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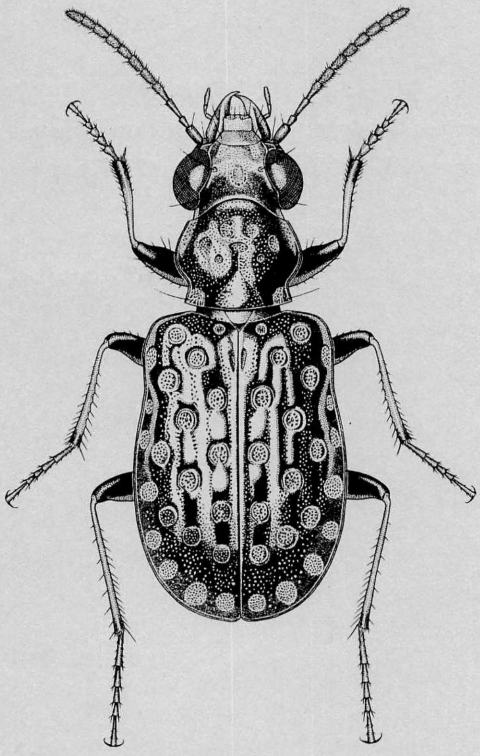

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Systematic Position of *Carabus yunnanus* and the Allied Species (Coleoptera, Carabidae) from China, with Description of a New Species

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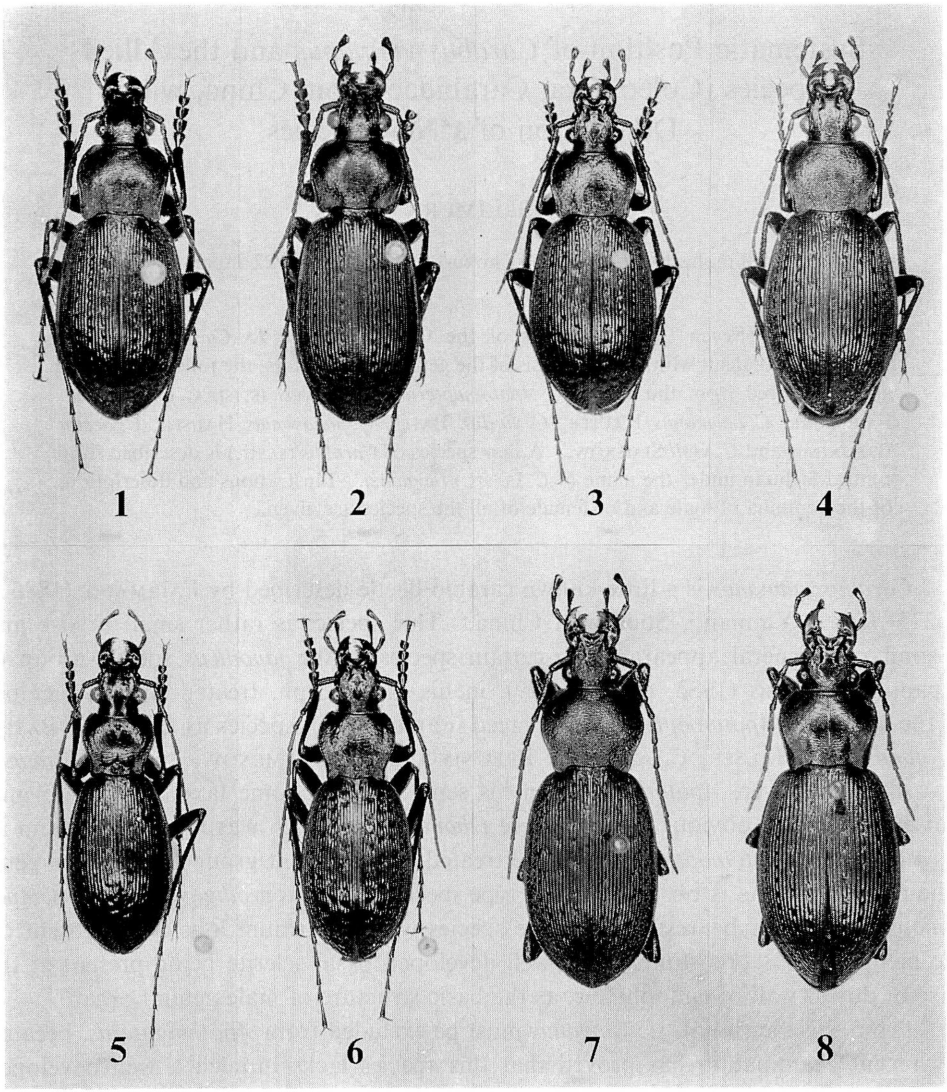
Abstract Seven Chinese species of the Carabina allied to *Carabus yunnanus* FAIRMAIRE are dealt with. On the basis of the genitalic characters, the following species are transferred from the subgenus *Apotomopterus* to *Carabus* (s. str.): *C. yunnanus* FAIRMAIRE, *C. bornianus* HAUSER, *C. vigilax* BATES, *C. nanosomus* HAUSER, *C. nestor* BREUNING, and *C. vigil* SEMENOW. A new species of *Carabus* (s. str.) is described from central Sichuan under the name of *C.* (s. str.) *tieguanzi*. Illustrations and descriptions of the genitalia of male and/or female of all the species are given.

