Calceorhopalum Tsuneki 14

— Pygidial area of ♀ dull, punctate, not longitudinally carinate in middle

- subgenus Rhopalum Kirby 15

14 Black, only fore T1-4 and mid T1-2 or -3 yellow (medio-apical margin of clypeus truncate (♀) or gently rounded out and broader (♂), interantennal tubercle small, spiniform, A3≧2<4=5 (♀), A2=3>5=6>4 (♂), in ♂ A4 not longer than wide, cylindric, A2,3,5,6 excavated beneath, fore T1 flattened, curved, narrowed apically, apex subacute, pronotum with antero-lateral corners rounded, propodeum with series of foveoles at base, interfoveolar carinae longer medially than laterally), 5.5-7.0 mm, Luzon, Negros, Leyte

Rhopalum (Calceorhopalum) canlaoni Leclercq, 1963, ♀♂

— Black, with white: A1, 2, mandible, tubercle, tegula, basal half of fore side of fore femur, whole of mid femur, fore and mid tibiae and tarsi; rest of hind tibia and hind tarsus dark brown; base of GT2, basal sides of GT3, greater part of G5 and whole of G6 reddish ferruginous (medio-apical margin of clypeus truncate, antero-lateral corners of pronotal collar angulate and slightly produced, medial furrow of area dorsalis distinct, propodeum without lateral carinae, mesoscutum finely, sparsely punctured, G1 longer than hind tibia, apical enlargement weak, transverse radial vein oblique to costa), 5.0 mm, Negros

Rhopalum (Calceorhopalum) simalurense (Maidl, 1925), ♀

15 Gaster completely black (A3 not longer than wide at apex) 16

— Gaster partly reddish or ferruginous or white 18

16 ♀ (in minusculum unknown). Medial lobe of clypeus produced, with apex gently emarginate, interantennal plate not highly raised, triangular, flat, with apex rounded, covered with silvery hair (A2=AW×1.5, longer than A3, A3 as long as wide, shorter than A4, A4≒A5, G1 with maximum-width:minimum-width ≒2:1, in length =hind trochanter+femur, transverse radial vein only slightly oblique to costa; yellow: mandible, A1, tubercle, apices of fore and mid femora, whole of fore tibia, mid tibia except brownish inner side, a line beneath hind tibia and fore and mid tarsi), 6.5 mm, Luzon

Rhopalum (Rhopalum) avexum Leclercq, 1963

— ♂ (A3,4,5 subequal in length) 17

17 Length 3 mm, mandible wholly ferruginous, fore and mid femora nearly com-

pletely black, hind tibia orange yellow, with white ring at base, medial lobe of clypeus with apex distinctly emarginate, A6 without incision beneath, G1 slightly shorter than hind trochanter+femur, hind tiba not strongly clavate, hind T1 with a spur-like spine at apex, reaching beyond middle of T2 (white: A1,2, tubercle, fore and mid tibiae and tarsi; interantennal process very short; head, thorax and propodeum completely smooth and polished), Basilan

Rhopalum (Rhopalum) minusculum Leclercq, 1963

--- Length 6 mm, mandible largely yellow, fore and mid femora yellow except brown above and beneath, hind tibia except yellow streak beneath black and without basal ring; medial lobe of clypeus gently rounded out, A6 excavated at base and produced at apex beneath, G1 as long as hind trochanter+femur, hind T1 without spur-like spine (pale yellow except mentioned above: A1, tubercle, fore and mid tibiae and apices narrowly of all coxae and trochanters; interantennal plate as in ♀, OOD:Od:POD=5:4:2, head above and mesoscutum finely, fairly closely punctured, area dorsalis not enclosed with furrow, but with weak median furrow), Luzon

Rhopalum (Rhopalum) avexum Leclercq, 1963

18 G1 completely black, mesoscutum coarsely embossed, with depressions and elevations, omaulus feebly defined, pygidial area comparatively narrow, flat at base and apex and in middle gently excavated, mat (mandible ferruginous, yellow or pale yellow: A1, 2, tegula, apical third of fore and mid femora, whole of fore and mid tibiae and tarsi, basal ring of hind tibia and pronotal tubercle; hind tibia and tarsus brown, GT2-4 ferruginous, rest black; medial lobe of clypeus with apex distinctly emarginate, interantennal tubercle triangular, low, A2 only slightly longer than wide, A3 not longer than wide, A4=5, both 1.3 times as long as wide; punctures on head and thorax fine, sparse, but distinct, area dorsalis not enclosed, bearing feeble median furrow, G1 shorter than hind trochanter and femur combined, moderately nodose at apex) length? Sibuyan

Rhopalum (Rhopalum) decavum Leclercq, 1963, ♀

--- G1 at base broadly yellow or white, mesoscutum smooth, simply punctured or polished, completely without omaulus, pygidial area flat and mat 19

19 Collar of pronotum amber yellow or yellow, more or less varied in extent (medio-apical margin of clypeus deeply incised and bidentate (♀) or roundly emarginate (♂), antero-lateral corners of pronotum rounded, interantennal plate elongate triangular, with apex rounded, obliquely produced, flat above and covered with silvery hair, G1=hind trochanter+femur, maximum width:minimum=2:1, transverse radial vein oblique to costa, A2,3,4 each longer than wide, A3=AW×1.3, A3=4<5 (♀ ♂); in ♂ A6 excavated at base beneath and produced at apex, mandible enlarged apically, fore trochanter with a tuft of long hair beneath, mid T1 with a triangular prominence on inner side, hind T1 apically incrassate and slightly twisted, paramere of genitalia 1.5 times as long as penis valve and apically enlarged. Pale yellow or white: mandible, A1, often A2 also, collar at least partly, tubercle, axilla, a spot near it on scutellum, basal half of G1, fore and mid legs except femora above (brown) and mid trochanter above, apical half of hind coxa, basal half of trochanter, basal 2/5 of hind tibia; area dorsalis with deep medial furrow which is margined with fine carinae), ♀ ♂ 7.5-8.0 mm, Palawan (Formosa and Japan)

Rhopalum (Rhopalum) succineicollare Tsuneki, 1952

--- Pronotal collar black (mandible, A1, tubercle, tegula at least partly, fore and mid legs from apex of coxae apically wholly or largely and basal ring of hind tibia pale yellow or white) 20

20 Interantennal tubercle well developed, highly raised 21

-- Interantennal tubercle very inconspicuous (small, flat above, not raised and covered with silvery pile) 23

21 Interantennal tubercle elongated dentiform, almost perpendicularly produced (Fig. 12) (Clypeus with medio-apical margin truncate, OOD:POD=2:1, frontal furrow broad and weak, anteriorly stronger, occipital carina complete, collar medianly slightly raised and furrowed in middle, with antero-lateral corners broadly rounded, medial furrow of dorsal side of propodeum very feeble, posterior inclination with lateral carinae, G1 with maximum

width:minimum=2:1, hind tibia strongly clavate, with a fair number of spinules on outer side, transverse radial vein oblique to costa; head above and mesoscutum finely and closely punctured; A2, apices of coxae and of fore and mid trochanters amber yellow, fore and mid femora above broadly brownsih, antennal flagellum beneath, fore trochanter and hind tibial spurs ferruginous), 5.5 mm, Is. Tawitawi

Rhopalum (Rhopalum) peterseni Tsuneki, 1976, ♀

— Interantennal tubercle plate-like, laterally compressed 22

22 Interantennal plate rhombic in lateral view (Fig. 13), with a rounded transparent window within, anteriorly triangularly enlarged, in frontal view: Fig. 17 or in Fig. 15) (apical margin of clypeus: Figs. 15(♀), 16(♂), OOD: Od:POD=10:9:5(♀), =10:7:5(♂), frontal furrow distinct in ♀, weaker in ♂, occipital carina not reaching hypostomal carina, not toothed at apices, A3,4, 5 in ♀ subequal in length, each not longer than wide, in ♂ A3<4=5, A3=AW×1, A4 and 5 slightly longer than wide, without excavation on any joint beneath, pronotum similar in form to peterseni, but with antero-lateral corners more minutely rounded, postscutellum at base lunately impressed, mesocoxal socket rim highly carinate, in dorsal view toothed, area dorsalis not enclosed, at base with a series of foveoles or obliquely shortly striate, medial furrow fine but distinct, lateral carinae only at apical part of posterior inclination shortly defined, G1 with maximum width:minimum = 2.2:1, slightly shorter than hind trochanter and femur combined, hind tibia strongly clavate; mandible yellow - not largely reddish as in original description -, A2 often yellow, A2-8 yellowish beneath, tegula translucent brown, with a yellowish fleck within, basal plate of wing largely yellow, with a large central brown patch, in ♀ fore femur sometimes broadly dark brown above, hind coxa at apex and hind trochanter at base broadly yellow, gaster broadly reddish beneath, GT3 and 4 at base also reddish; head above very finely, fairly closely punctured), 4.5-5.0 mm, Luzon, Mindanao, Negros, Palawan

Rhopalum (Rhopalum) domesticum Williams, 1928

— Interantennal plate broad oval in lateral view (Fig. 19), in dorsal view narrow parallel-sided (♂, medio-apical margin of clypeus: Fig. 18, OOD:Od: POD=10:7:4, frontal furrow distinct, fairly deep, A3,4,5 subequal in length, each slightly longer than wide, no excavation on any joint beneath, occipital carina, pronotum, postscutellum, mesocoxal socket rim and G1 structured as in domesticum, medial furrow of area dorsalis deep and distinct, often margined on both sides with fine carinae, legs without modification; punctation generally similar to that of domesticum, but comparatively somewhat stronger, basal plate of wing brown to ferruginous, with large central dark brown mark, hind coxa apically, trochanter basally yellow, reddish ferruginous colour of gaster confined to underside from middle apically, often extended to dorsal base of GT3 and 4), 4.5-5.0 mm, Mindanao and Palawan

Rhopalum (Rhopalum) ovale sp. nov., ♂

23 ♂, medio-apical part of clypeus broad rectangularly produced, mandible markedly enlarged toward the bidentate apex, pygidial area present, flat, enclosed with round carina (mid femur with a brown mark above, hind coxa at apex yellow, hind tibia except basal ring and hind T1 brown, gastral sternites ferruginous, between GT2-3 ferruginous band present, A2≒3≒4, each twice as long as wide, occipital carina not reaching hypostomal carina; punctures on head and thorax very fine, but distinct, medial furrow of area dorsalis indistinct, G1 as long as hind trochanter and femur combined, moderately nodosed apically, transverse radial vein oblique to costa), length ? Luzon

Rhopalum (Rhopalum) parcimonium Leclercq, 1963, ♂

— ♀ (mesocoxal socket rim highly carinate, in dorsal view appears toothed, median furrow of area dorsalis fairly deep and distinct, G1 with relative width at maximum and minimum 2:1, apical node narrowed apically, hind tibia strongly clavate, with about 10 strong spinules on outer side, gaster ferruginous red beneath, the red extended dorsally at intersegmental areas, forming bands betwenn GT2-3-4, mid femur completely yellow) 24

24 Clypeus: Fig. 20 (y yellow, b brown), nape region (usually hidden under head) also yellow, basal plate of fore wing completely yellow, antennal socket rim contiguous to inner orbit; punctures on head finer, weaker and sparser than on mesoscutum (OOD:Od:POD=10:6:4, A3 slightly < A4=A5, A3=AW×1.3,

A4,5=AW×1.5, transverse radial vein distinctly oblique to costa), 5.5 mm, slenderer than baguionis, Mindanao

Rhopalum (Rhopalum) bukidnon sp. nov., ♀

— Clypeus: Fig. 21, without yellow band behind apical margin, nape region black, basal plate of fore wing translucent yellowish brown, with a large central brown mark, antennal socket rim distinctly separated from inner orbit; punctures on head as on mesoscutum (OOD:Od:POD=10:6:5, A3 distinctly < A4=5, A3=AW×1.2, A4,5=AW×1.8, transverse radial vein almost perpendicular to costa), 5.5 mm, robuster than bukidnon, Luzon

Rhopalum (Rhopalum) baguione sp. nov., ♀

25 Pronotal collar unnotched medially (collar roundly ridged) 26

— Pronotal collar with a medial notch (if without collar flat) 29

26 Transverse frontal carina present, broken medially (A1 bicarinate, occipital carina incomplete, ocelli in an equilateral triangle, supraorbital foveae present, very small, clypeus with median lobe rounded-subtriangularly produced, convex, G1 subsessile, separated from G2 by weak constriction, G6 in ♀ gently convex, narrowed apically, but without well margined pygidial area, in ♂ also without pygidial area, area dorsalis margined with dotted line; yellow: A1, 2, mandibular base, clypeus, genal base, collar and tubercle of pronotum, sides of mesoscutum, meso-pleuron, mesoscutum largely, metapleuron above, axilla, scutellum, postscutellum and all legs), 6 mm, Mindoro and Samar,

Piyumoides narcissus Leclercq, 1963

— Transverse frontal carina absent (precoxal carina of mesopleuron present, in ♀ pygidial area microcoriaceous, with a median carina, A3 short, wider than long, propodeum with lateral carinae, reaching close to spiracles, area dorsalis not margined)

genus Piyuma Pate 27

27 Gaster wholly, at least very broadly ferruginous red, legs except coxae completely yellow (sometimes hind leg partly brown, clypeus with median lobe subroundly produced anteriorly, provided with a lateral angle on each side, with a broad tooth-like lamina on disc, mandible bidentate at apex in both sexes, with a minute tooth on inner margin, in ♂ antenna not modified and without a tuft of long white hair on gena beneath; yellow: A1, 2, collar, tubercle, tegulae, scutellum, postscutellum; upper frons closely covered with medium-sized punctures, mesoscutum more finely and more closely punctured, area dorsalis on central area broadly smooth and polished), 6.5-7.5 mm, Luzon, Sibuyan, Mindoro, Negros, Mindanao (Borneo)

Piyuma butuana Leclercq, 1963

— Gaster black, legs black and maculated with yellow, in ♀ sometimes nearly completely black 28

28 G1 subpetiolate, G2 suddenly widened as if constricted at base, mandible bidentate at apex (♀ ♂), without tooth on inner margin (clypeus medianly produced, with apical margin trilobate, more distinctly so in ♀, with lateral angles very weak, on disc median carina strong, ending abruptly before apical margin, but not toothed, in ♂ A5-9 minutely serrate beneath, A5-12 each with a long hair at apex beneath, A13 dilated, enlarged apically and obliquely truncate at apex, gena with a tuft of white hair beneath; yellow: A1, collar and tubercle of pronotum, scutellum and in ♀ parts of femora, tibiae and tarsi, in ♂ only bases of tibiae; upper frons and mesoscutum finely and very closely punctured, area dorsalis largely smooth and polished), 7-8 mm, Luzon, Negros, Mindanao, Palawan, Tawitawi

Piyuma prosopoides makilingi (Williams, 1928)

— Gaster fusiform, without constriction between G1 and 2, mandible bidentate at apex, with a blunt tooth on inner margin (clypeus with medio-apical margin roundly produced, without lateral angles, disc medianly carinate, the carina at apical end enlarged and raised into a lamina (Fig. 22) yellow in ♂: A1, collar, tubercle, scutellum, apical mark of fore and mid femora, fore and mid tibiae completely, hind tibia except apical black and all T1-2; upper frons finely, closely, but rather weakly punctured, mesoscutum slightly more largely, closely and strongly punctured), 4.5 mm, Mindanao

Piyuma mindanaonis sp. nov., ♂

29 Ocelli in an equilateral triangle or subequilateral, no precoxal carina on mesopleuron as a rule genus Crossocerus Lepeletier et Brullé ... 30

— Ocelli in a low triangle (except in a few Lestica which have the temple strongly compressed toward vertex and a few Ectemnius which have precoxal carina) 39

30 Gaster sessile or subsessile 31

— Gaster pedunculate 38

31 In ♀ pygidial area triangular, with a trilobate or Y-formed depression, in ♂ dense tufts of long, soft, white hair present on mesosternum (but not on head beneath), undersides of fore coxa, all trochanters and basal half of mid femur; A3-12 each with a long hair at apex beneath and with a row of short pile before it, A13 dilated and obliquely truncate at apex (mandible bidentate at apex in both sexes, triangular short tooth on inner margin is here reduced to a slight angle; yellow: A1 largely, medianly interrupted band on collar, tubercle, apices of femora, fore femur beneath, fore and mid tibiae, except inner side, base of hind tibia and fore and mid T1-3; hind leg partly ferruginous; area dorsalis not margined, but defined by its smooth and shining surface, propodeum with lateral carinae, not reaching spiracles; head and thorax microcoriaceous, more strongly so on mesoscutum), 4.5 mm, Palawan
Crossocerus (Ablepharipus) noonadanus Tsuneki, 1976