Carabus yunnanus is a little known carabid beetle described by FAIRMAIRE (1886 a, p. 223) from "Yunnan", Southwest China. This species is rather small in size and is similar in general appearance to certain species of the *japonicus* species-group of Japan. BREUNING (1932, pp. 228, 229), in his monograph, treated it as a member of the subgenus *Apotomopterus*, and placed it among such species as *C. vigilax* BATES, *C. nanosomus* HAUSER, *C. latipennis* BREUNING, *C. vigil* SEMENOW, and *C. bornianus* HAUSER. However, *Apotomopterus* in his sense includes some taxonomic problems. For example, it is obvious that Japanese *Ohomopterus* which was regarded by him as a synonym of *Apotomopterus* should be treated as a different group based upon genitalic characters. As is observed in the type species (*Carabus prodigus* ERICHSON), *Apotomopterus* should be restricted to the species with the ostium lobe being absent on the membraneous preostium and a well developed basal sclerite being present at the base of dorsal wall of endophallus, as the basic structure of male genital organ.

From this viewpoint, *C. yunnanus* must be excluded from *Apotomopterus*, because my recent examination has proved that this species lacks in such a well developed basal sclerite but has a copulatory piece on the dorsal wall of endophallus. In addition, through the courtesy of the Naturhistorisches Museum Basel, the Muséum National d'Histoire Naturelle, Paris, and Dr. Hisatoshi KEZUKA, Tokyo, I was able to examine the following five species: *C. vigilax*, *C. nanosomus*, *C. vigil*, *C. bornianus* and *C. nestor*. The last one was described by BREUNING (1934, p. 30) as a member of *Apotomopterus*, after the publication of the first volume of his monograph. After a careful examination of their genitalia, I have come to the conclusion that they should also be excluded from *Apotomopterus*. In this paper, I will transfer them from the subgenus *Apotomopterus* to *Carabus* (s. str.), and will give illustrations and descriptions of the male genitalia including the endophallus and/or of the female genitalia.



Figs. 1–8. —— 1, *Carabus* (s. str.) *yunnanus* FAIRMAIRE, ♂ (paratype), from "Yunnan"; 2, *C.* (s. str.) *bornianus* HAUSER, ♂, from Dali, Yunnan; 3–4, *C.* (s. str.) *tieguanzi* IMURA, sp. nov., from Mt. Emei Shan, central Sichuan, 3, ♂ (holotype), 4, ♀ (allotype); 5, *C.* (s. str.) *vigilax* BATES, ♂, from Mt. Emei Shan, central Sichuan; 6, *C.* (s. str.) *nanosomus* HAUSER, ♂, from Mt. Jinfo Shan, Southeast Sichuan; 7, *C.* (s. str.) *nestor* BREUNING, ♂ (paratype), from Mt. Jinfo Shan, Southeast Sichuan; 8, *C.* (s. str.) *vigil* SEMENOW, ♀, from Minchow, Gansu.

On the other hand, in the course of the present study, I had an opportunity to examine the specimens of a species of the Carabina from Mt. Emei Shan, central Sichuan, with the general appearance similar to that of *C. yunnanus* or of *C. bornianus*.

It also belongs to *Carabus* (s. str.) from the genitalic characters, and is considered to be new to science. On this occasion, I am going to describe it under the name of *C.* (s. str.) *tieguanzi* nov., and place it at the side of *C. bornianus*.

The classification system employed herein is fundamentally equivalent to that proposed by ISHIKAWA (1973). I prefer to treat the Carabina as a single genus, *Carabus*, as is generally adopted by most European authors, which means that his genera *Apotomopterus* and *Carabus* are ranked as subgenera of the genus *Carabus* (s. l.).