— Pygidial area in ♀ different, in ♂ without tuft of long hair on body and legs beneath 32

32 In ♀ pygidial area broad, flat, triangular or subtriangular, not distinctly excavated apically, mandible bidentate at apex in both sexes 33

— In ♀ pygidial area narrowed and excavated apically, surface usually shining and sparsely punctured, in ♂ GT7 and 6 similarly punctured 36

33 Head very large, transverse, markedly wider than thorax, pygidial area in ♀ very slightly excavated, with lateral margins slightly incurved, with apical third smooth and polished (♂ unknown)
- subgenus Paroxycrabro Leclercq 34

— Head not so large, about as wide as thorax, pygidial area in ♀ flat or gently convex, with lateral margins not incurved, surface distinctly punctured all over, in ♂ GT7 more strongly punctured than GT6
- subgenus Crossocerus Lep. et Br. 35

34 Clypeus short, flat, with apical margin bluntly quinquedentate (occipital carina gradually lowered before reaching hypostomal carina, on mesopleuron very strong precoxal carina present, propodeum with lateral carinae, area dorsalis not enclosed, gaster sessile, fusiform, G1 not longer than G2, hind tibia not strongly swollen; yellow: mandible, A1,2,3; yellowish white: tubercle, trochanters, tibiae and tarsi, but hind tibia brown except basal ring, hind tarsus more or less brownish; A3=AW×2, head completely smooth and polished, without hair and supraorbital foveae, OOD > POD, antero-lateral corners of collar shortly pointed, mesoscutum weakly, sparsely punctured, meso- and metapleuron and dorsal aspect of propodeum smooth, polished, but prepectus covered with piliferous points, propodeal side obliquely, coarsely rugoso-striate), very small, 3.5 mm, Mindanao
Crossocerus (Paroxycrabro) sotirus Leclercq, 1963

— Median lobe of clypeus shortly produced, with apical margin gently rounded out, sometimes medianly weakly emarginate, with lateral corners slightly produced (occipital carina higher and stronger below and rather suddenly but roundly terminated at the ends, not reaching hypostomal carina, precoxal tooth of mesopleuron stout and long, propodeum with lateral carinae, not reaching spiracles, area dorsalis marked off by fine impressed line, without medial furrow, G1 slightly longer than wide at apex; yellow: mandible largely, A1, collar and tubercle of pronotum, a spot on tegula, basal plate of fore wing, a large mark on scutellum, apices of femora, all tibiae except inner side of mid and hind ones and all tarsi except brownish T5; apex of A2 and articulations of legs till femora yellowish brown; A3=AW×1.5; vertex finely, fairly closely, upper frons somewhat sparsely punctured, supraorbital foveae present, triangular, OOD:POD=3:2, antero-lateral corners of pronotum minutely rounded, not toothed, mesoscutum finely and closely punctured, mesopleuron punctured as on scutum, metapleuron very feebly longitu-

dinally striate, area dorsalis smooth and polished, posterior aspect of propodeum transversely, finely and weakly striate, sides polished), 4.5 mm, Tawitawi

Crossocerus (Paroxycrabro) megacephalus Tsuneki, 1976

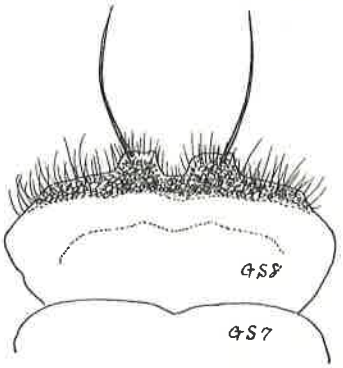
35 Propodeum with lateral carinae, reaching close to spiracles, area dorsalis distinctly enclosed with crenate furrow, with median furrow distinct and at base coarsely foveolate or shortly striate (upper frons finely, sparsely punctured, surface shining, mesoscutum comparatively weakly microcoriaceous and comparatively sparsely (PIS≒PD) superimposed with somewhat large punctures; melanic species, yellow is confined to Al in front only (♀♂); mandible apically, tegulae, fore tibia partly and tibial spurs brownish, hair on clypeus silvery; in ♂ legs without modification, GS 3-5 without medial furrow, GS 5 and 6 without apical dense tufts of short hair GS 7 not reflected and raised at apical sides GS 8: Fig. 63, paramere of genitalia about twice as long as penis valve and provided with sparse fringe of short hair on basal half of inner margin), 5.5 mm, Mindanao (Mt. Apo)

Crossocerus (Crossocerus) aponis Tsuneki, 1984

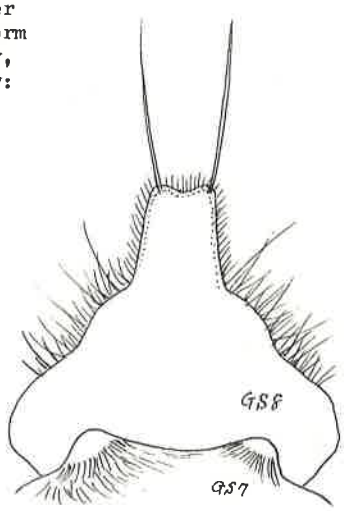
— Propodeum without lateral carinae except apicalmost short ones, area dorsalis very obscurely margined with feeble furrow, very indistinct, with shallow and weak medial furrow and smaller foveolé series at base (upper frons finely, closely punctured, less shining, mesoscutum strongly microcoriaceous and densely superimposed (PIS<PD) with fine punctures, surface nearly mat; yellow: Al in front (♀♂), mandible partly (♀) and all Tl (♀), fore tibia partly (in ♂ broader), mid femur partly (♂); in ♂ fore trochanter with a long spine at base beneath, fore femur dilated and together with trochanter densely covered with long whitish hair beneath, similar but shorter hair is present on fore coxa beneath and on mesosternum, GS 3-5 medianly distinctly furrowed, GS 5 and 6 with dense tufts of short hair on apical margin, GS 7 at lateral corners of apical margin distinctly raised and reflected, GS 8 different in form: Fig. 64, paramere of genitalia about thrice as long as penis valve, provided with a dense fringe of long curved hair on inner margin), 7-7.5 mm, Luzon

Crossocerus (Crossocerus) slimmatus Leclercq, 1963

36 Gaster maculated with yellow or white; in ♀ pygidial area elongate triangular, with surface shining and punctured, at least apical area more or less distinctly excavated; in ♂ antennal flagellum beneath with fringe of uniform pubescence, mandible and legs modified, GS7 with a pair of teeth and round tubercles behind them, gena quadrate below and triangularly produced posteriorly above base of mandible, head and thorax beneath covered with hair, but the hair sparser, not long and inconspicuous (Mandible bidentate at apex in ♂ tridentate in ♀, with a short tooth on inner margin, hind coxa in ♂ with a broad dentiform prominence beneath; clypeus subtriangularly, strongly produced anteriorly; lemon yellow:



63



64

Al, two large marks on clypeus, collar and tubercle of pronotum, a spot on tegula and on basal plates of fore and hind wings, axilla, a medianly constricted large mark on scutellum, postscutellum, a medianly narrowly interrupted preapical band on GT2 and 3, thrice interrupted one on GT 4, bands on GT5 and 6, apical half of GT7 (♂); pale yellowish white: a spot at ventro-apical corners of meso- and metapleuron above meso- and metacoxa, base and apical band (including two brown spots) of GT1, apical patch of each coxa, parts of each trochanter, fore femur at apex and beneath and mid femur at apex; hair on clypeus silvery), 8.3 mm, Mindanao (Mt. Apo)

Crossocerus (Cuphopterus) aposanus Tsuneki, 1984

— Gaster immaculated, black; in ♀ pygidial area triangular, at base more or less raised and punctured, apically narrowed, excavated and without puncture, in ♂ antenna and legs different (- subgenus Blepharipus -), (hind tibia not clavate, strongly spinose on outer side; mandible at least partly, Al largely, collar and tubercle of pronotum, outer side of fore and mid tibiae, base of hind tibia and tarsi broadly yellow, head above smooth and polished) 37