The abbreviations used in this paper are as follows: HW – greatest width of head including eyes; PAW – approximate width of pronotal apex, measured between the most advanced points on both sides; PW – greatest width of pronotum; PBW – approximate width of pronotal base, measured between the most protrudent points of hind angles; PL – length of pronotum, measured along the mid-line; EW – greatest width of elytra; EL – greatest length of elytra; M – arithmetic mean; CP – copulatory piece; BS – basal sclerite; BSL – lobe at the side of basal sclerite; LBL – left basal lobe; RBL – right basal lobe; BC – bursa copulatrix; OLA – outer plate of ligular apophysis; VLA – vertical plate of ligular apophysis; ILA – inner plate of ligular apophysis; VA – vaginal appendix; ES – epivaginal sclerite; NSMT – Department of Zoology, National Science Museum (Nat. Hist.), Tokyo; MP – Muséum National d'Histoire Naturelle, Paris; NMB – Naturhistorisches Museum Basel.

Before going further I wish to express my deep gratitude first of all to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for critically reading the manuscript of this paper. I am greatly indebted to Dr. Hisatoshi KEZUKA, Tokyo, who gave me permission to examine invaluable specimens in his collection, and to Dr. Michel BRANCUCCI of the Naturhistorisches Museum Basel, who kindly took the trouble of making arrangement for the loan of the specimens of *C. nestor* and *C. vigil* preserved in the museum. I am also grateful to Miss Pamela GILBERT of the Entomology Library, British Museum (Natural History), London, to Mr. Armin KORELL, Kassel-Nordshausen, and to Dr. Achille CASALE, Museo Regionale di Scienze Naturali, Torino, for their kind help in providing with photocopies of the necessary literature. I am especially grateful to Dr. Thierry DEUVE of the Muséum National d'Histoire Naturelle, Paris, not only for his constant guidance but for taking the trouble for the loan of necessary specimens.

1. ***Carabus*** (s. str.) ***yunnanus*** FAIRMAIRE, 1886

(Figs. 1, 9, 15)

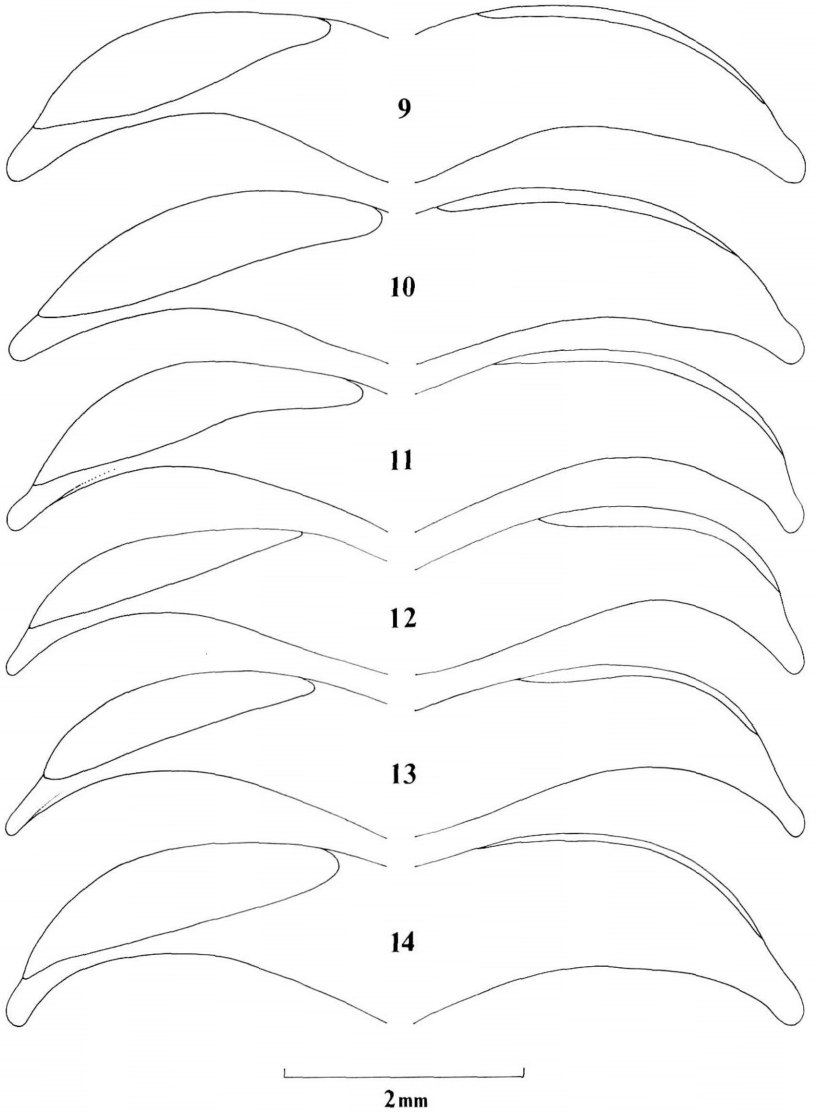
Carabus Yunnanus FAIRMAIRE, 1886, Le Naturaliste, **26**, p. 223; type area: "Yunnan"; 1886, Annls. Soc. ent. Fr., **6**, pp. 309, 310.——DEUVE & IMURA, 1990, Elytra, Tokyo, **18**, p. 2.
Carabus (*Ohomopterus*) *Yunanus*: REITTER, 1896, Verh. naturf. Ver. Brünn, **34**, p. 169.
Apotomopterus yunnanus: BREUNING, 1926, Koleopt. Rdsch., **12**, pp. 69, 70.
Morphocarabus (*Isiocarabus*) *yunnanus*: LAPOUGE, 1932, Gen. ins., (192 c), p. 662.
Carabus (*Apotomopterus*) *yunnanus*: BREUNING, 1932, Best.-Tab. eur. Coleopt., (104), pp. 228, 229.

Male genitalia. Aedeagus a little shorter than half the elytral length; apical lobe rather robust, slightly compressed laterad, gradually narrowed to the apex which is gently rounded in lateral view; ostium lobe absent at the membraneous preostium; endophallus with a well developed CP situated a little behind the middle on the dorsal wall; CP rather stout, tongue- or fingertip-shaped, somewhat asymmetric, widest at the base, rather gradually narrowed towards the apex which is broadly rounded, with the surface densely coated with granules; basal part of CP strongly raised to form a transverse ridge which is subtriangularly protuberant dorsad in lateral view, and rather smoothly connecting with the membraneous swelling of the dorsal wall of endophallus; the swelling a little dilated towards the endophallic apex, with the surface moderately concave to form a round depression at the centre; BS situated a little to the left of the longitudinal mid-line at the dorsal base of endophallus, reduced to a small patch and a few accessory spots indicated by assemblage of pigmented granules, with the surface sparsely scattered with minute hairs; BSL developed, indicated by subtriangular membraneous projection; LBL well developed; RBL barely recognisable.

Female genitalia. BC not so large and rather depressed, somewhat visor-like in shape, with the ventral surface widely concave to form a pair of lateral lobes extending ventrad; OLA pear-shaped, about 1.5 times as long as wide, widest before the middle, with the sides sinuate behind; posterior margin of OLA triangularly and rather distinctly re-entrant at the middle; vertical plate rather low; ILA ovoid, about 1.3 times as long as wide, widest a little before the middle, much gradually narrowed posteriad than anteriad, with the anterior margin broadly rounded, the posterior with a slight notch at the middle; VA recognisable though very small; ES small, with the basal pigmentation rhomboidal in shape and the vertical plate well developed and somewhat twisted in dorsal view.

Specimens examined. 1 ♂, "Yunnan, R. P. DELAVAY"/"PARATYPE"/"*Apotomopterus yunnanus* FM. BREUNING dét." in coll. H. KEZUKA; 1 ♂, "Yunnan, R. P. DELAVAY"/"*Carabus yunnanus* FAIRM." (MP); 1 ♂, "YUNNAN-TA-PIN-TZE, R. P. DELAVAY REC."/"Muséum Paris, ex. coll. R. OBERTHÜR" (MP); 1 ♀, Mt. Yulong-Xue Shan, 2,700–2,800 m alt., near Lijiang, Northwest Yunnan, VI–1988, in coll. Y. IMURA.

Notes. The aedeagal apical lobe of this species seems a little different in shape according to individuals; it is relatively short and robust in the paratype specimen from "Yunnan" as shown in Fig. 9, whereas it is obviously slenderer and more elongate in the specimen with the same data preserved in MP. Only one female specimen I was able to examine is from Mt. Yulong-Xue Shan which may be a newly recorded locality, and I have been unable to examine the female genitalia of topotypical specimens. In fact, nothing has been known about details of the type locality of this species except that it was described from "Yunnan". Further investigations are therefore needed for solving the problems of the type locality and of the geographical and individual variations.



Figs. 9–14. Apical part of aedeagus of *Carabus* (s. str.) spp.——9, *Carabus* (s. str) *yunnanus* FAIRMAIRE, from "Yunnan"; 10, *C.* (s. str.) *bornianus* HAUSER, from Dali, Yunnan; 11, *C.* (s. str.) *tieguanzi* IMURA, sp. nov., from Mt. Emei Shan, central Sichuan; 12, *C.* (s. str.) *vigilax* BATES, from Mt. Emei Shan, central Sichuan; 13, *C.* (s. str.) *nanosomus* HAUSER, from Mt. Jinfo Shan, Southeast Sichuan; 14, *C.* (s. str.) *nestor* BREUNING, from Mt. Jinfo Shan, Southeast Sichuan; left, right lateral view; right, subventral view.