37 Mandible tridentate at apex, with a triangular prominence on inner margin in middle, clypeus strangely quadridentate at apex in middle (Fig. 23), mesopleuron without precoxal tooth, area dorsalis distinctly enclosed with fine crenate furrow, G1 distinctly longer than wide, GT2 with a large rounded hollow at base in middle (occipital carina reaching very close to hypostomal carina, without spatulate prominence behind oral fossa, upper frons with fine but distinct punctures very sparsely scattered, supraorbital fovea feebly defined, nearly rectangled isosceles triangular, mesoscutum smooth and polished, with fine but distinct punctures sparsely (but closer than on frons) scattered, GT1-2 practically impuncatte, polished, while GT3-6 finely, closely and distinctly punctured except apical marginal areas, mandible on basal half of outer side only yellow, scutellum completely black, fore and mid T1 and basal half of hind T1 yellow), 5.0 mm, Mindanao (♂ unknown, nominate apecies in Formosa)

Crossocerus (Blepharipus) nitidicorpus philippinicus Tsuneki, 1984

— Mandible bidentate at apex, without tooth on inner margin, clypeus with medio-apical margin subtruncate, with a lateral tooth on each side (Fig. 25), mesopleuron with a distinct precoxal tooth, area dorsalis not enclosed with furrow, G1 about as long as wide at apex, GT2 without baso-medial hollow (occipital carina not reaching hypostomal carina, with a strong spatulate projection behind oral fossa beneath head, upper frons very minutely, very sparsely, indistinctly punctured, supraorbital foveae elongate triangular, mesoscutum and scutellum under high magnification feebly microcoriaceous and sparsely superimposed with fine punctures, GT1-6 very indistinctly covered with micropoints (practically without puncture) mandible much more broadly yellow, scutellum sometimes with a yellow spot, fore T1-4, mid and hind T1-3 yellow), 4.0-4.5 mm, Mindanao (♂ unknown)

Crossocerus (Blepharipus) mindanaonis Tsuneki, 1984

38 Gastral pedencle gradually widened apically and broadly jointed to G2, hind wing jugal lobe shorter than submedial cell; acetabular carina lacking, Al slender, mesopleuron with sharp precoxal tubercle, ♀ with pygidial area (scapal basin above antennal sockets with a sharp tubercle, pygidial area in ♀ at base raised to platform, thence apically carinate in middle, GS7 and 8 similarly finely punctured, without difference in puncture strength between them, mandible uniformly bidentate at apex in both sexes, collar without medial incision and at side acutely constricted into bicarinate structure, wholly black, without yellow or whitish macula), 10 mm or so, Mindanao, Negros, Luzon

Crossocerus (Apocrabro) aeta Pate, 1944

— Gastral peduncle nodose at apex as in Rhopalum, separated from G2 by constriction, hind wing jugal lobe longer than submedial cell, acetabular carina present, Al clavate, ♀ without pygidial area (clypeus with a medio-apical prominence on disc; yellow or white in ♂: collar, axilla, scutellum, a line on postscutellum, sometimes one or two spots on posterior

part of mesoscutum, fore Tl-4, base of mid tibia, basal half of hind tibia and mind Tl; in ♀ white: collar, axilla, fore Tl-4, mid Tl and basal mark of hind tibia, sometimes bodily mark completely absent), 4.0-6.0 mm,
Dapliloides albocollaris (Ashmead, 1904)

A Mesoscutum not deeply furrowed on anterior half, at most with a weak shallow sulcus, clypeus (Figs. 26, 27) with medio-apical prominence large, porrect, spinoid (Luzon)
E. albocollaris albocollaris (Ashmead, 1904)

B Mesoscutum bisected on anterior half by a deep, broad furrow; clypeus (Figs. 28, 29, 30) with medio-apical prominence low, strongly compressed, tuberculoid (Palawan, Mindanao, Mindoro, Dabuyan)
E. albocollaris princesa Pate, 1946

39 Gaster with a slender peduncle which is nodose toward apex, female pygidial area gutterlike (body mostly dull, mat, precoxal carina of mesopleuron weak but unusually elongate above, approaching scrobe; Al bicarinate)
genus Dasyproctus Lepeletier et Brullé 40

— Gaster sessile to subpedunculate, but not nodose toward apex (occipital carina forming a simple arc, precoxal carina at lower end not turned and extended forward, cubital vein with abscissa 1 plainly more than twice as long as abscissa 2, the latter usually shorter than transverse cubital vein 56

40 No carina between scapal basin and upper frons (if present it is vestigial, pronotal carina runs toward tubercle) 41

— Distinct transverse carina present between scapal basin and upper frons 43

41 Postscutellum yellow, prepectus of mesopleuron largely yellow, all femora apically marked with yellow, all tibiae broadly yellow (Gl slightly less than twice as long as wide at apex, thorax and gaster richly yellow maculated, in ♀ medianly narrowly interrupted band on GT2-5, in ♂ similar band on GT2-3 and complete band on GT4-6, but Gl and all trochanters completely black, A2-4 or 2-5 yellow, propodeum with lateral carinae, area dorsalis enclosed with intermittent fine carina, medio-apical margin of clypeus in ♀ deeply emarginate and median carina on disc shortly toothed at apex, in ♂ apical margin of clypeus narrow, but distinctly triangularly incised), ♀ 9-10 mm, ♂ 6-7 mm, Luzon, Basilan, Mindoro, Negros, Samar, Sibuyan, Mindanao
Dasyproctus townesi Leclercq, 1963

— Postscutellum and hind femur completely black 42

42 Prepectus largely yellow, vestigial transverse carina present above scapal basin, mesoscutum and pleuron, besides usual fine punctures, sparsely superimposed with very large, rounded but shallow punctures (hind tibia largely yellow, all Tl yellow, postscutellum finely and strongly coriaceous, without distinct striae, medio-apical produced part of clypeus obliquely inclined, at apex wider than antennal socket, gently triangularly incised), 7.5-9.0 mm, Mindanao
Dasyproctus vaporus Leclercq, 1956, ♀

(Remarks. D. vaporus is in reality an aberrant form of D. yorkoides Leclercq, 1972, but it has the priority taxonomically)

— Prepectus black, at most with a very short narrow mark above, upper frons at verge to scapal basin completely without transverse carina, mesothorax simply finely punctured, without superimposed large shallow punctures (hind tibia black, all Tl brown to dark brown, sides of propodeum somewhat strongly, coarsely striate, A2 yellow, sometimes brown above, two to four spots on collar, posterior margin of tubercle, a minute spot on axilla and on scutellum close to axilla yellow, GT2-4 with widely separated lateral small yellow marks and GT5-6 narrowly yellow banded), 6-7 mm, Mindanao, Luzon
Dasyproctus townesi Leclercq, 1963, ♂, variety (melanic form)
(= toxopterus Leclercq, 1963)

43 Carina at anterior margin of pronotal collar not turned toward tubercle, but runs towards fore coxa, ♀ ♀ only (Gl not very short, distinct-

ly petiolate, apical margin of median lobe of clypeus incised in middle, scutellum, mandible and gaster yellow maculated) 44

-- Carina of pronotal collar turned toward tubercles 46

44 A2 yellow, rarely brown above, all tibiae, except a brown streak on inner side of fore and mid ones, and basal parts of all tarsi yellow (mesoscutum finely, closely punctured, without being mixed with fine rugulae or large shallow punctures, medio-apical margin of clypeus comparatively shallowly triangularly incised), 7.5-10.0 mm, Luzon, Cebu, Samar, Mindanao

Dasyproctus yorki philippinicus Tsuneki, 1984

-- A2 black, sometimes brownish beneath, all tibiae broadly black on inner side, all tarsi dark brown or black (mesoscutum seen in certain light transversely finely and closely rugulose, sometimes mixed with large shallow rounded punctures scattered, medio-apical margin of clypeus more deeply triangularly incised), 7.5-10.0 mm, Luzon, Negros, Leyte, Mindanao and Palawan

Dasyproctus vaporus Leclercq, 1956, ♀, normal form ... 45
(= yorkoides Leclercq, 1972)

45 Apical incision of median lobe of clypeus fairly deep. Luzon, Negros, Leyte, Mindanao

Dasyproctus vaporus vaporus Leclercq, 1956, ♀

-- Apical incision of median lobe of clypeus shallow and gentle. Palawan

Dasyproctus vaporus palawanensis Tsuneki, 1976, ♀

46 Gl relatively broad and short, not more than twice as long as maximum width and slightly less than as long as hind femur 47