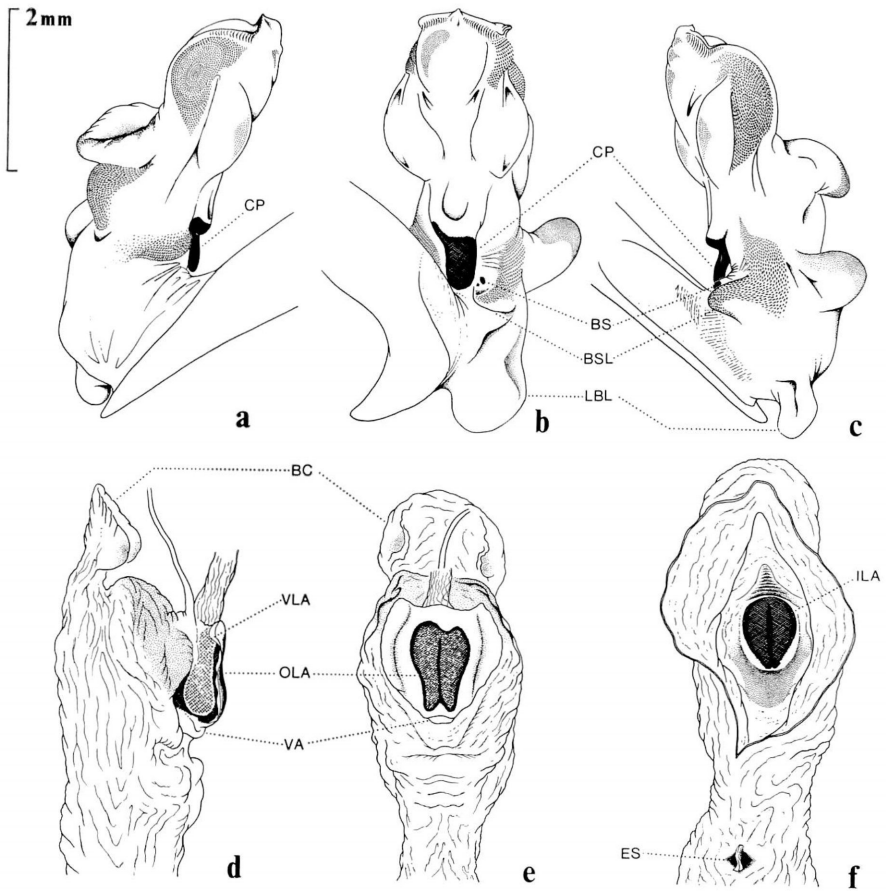


Fig. 15. Genital organ of *Carabus* (s. str.) *yunnanus* FAIRMAIRE, from "Yunnan" (♂) and from Mt. Yulong-Xue Shan, near Lijian, Northwest Yunnan (♀).——a–c, Endophallus; a, right lateral view; b, dorsal view; c, left lateral view.——d–f, Female genitalia; d, right lateral view; e, ventral view; f, dorsal view (dorsal wall of vagina partly removed to show inner plate of ligular apophysis). Abbreviations: CP, copulatory piece; BS, basal sclerite; BSL, lobe at the side of basal sclerite; LBL, left basal lobe; BC, bursa copulatrix; OLA, outer plate of ligular apophysis; VLA, vertical plate of ligular apophysis; ILA, inner plate of ligular apophysis; VA, vaginal appendix; ES, epivaginal sclerite.

2. *Carabus* (s. str.) *bornianus* HAUSER, 1922

(Figs. 2, 10, 16)

Carabus (*Apotomopterus* ?) *Yunnanus* FRM. subsp. *Bornianus* HAUSER, 1922, Arch. Naturg., (A), **1**7, pp. 108, 109; type locality: Bei Tali-fu und Kuh-tsin-fu in der chinesischen Provinz Yun-nan.
Carabus (*Morphocarabus*) *Albrechti*: MAINDRON, 1906, Bull. Soc. ent. Fr., **1906**, p. 216.
Apotomopterus yunnanus bornianus: BREUNING, 1926, Koleopt. Rdsch., **12**, p. 69.
Carabus (*Apotomopterus*) *bornianus*: BREUNING, 1932, Best.-Tab. eur. Coleopt., (104), p. 230.

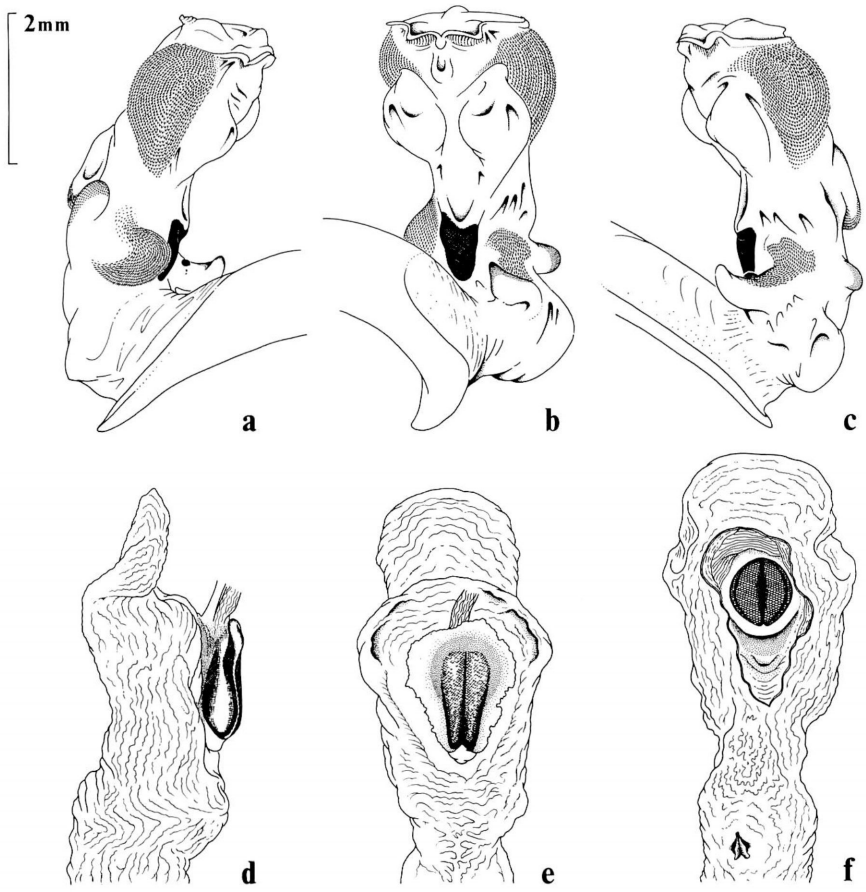


Fig. 16. Genital organ of *Carabus* (s. str.) *bornianus* HAUSER, from Dali, Yunnan (♂) and from "Kuhtsingfu", Yunnan (♀).——a–c, Endophallus; a, right lateral view; b, dorsal view; c, left lateral view.——d–f, Female genitalia; d, right lateral view; e, ventral view; f, dorsal view (dorsal wall of vagina partly removed to show inner plate of ligular apophysis).

Male genitalia Very closely similar to those of *C.* (s. str.) *yunnanus*, and barely distinguishable by the following points: CP a little larger in size and a little different in shape, with the basal part a little less protuberant dorsad; BSL more elongate; RBL obviously recognisable though not so distinctly inflated.

Female genitalia. Also closely similar to those of *C.* (s. str.) *yunnanus*, but more easily distinguishable from it than in male genitalia by the following points: BC a little larger; OLA slenderer, with the sides hardly sinuate behind; ILA walnut-shaped, only a little longer than wide, and widest at about the middle; ES sagittate in dorsal view, with the vertical plate gradually divergent and bilobed posteriad.

Specimens examined. 1 ♂, "Tali, Yunnan" in coll. H. KEZUKA; 1 ♂, "Yunnan, 909" (MP); 1 ♂, "Yunnan, Yunnanfou, R. P. J. SOUYRIS, 1917"/"MUSEUM PARIS,

1952, COLL. R. OBERTHÜR" (MP); 1 ♀, "Kouang Si Hien, alt. 2,100 m, Sud Est Yunnan" in coll. H. KEZUKA; 1 ♀, "Yunnan, Kuhtsingfu" in coll. Y. IMURA.

Notes. The aedeagal apical lobe of this species is also a little variable in shape. It is not much different from that of *C.* (s. str.) *yunnanus* in the Dali (=Tali) specimen (Fig. 10), the topotypical one, but is a little shorter and broader in the Yunnanfou specimen.

3. ***Carabus*** (s. str.) ***tieguanzi*** IMURA, sp. nov.

(Figs. 3–4, 11, 17)

Description. Length: 19.6–21.8 mm (from apical margin of labrum to apices of elytra). Width: 7.8–8.9 mm. Relatively small-sized species with general appearance similar to that of *C.* (s. str.) *yunnanus* or of *C.* (s. str.) *bornianus*. Black, more or less shiny, sometimes with faint blue-purplish lustre on elytral margins.