-- Gl slender and long, more than as long as hind femur, petioliform 48

47 Gl very slightly enlarged posteriorly, with sides almost parallel (scutellum and gaster black, mandible black and brown, Al and legs broadly black, hind femur at apical half above strongly sinuate), 6 mm, Mindanao

Dasyproctus artisanus Leclercq, 1972, ♂
(? vaporus, aberrant form - Leclercq)

-- Gl normally enlarged posteriorly (more richly yellow maculated, but hind tibia largely black and brown, medio-apical margin of clypeus more or less incised, head and mesoscutum finely, sparsely but regularly punctured, area dorsalis mainly longitudinally, feebly striate and mixed with punctures), 8 mm, once recorded from Manila

Dasyproctus pentheri Leclercq, 1956, ♀ ♂

48 ♀, median lobe of clypeus deeply incised at apex, bidentate, distance between the teeth almost as wide as antennal socket 49

-- ♂, median lobe of clypeus truncate or very gently emarginate at apex 50

49 Carina at anterior margin of pronotal collar more or less minutely produced near middle of each half (Figs. 33 and 34), hind Tl except pale brownish apex broadly yellow, 6-8 mm, Luzon, Negros, Cebu, Leyte, Mindanao, Palawan

Dasyproctus Dasyproctus cevirus Leclercq, 1963

-- Pronotal carina either straight or gently incurved near base (Figs. 35 and 36), hind Tl largely or wholly brown or dark brown (apical incision of clypeal median lobe much wider than deep), 7-8 mm, Luzon, Negros, Cebu, Mindanao, Palawan

Dasyproctus agilis orientalis (Cameron, 1890)
(= D. ceylonicus Saussure)

50 Head and mesoscutum very strongly punctate-rugose with large punctures (mandible and femora wholly, at least largely black, prepectus, scutellum, postscutellum and gaster immaculate black (apical margin of median lobe of clypeus wider than antennal socket), 6.5-7.0 mm, Luzon, Negros, Mindanao

Dasyproctus vaporus vaporus Leclercq, 1956
(= D. yorkoides Leclercq, 1972)
(= D. sculpturatus Tsuneki, 1976)

-- Head and mesoscutum not so grossly punctured or punctured-rugose 51

51 Punctures on mesoscutum comparatively large and distinct, almost as large as those on vertex, apical margin of medial lobe of clypeus truncate, distinctly more than as wide as antennal socket (all Tl-2 at least

largely yellow) 52

— Punctures on mesoscutum very fine, much finer than those on vertex that are comparatively small, apical margin of medial lobe of clypeus variable . 54

52 Prepectus, scutellum, gaster (rarely with very minute lateral yellow spots on GT3,4,5) and whole or part of femora black (paramere long, with sparse fringe of very long hair)

Dasyproctus vaporus palawanensis Tsuneki, 1976
(vaporus = yorkoides = sculpturatus)

— Prepectus, scutellum, gaster and femora yellow maculated 53

53 A3 and G1 distinctly more than twice as long as wide at apex, genitalial paramere comparatively long, more than twice as long as penis valve, fringed with very long hair (mandible broadly yellow, A2 yellow beneath, GT1-6 with fairly large lateral marks), 7.5-8.0 mm, Luzon, Cebu, Samar

Dasyproctus yorki philippinicus Tsuneki, 1984
(= D. puncticeps Tsuneki, 1984)

— A3 and G1 twice as long as wide at apex, genitalial paramere short, less than twice as long as penis valve, with fringe of hair comparatively shorter than in preceding species (mandible largely black, GT2-4 with lateral marks and GT5-6 with broad band, all tibiae broadly and all T1-2 wholly yellow), 7 mm, Luzon

Dasyproctus naguilianus Tsuneki, 1984

54 Apical margin of median lobe of clypeus triangularly produced, with apex minutely rounded (hind tibia except inner side broadly yellow), 6-7 mm, Luzon, Samar, Negros, Cebu, Leyte, Mindanao, Palawan

Dasuproctus cevirus Leclercq, 1963

— Apical margin of median lobe of clypeus truncate or broadly rounded at apex 55

55 Maculae lemon yellow, apical margin of median lobe of clypeus truncate or very slightly emarginate, variable in width, equal to or slightly wider or narrower than antennal socket (GT3 usually immaculated, when present smaller than those of GT2 and 4, hind tibial yellow stripe not complete), 7-8 mm, widely spread over Oriental Region,

Dasyproctus agilis orientalis (Cameron, 1890)

— Maculae white, apical margin of median lobe of clypeus broadly rounded, nearly as wide as antennal socket (punctures on head comparatively larger than in agilis (gastral lateral marks confined to GT2 only and small, hind tibia at base white), 5.5 mm, Palawan

Dasyproctus albomaculatus Tsuneki, 1976

56 Supraorbital foveae absent, or shallow and evanescent, if limited by a fine inner ridge then upper frons without close moderate to coarse punctation; antenna in ♂ with 12 joints, rarely 13

- genus Ectemnius Dahlbom - 57

— Supraorbital foveae distinct, upper frons with coarse to moderate and close punctation, male with 12 antennal joints, mesopleuron, gatral tergites and vertex with coarse punctation, pygidial area in ♀ sometimes flat

- genus Lestica Billberg - 83

57 In ♂ A4-6 markedly dilated, enlarged and excavated beneath, T1 also modified, dilated and enlarged; in ♀ antenna short, A3 shorter than, at most as long as, wide and shorter than A2 or A4, mandible with a tooth on inner margin, gaster distinctly punctured (yellow: mandible largely except some males, A1, 2, collar and tubercle of pronotum, axilla, two marks or band on scutellum - sometimes lacking - , lateral marks on GT1-4 or 2-4, apex of fore and mid femora and greater part of tibiae and tarsi, area dorsalis without medial furrow, posterior aspect transversely striate, GT1 strongly depressed before apex), length? Negros, Luzon and Panay

Ectemnius (Thyreocerus) cuernosi Leclercq, 1963

— In ♂ A4-6 not dilated and enlarged, in ♀ A3 even when short, always longer than A2 or A4 58

58 Mesoscutum and mesopleuron smooth and shining, very finely, very sparsely punctured, without striae, collar and tubercle of pronotum highly raised, the former without carina, mandible with a strong tooth on inner margin

(supraorbital foveae slender and long, distinctly margined, collar highly raised and in posterior view with top strongly sinuate, tubercle cone-shaped, scutellum also roundly raised; yellow: mandible broadly, Al and 2 - in ♀ A3 beneath and in ♂ A3, 4 and part of 5 and 6 also - , collar and tubercle of pronotum, axilla, large mark on scutellum, postscutellum, prepectus, sometimes two marks on area dorsalis - usually lacking - , a band on GT1, lateral marks on GT2-5, fore and mid legs except coxae nearly wholly and greater part of hind leg; in ♂ fore femur with a spine near base beneath and fore tibia with three spiniformed hairs on outer side), 7-9 mm, Samar, Luzon, Mindanao (Java, Sumatra, Sarawak)

Ectemnius (Policrabro) forestus Leclercq, 1958
(= E. (Cameronitus) djurodzin Tsuneki, 1984)

-- Mesoscutum more strongly punctured or rugoso-punctate, punctate-striate, minutely rugoso-reticulate or distinctly striate, pronotum not so highly raised, A3 not so short 59

59 Precoxal carina of mesopleuron at its lower end turned and extended toward lower end of epicnemial carina, thus separating mesopleuron almost completely from mesosternum (Al and pronotum carinate, acetabular carina present, gaster constricted between G1 and 2, G1=AW×1.5, tergites strongly punctured; in ♂ pygidial area present, supraorbital foveae slender, as long as A3, A3-5 roundly swollen out beneath, A3=AW×1.7 or 2 - laterally compressed -, clypeus rounded out, with antero-lateral corners angulate and more or less stepped; yellow: medianly interrupted band on collar, tubercle, axilla, and on scutellum, postscutellum; yellowish white: Al, elongate mark on fore and mid femora, outer side of all tibiae largely, large lateral marks on GT2-6; clypeus with a yellowish patch behind apex, hair on clypeus silvery), 6-7 mm, Palawan