Head subquadrate, slightly convex above with protruding eyes; apical margin of labrum weakly emarginate; frontal furrows rather distinctly carved, with the surface irregularly punctate, more densely so on the posterior halves; posterior margins of these furrows not reaching the level of the anterior orbital margin; lateral grooves narrow but distinct; frons slightly convex above, with the surface irregularly and rather densely punctate; dorsal surface of head behind eyes irregularly rugoso-punctate; supraorbital margins complete though narrow; mandibles rather stout, arcuate inwards and sharply pointed at the apices; retinaculum of mandible bidentate, the right one being a little smaller than the left; apical segment of maxillary palpus slightly dilated, more widely in male than in female; penultimate segment of labial palpus bisetose; antennae filiform, barely reaching the middle of elytra in male and reaching basal third in female, pubescent from segment 5, without hairless ventral depressions in both sexes; relative lengths of scape and segments 2–4, 8, 10 in male as follows:— 1: 0.56: 0.95: 0.71: 0.90: 0.74; each segment from the fifth to the seventh subequal in length to segment 3; segment 9 subequal in length to the terminal, each 0.82 times as long as scape; each segment from the fifth to the terminal a little shorter in female than in male; median tooth of mentum much shorter than the lateral lobe, with the apex triangularly pointed; submentum bisetose, with the surface smooth.

Pronotum subquadrate, wider than long, widest a little before the middle, rather gradually narrowed towards base than towards apex; PW/HW 1.40–1.53 (M 1.45), PW/PL 1.30–1.40 (M 1.36), PW/PAW 1.54–1.61 (M 1.57), PW/PBW 1.39–1.45 (M 1.41), PBW/PAW 1.07–1.17 (M 1.12); apical margin feebly emarginate; front angles obtuse, slightly produced anteriad with rounded tips; sides gently rounded in front, rather weakly sinuate behind, then almost parallel before hind angles; hind angles subtriangular, moderately protrudent posteriad, with the apices rounded and a little bent ventrad; basal margin either almost straight or evenly bisinuate; disc slightly convex above, with the surface asperous, more so scattering with punctures on the peripheral portion, less so on the central portion; lateral margins feebly reflexed and

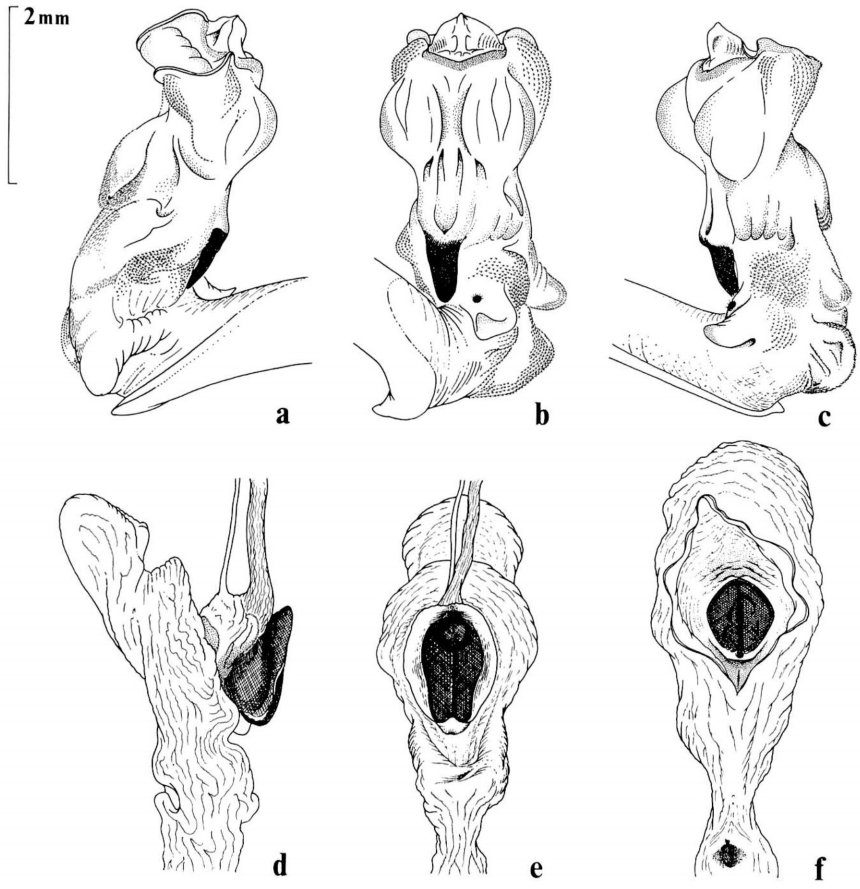


Fig. 17. Genital organ of *Carabus* (s. str.) *tieguanzi* IMURA, sp. nov., from Mt. Emei Shan, central Sichuan.——a–c, Endophallus; a, right lateral view; b, dorsal view; c, left lateral view. ——d–f, Female genitalia; d, right lateral view; e, ventral view; f, dorsal view (dorsal wall of vagina partly removed to show inner plate of ligular apophysis).