Ectemnius (Apoctemnius) philippinensis Tsuneki, 1976, ♂

-- Mesopleuron not separated from mesosternum by a longitudinal carina 60

60 Mesoscutum anteriorly transversely and posteriorly longitudinally striate 61

-- Mesoscutum not so distinctly and regularly striate 68

61 ♀ 62

-- ♂ 65

62 Mandible without tooth on inner margin (still undiscovered)

Ectemnius (Metactemnius) apo Tsuneki, 1984

-- Mandible with a strong tooth on inner margin before middle 63

63 Clypeus covered with golden hair (mesopleuron longitudinally striate, lateral carinae of propodeum reaching spiracles, area dorsalis weakly punctured, shining, striae on sides of propodeum not dense, punctures on head above fairly distinct, anteriorly close, on vertex sparse, GT2-5 with lateral maculae, trochanters whitish or pale yellowish), 14 mm, Negros, Samar (N. India)

Ectemnius (Metacrabro) fulvopilosellus (Cameron, 1902)

-- Clypeal hair silvery (striae on sides of propodeum fine and dense) 64

64 Maculae white (posterior inclination of propodeum with lateral carinae, not reaching spiracles; white: mandible broadly, Al, collar and tubercle of pronotum, axilla, a line on scutellum, a mark on prepectus, bands on GT2-5 -very narrow, on GT3-5 medianly shortly interrupted-, a patch at apex of fore and mid femora, outer side of all tibiae and T1-2 of all legs; area dorsalis obliquely rugoso-striate and punctate), 12-15 mm, Palawan (Japan, Korea, Formosa)

Ectemnius (Metacrabro) iridifrons (Pérez, 1905)

— Maculae yellow (posterior inclination of propodeum without lateral carinae except extreme apex, places of maculae as in iridifrons, but GT2-5 with a large oval marks on each side, femora and tibiae more broadly yellow, area dorsalis longitudinally, coarsely striate, without puncture mixed), 12-15 mm, Mindanao (N. India, Formosa, Ryukyu, Korea, Ussuri)

Ectemnius (Metacrabro) chrysites (Kohl, 1892)
(= Ectemnius (Metacrabro) butuani Leclercq, 1963)

65 Mandible without tooth on inner margin (supraorbital foveae indistinct, fore femur at base beneath with a long spine, each T1 long, slightly di-

lated, enlarged and fore and mid ones excavated beneath, mid one provided with a series of short teeth on anterior margin; antenna and fore leg broadly reddish brown, yellow are mandible broadly, Al in front, collar and tubercle of pronotum, axilla, two marks on scutellum, postscutellum, lateral marks on GT1,2,4 and band on GT5 and 6, fore trochater and a patch at apex of fore femur, mid legs fairly broadly (rest reddish brown), parts of hind coxa and trochanter; hair on clypeus and temple silvery, in some light with a slight brassy lustre, on sides of scapal basin golden), 9 mm, Mindanao (Mt. Apo)

Ectemnius (Metactemnius) apo Tsuneki, 1984

-- Mandible with a stout tooth on inner margin 66

66 Marks on body and appendages white (mandible, Al, prepectus, collar, tubercle, axilla, a large mark on scutellum, postscutellum, medianly interrupted band on GT2-6, trochanters beneath, fore and mid femora broadly, all tibiae except inner side and all T1-2), A3-10 each first swollen out beneath, then triangularly produced beyond middle, each provided with tyloid, from A5 apically appearing almost serrate (hair on clypeus silvery, long hair on head and thorax above greyish black), 10-13 mm, Palawan (Formosa, Japan and Korea)

Ectemnius (Metacrabro) iridifrons meridionalis Tsuneki, 1984

-- Marks on body and appendages yellow 67

67 A3-8 with tyloidea beneath and swollen out before apex, thus appearing knottig, legs without modification (yellow marks as in ♀), 11-13 mm, Mindanao

Ectemnius (Metacrabro) chrysites (Kohl, 1892)
(= Ectemnius (Metacrabro) butuani Leclercq, 1963)

-- Antenna without modification (? no description is given), fore femur with a long spine at base beneath, mid T1 twisted, with comb hair, hind T1 dilated and sword-shaped, clypeus trapeziform, with apical margin trisinuate; yellow: Al, medianly interrupted band on collar, tubercle, two spots on scutellum, postscutellum, lateral marks on GT2-6 and legs broadly maculated), 14 mm, Negros, Samar (N. India)

Ectemnius (Metacrabro) fulvopilosellus (Cameron, 1902)

68 Punctures on mesoscutum longitudinally elongate, partly confluent, giving rise to longitudinal raised rugae or short striae between them, on posterior portion punctures almost completely replaced by longitudinal striae (pronotal collar without transverse carina, gastral segments distinctly constricted at intersegmental areas, GT5 and 6 densely covered with ferruginous hair)

- subgenus Iwataia Tsuneki 69

-- Mesoscutum not so regularly longitudinally punctate-rugose or punctate-striate 78

69 ♀ (mark on mandible, Al at least in front, medianly interrupted band on collar and tubercle of pronotum always yellow or white) 70

-- ♂ (propodeum with lateral carinae, reaching spiracles, Al at least in front, bands on collar, tubercle, axilla and apical part of mid femur always yellow or white) 74

70 Supraorbital foveae distinctly margined with fine carina on inner side, Al only in front yellow 71

-- Supraorbital foveae not margined with carina on inner side (it is long and broad, with surface smooth, shining and scattered with some piliferous points) 73

71 All T1 black (supraorbital foveae at posterior part wider than ocellar diameter, in length only slightly shorter than Al (5:6), area dorsalis obliquely striate and punctured between striae, clypeus: Fig. 37, upper frons strongly, closely punctured, but fairly shining, punctures on mesoscutum strong and close, propodeum with distinct lateral carinae, reaching spiracles, punctures on GT1 strong and sparse, from GT2 apically gradually finer and weaker, but on 2 and 3 still distinct; fore and hind femora wholly, mid femur largely, tibiae except short stripe on outer side and tarsi completely black, lateral yellow marks on GT1-4 comparatively small, on 4 rather spot-like), 8 mm, Luzon

Ectemnius (Iwataia) rugosus Tsuneki, 1984

-- All T1 milky white or pale yellow 72

72 Colour of maculae pale yellow, clypeus: Fig. 41, A3=AW×2, mesopleuron moderately largely, fairly closely punctured, partly obliquely or longitudinally arranged, but PIS not rugosely raised, on antero-ventral area punctation similar, on epimeral area punctures fine but not sparser (supraorbital foveae slightly narrower than ocellar diameter, in length distinctly shorter than A1 (3:4), area dorsalis finely, fairly closely punctured, punctures at base weaker and sparser, punctures on upper frons close but shallow, on anterior verge strong, subreticulate, posteriorly much weaker, sparser, mixed with weak rugae, mesoscutal striae between puncture-series more distinct than in rugosus, propodeum with very weak lateral carinae, but reaching spiracles; fore femur with a yellow patch at apex, yellow streak on tibiae longer and broader than in rugosus, GT 1-4 or 1-5 with lateral marks moderately large, though smaller posteriorly), 7 mm, Luzon and Mindanao
Ectemnius (Iwataia) rugosellus Tsuneki, 1984

— Colour of maculae milky white (clypeus: Fig. 46, A3=AW×1.7, mesopleuron comparatively largely, fairly closely punctured, punctures finer and sparser upward and longitudinally rugosely arranged downward, at antero-ventral area markedly strongly and closely rugoso-punctate (white maculae: mandible largely, A1, collar, tubercle, large mark on prepectus, axilla, two large marks on scutellum, postscutellum, lateral marks on GT 1-5, apical marks on fore amd mid femora, outer side of all tibiae and all tarsi except brownish apical half, punctures on gaster fine, and much finer posteriorly), 8.5 mm, Tawitawi
Ectemnius (Iwataia) tarawakanus Tsuneki, 1976

73 A1 completely yellow, clypeus: Fig. 47 (pronotal collar in posterior view: Fig. 48, upper frons finely and shallowly punctured, stronger and and closer forward and finer and weaker backward, metapleuron above gently roundly elevated, propodeum with lateral carinae, weaker forward, but reaching spiracles, area dorsalis finely, moderately closely (PIS=PD) punctured, on medio-posterior area mixed with a few transverse rugae, punctures on gaster fine and very fine posteriorly; yellow: mark on mandible, collar, tubercle, prepectus, axilla, scutellum, postscutellum - broader and larger than in rugosus -, lateral marks on GT1-5, trochanters beneath, fore and mid femora at apices, mid femur broadly, tibiae largely and T1-2), 7.5 mm, Mindanao and Luzon
Ectemnius (Iwataia) makahambus Tsuneki, 1984

— A1 only in front yellow, clypeus: Fig. 54 (pronotum in posterior view: Fig. 55, upper frons nearly reticulate with medium-sized punctures, metapleuron at upper area distinctly roundly elevated, propodeum only on posterior aspect with weak lateral carinae, area dorsalis closely covered with medium-sized strong punctures, punctures on GT1 strong and fairly close, on GT2 and 3 still distinct, though gradually finer and weaker posteriorly; short mark on mandible, a patch on fore femur and tibia and on mid femur white; medianly interrupted band on collar, tubercle, small lateral marks on GT2 and 3 yellow, remaining parts black), 8.5 mm, Mindanao
Ectemnius (Iwataia) bukidnon Tsuneki, 1984

74 Upper frons at anterior part of supraorbital foveae not raised, thus foveae in posterior view smoothly, flatly connected with frons 75

— Upper frons at anterior part of supraorbital foveae strongly raised, thus foveae in posterior view obliquely markedly raised inward (A1 black above, punctures on mesosctum distinct and close, mixed with numerous distinct longitudinal striae) 76

75 A1 except a small brown spot above completely yellow, all T1 yellow (clypeus: Fig. 49, pronotal collar in posterior view: Fig. 51, wholly yellow, with dorso-lateral corners shortly transversely carinate, punctures on mesosctum distinct, with more or less striae mixed, area dorsalis finely punctured, punctures anterirly weaker and sparser; yellow: collar, tubercle, prepectus, axilla, postscutellum, a mark on mandible, two marks - sometimes fused together - on scutellum, small lateral marks on GT1-6, a mark from apex to underside of fore and mid femora, outer

side of all tibiae and all T1), 7.0-7.5 mm
Ectemnius (Iwataia) makahambus Tsuneki, 1984

— A1 yellow or white beneath and completely black above, all T1 black (clypeus: Fig. 60, pronotal collar in posterior view: Fig. 61, with narrow yellow marks, upper frons strongly, partly subrugosely punctured with comparatively large punctures, mesopleuron grossly, closely, longitudinally rugoso-punctate, epimeral area finely so, area dorsalis obliquely striate and finely punctured, punctures on GT1 large and close, on GT2-4 gradually finer, but distinct, on 5 very minute and indistinct, on 6 slightly large; mandible, prepectus, fore and hind femora and all T1 completely black, marks on scutellum and lateral marks on GT1 and 2 very minute, on mid femur also small), 7.5 mm, Mindanao
Ectemnius (Iwataia) iliganensis Tsuneki, 1984

76 T1 of all legs on basal half yellow, often fore T1 pale brown (clypeus: Fig. 42, pronotal collar in posterior view: Fig. 44, except posterior margin wholly yellow, antero-lateral corners shortly transversely and transparently carinate, area dorsalis on basal half finely, weakly, sparsely punctured, on posterior half transversely, finely, closely striate, mixed with fine punctures, upper frons sparsely and weakly punctured, posteriorly replaced with fine arcuate rugae, anteriorly on obliquely inclined verge strongly punctured-reticulate, punctures on mesopleuron on antero-ventral area close, PIS< PD, on the rest sparse, PIS ≥ PD; mandible, postscutellum, fore and hind femora black, yellow marks on scutellum, prepectus, on each side of GT2 and 3 small), 7.5 mm, Luzon, Mindanao
Ectemnius (Iwataia) rugosellus Tsuneki, 1984

— T1 completely black, or fore T1 alone pale brown (upper frons except anterior obliquely inclined verge very sparsely and weakly punctured, or weakly rugose, mesopleuron not grossly rugoso-reticulate-punctate) 77

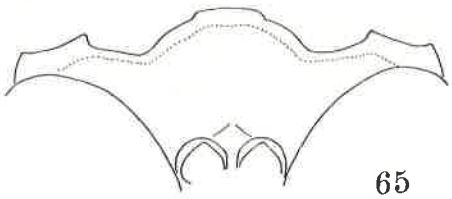
77 Fore T1 pale brown, punctures on mesopleuron except antero-ventral area sparse, PIS ≥ PD, mixed with longitudinal rugae, area dorsalis transversely, moderately closely striate, mixed with weak punctures on lateral portions (clypeus: Fig. 38, pronotal collar in posterior view: Fig. 39, mandible, prepectus, postscutellum, gaster, fore and hind femora completely black, two marks on scutellum very minute), 6.5 mm, Luzon
Ectemnius (Iwataia) rugosus Tsuneki, 1984

— Fore T1 black, punctures on mesopleuron medium-sized, close, PIS< PD, longitudinally or obliquely punctate-rugoso-striate, area dorsalis distinctly, closely punctured (clypeus: Fig. 56, pronotal collar in posterior view: Fig. 57; A1 in front, a small mark on prepectus (frequently absent), two marks on scutellum (sometimes point-like), a line or spots on postscutellum, small lateral marks on GT1 or 1-2 or 1-3 or 1-4, a line on outer side of all tibiae white), 6.0-6.5 mm, Mindanao
Ectemnius (Iwataia) bukidnon Tsuneki, 1984

78 Mesopleuron punctate-striate or rugoso-punctate, striae and rugae distinct, mesoscutum minutely punctate-rugoso-reticulate, but not mat

- subgenus Hypocrabro Ashmead -

(♂, Gl long, peteoliform, L=AW×2.3, between Gl and 2 constricted, Gl with basal half candle white, median lobe of clypeus rounded out (Fig. 65), disc without carina in middle, A1 bluntly bicarinate, A3= AW×2 (dorsal) or =AW×1.7 (lateral), pronotum without carina, antero-lateral corners smoothly rounded, not angulate, scutellum longitudinally punctate-striate, area dorsalis not well margined, longitudinally, somewhat divergently striate and punctate, GT 7 with pygidial area, nearly semicircular, margined on sides with carinae, broadly translucent ferruginous, maculae on body and appendages lemon yellowish white, on gaster orange yellow: mandible largely, A1 completely,



65

collar, tubercle, a mark on prepectus, axilla, two marks on scutellum, postscutellum, a large mark on area dorsalis, broadly extended mark on fore and mid femora, outer side of all tibiae, fore and mid T1 largely - somewhat brownish - , lateral marks on GT2-5, on 2 close together in middle and band on GT6), 7 mm, Mindanao (Mt. Apo)

Ectemnius (Hypocrabro) apoensis Tsuneki, 1984

— Mesopleuron more or less sparsely punctured, without striae except epimeral area - subgenus Cameronitus Leclercq - 79

79 Mesoscutum very finely shagreened, without distinct puncture, without shining space, fairly mat (G1 petioliform and on basal half yellow, very narrow at base, about thrice as long as broad at apex, separated from G2 by a distinct constriction, tergites finely coriaceous, without distinct puncture, mesopleuron finely coriaceous, with sparse, weak punctures in ♀, more shining and with deeper punctures in ♂, A3=AW×2, pronotum without carina, lateral corners rounded, area dorsalis short, finely striolate, not well margined, lateral carinae of propodeum indistinct in ♀, fairly distinct in ♂; yellow: mandible, collar, tubercle, axillae, whole scutellum, postscutellum, a mark on prepectus, patches on fore and mid femora and all tibiae, lateral marks on GT2-5 or 3-5, sometimes gaster compleeely immaculated, in ♀ GT3 often with basal band), length ? Panay

Ectemnius (Cameronitus) embeliae Leclercq, 1958

— Mesoscutum punctured, punctures sometimes very fine but distinct 80

80 Mesoscutum in ♀ very finely, closely regularly punctate-reticulate, apparently minutely granulate, without rugae or striae, surface nearly mat, in ♂ somewhat largely punctate-rugoso-reticulate, main course of rugae anteriorly transverse and posteriorly oblique (G1 somewhat petioliform, in ♀ 1.3 times and in ♂ 1.5 times as long as wide at apex, weakly constricted between G1 and 2, hair on clypeus brassy in ♀, silvery in ♂, wings fairly strongly darkened, maculae pale cream yellow, near to white, area dorsalis slightly flattened semicircular, margined with feeble furrow (♀) or coarsely crenate deep broad furrow (♂), disc obliquely, finely, closely striate and distinctly punctured (♀) or obliquely coarsely rugoso-striate and punctured (♂), maculae well developed: large mark on mandible, A1 completely, medianly narrowly interrupted band on collar, tubercle, prepectus, axilla, a mark or two on scutellum, postscutellum, lateral marks on GT2-5 (♀♂) or 2-6 (♂), fore femur fairly broadly, mid femur more broadly and outer side of all tibiae; T1 brown or dark brown. Medial lobe of clypeus ⌐¬-shaped, with the step higher in ♀, relative width of apical margin considerably varied in ♂, ♂ with pygidial area, semioval in form, with sides and apex margined with carinae), 8.5-9.5 mm in ♀, 6-8 mm in ♂, Negros, Panay, Mindanao

Ectemnius (Cameronitus) paxinus Leclercq, 1963

— Mesoscutum finely, somewhat closely punctured, but always with distinct PIS, punctures sometimes orientated in some direction, but without forming rugae between them 81

81 Head above and mesoscutum finely, fairly closely punctured, with strong plumbeous shine, half mat, G1 somewhat petioliform, slightly more than 1.5 times as long as wide at apex and with a weak constriction between G2, with basal half amber yellow (clypeus medianly produced, with apical margin rounded out in middle and shortly pointed at lateral corners, disc roundly elevated, brownish anteriorly, with a pair of blackish marks behind apical margin, A3=AW×2, A5 as long as wide; maculae yellow and ferruginous, yellow: A1, outer side of mandible, collar, tubercle, axilla, large mark on area dorsalis, long stripe on fore and mid femora; ferruginous: tegula, scutellum, postscutellum, a median band and a small mark on each side of GT2, band on GT3, narrow lateral mark on GT4, all tibiae and all tarsi; hair on clypeus brassy, on dorsal side of body pale brown, long setigerous hairs on GT6 at outer sides of pygidial area ferruginous, area dorsalis obliquely closely striate), 7.5-8.5 mm, Tawitawi

Ectemnius (Cameronitus) peterseni Tsuneki, 1976

— Head and thorax above without strong plumbeous shine, G1 not petioliform and not pale yellow on basal half 82

82 Length 7.5-9.5 mm, A3=AW×2 and A3≒A4 in length, frons almost not depressed in front of fore ocellus, punctures on mesoscutum fairly strong, tend to orient longitudinally, but not rugosed nor striated (propodeum with lateral carinae; yellow: mandible in ♀, A1, collar and tubercle of pronotum, axilla, a mark on scutellum near axilla, a line on postscutellum, a patch on mid femur, a stripe on all tibiae and lateral marks on GT 1-5(♀) or 1-4(♂), in ♂ anterior verge of frons to scapal basin incrassate and raised up above level of eye), Mindanao, Sibuyan, Negros (S. India, Java, Singapore

Ectemnius (Cameronitus) bogorensis Leclercq, 1958

— Length 12-13 mm, A3=AW×3 and distinctly longer than A4, frons distinctly depressed in front of fore ocellus (punctures on mesoscutum stronger and larger than in bogorensis, area dorsalis only posteriorly margined with shallow furrow; yellow: A1, a patch on mandible, two marks on collar, tubercle, two spots on scutellum, a spot on apex of fore and mid femora and lateral marks on GT2-4), Luzon (Malaya and Java)

Ectemnius (Cameronitus) boletus gedehensis Leclercq, 1958

83 Gastral tergites not strongly depressed at each apex and not strongly constricted at each base (punctures on tergites on medial area markedly larger than those on basal and apical areas, apical margin of clypeus feebly incised in middle; yellow: A1, collar, tubercle, scutellum, postscutellum, a fairly large rounded mark on each side of GT2-5, a transverse short line in middle of GT2, an additional minute spot on GT5, apices of fore and mid femora, fore and mid tibiae and all tarsi; apical margins of GT1-5 and a line on hind tibia ferruginous), 8 mm, Luzon

Lestica (Solenius) luzonia Leclercq, 1963 ♀

— Gastral tergites strongly depressed at each apex and markedly constricted at each base (punctures on tergites on medial area markedly larger than those on basal and apical areas) 84

84 In ♀ apical margin of clypeus medianly deeply incised, bidentate, mid femur without sublamellate obtuse process near base beneath, in ♂ head laterally compressed, long, clypeus with apical margin medianly gently incised, fore and mid legs markedly modified (in ♀ yellow: A1, - A2,3 ferruginous yellow -, collar, tubercle, sometimes a spot on prepectus, a large mark on scutellum, medianly interrupted band on GT1-5, apical mark of femora - on hind femur very small and often absent -, all tibiae except inner side of hind one, all T1, rest of tarsi ferruginous; in ♂ colouration generally similar, but mark on scutellum often lacking and gastral marks are smaller), ♀ 10-11 mm, ♂ 9-10 mm, widely in the Philippines (Is. Palau, Formosa)

Lestica (Solenius) constricta Krombein, 1949

— Apical margin of clypeus not incised, mid femur with sublamellate obtuse process near base beneath (yellow: A1, collar, tubercle, scutellum except apical margin, postscutellum, a line in middle of GT1 and 2, a fairly large lateral marks on GT2-5, a line in middle of GT4 and 5; fore and mid legs except trochanters almost completely yellow, on hind leg with each segment till T1 only partly yellow), length ? (but possibly similar to constricta ?), Mindanao

Lestica (Solenius) combinata Leclercq, 1963 ♀

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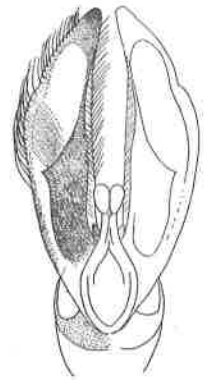

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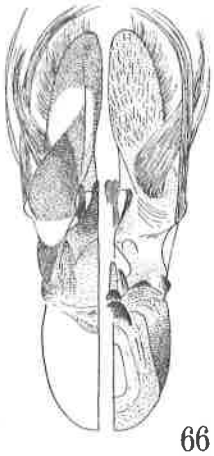

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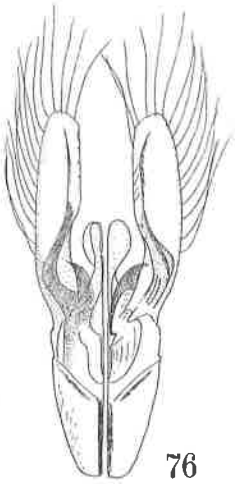

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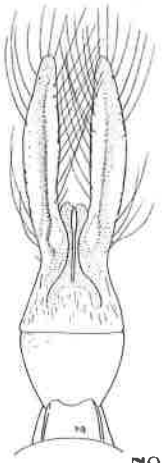

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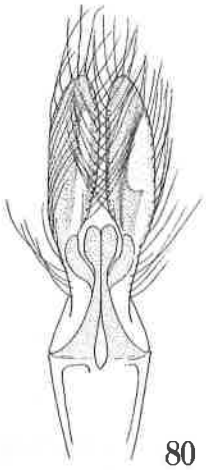

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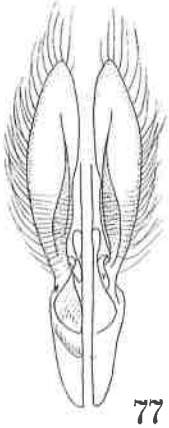

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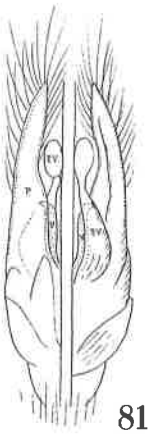
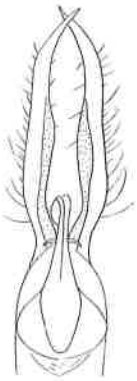


81

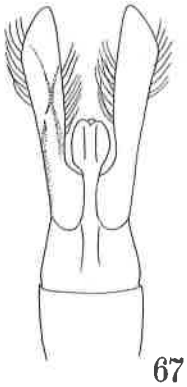
apoensis

72

yorki
(puncticeps)



yorki 71



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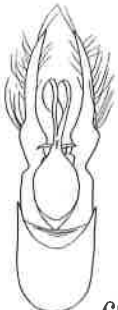

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townesi

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vaporus
(sculpturatus)

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