clearly bordered throughout, the borders becoming a little narrower towards front angles; two pairs of marginal setae inserted near the widest part and slightly before hind angles; basal foveae very weak or barely recognisable; median longitudinal line very narrow and finely impressed, slightly raised to form a very short low-ridge just before basal margin.

Elytra ovate, moderately convex above, widest at about the middle, more gradually narrowed towards bases than towards apices; EW/PW 1.43–1.49 (M 1.45), EL/EW 1.51–1.57 (M 1.54); shoulders more effaced in female than in male; preapical emargination faintly recognised only in female; lateral margins feebly reflexed throughout and clearly bordered; elytral sculpture triploid; striae between intervals clearly recognised though not so deep, and sparsely scattered with vague punctures; primary intervals

the widest, moderately convex above, rather frequently and somewhat irregularly segmented by primary foveoles; each foveole not so deeply concave but always invading the adjacent tertiaries; both secondary and tertiary intervals a little narrower and a little more weakly convex than primaries, not segmented, but transversely notched except for the central part, rather conspicuously so on the periphery where the intervals are sometimes composed of rows of granules; umbilicate series indicated by frequently segmented low costa or rather regularly set row of granules, at the outside of which are recognised three more rows of granules.

Pro- and mesepisterna almost smooth, very finely and irregularly wrinkled, microsculpture visible, forming isodiametric meshes; metepisterna and sides of sternites vaguely punctate, with the surface partly becoming uneven; sternal sulci completely and prominently carved; metacoxa trisetose, or sometimes bisetose (without inner seta); legs normal, basal four segments of male foretarsus dilated, with hair pads on the ventral surface.

Male genitalia. Aedeagus a little shorter than half the elytral length, gently arcuate and subcylindrical, with the apical part slightly compressed laterad; apical lobe rather slender, weakly constricted at the base, then only a little dilated towards the apex which is rounded in lateral view; ostium lobe absent at the membraneous preostium; endophallus astonishingly similar to that of *C.* (s. str.) *bornianus*, though a little smaller in size, and barely distinguishable from it by a little slenderer CP.

Female genitalia. BC as in *C.* (s. str.) *bornianus*; OLA strongly sclerotized, about 1.7 times as long as wide, widest before the middle, with the anterior margin rounded, the posterior being re-entrant at the middle; disc of OLA flat and smooth, with a round depression very shallowly concave near the apex; vertical plate a little higher than in *C. bornianus*; ILA almost round in shape, subangulate on both sides at the middle, cup-like, and strongly sclerotized, with the basal portion somewhat granulate; VA recognisable though small, with mildly pigmented area on the posterior margin; ES not so large, with the basal pigmentation rhomboidal in shape and the vertical plate well developed.

Type series. Holotype: ♂, Mt. Emei Shan, central Sichuan, central China, 24–VI–1989 (NSMT). Paratypes (including allotype): 1 ♂, 2 ♀♀, same data as for the holotype, in colls. H. KEZUKA and Y. IMURA.

Notes. Because of close similarity in the conformation of endophallus, this new species is doubtless related to *C.* (s. str.) *yunnanus* and *C.* (s. str.) *bornianus*, more closely to the latter, but is distinguished from them by the following points: 1) penultimate segment of labial palpus bisetose in all the type specimens, while it is often multisetose in *C. yunnanus*; 2) male antennae without hairless ventral depressions as in *C. bornianus*, whereas they are clearly recognised from segment 5 to 8 in *C. yunnanus*; 3) median tooth of mentum much shorter; 4) pronotal disc less convex above; 5) sides of pronotum less reflexed in the posterior parts; 6) hind angles of pronotum narrower and more triangularly protrudent than in *C. bornianus*; 7) elytra a little shorter and more broadly ovate; 8) apical lobe of aedeagus slenderer and a little

constricted at the base. It seems worth noting that these three species are rather readily discriminated from one another by the external morphology in spite of the close similarity in the conformation of endophallus.

The name of this new species, *tieguanzi*, comes from that of a legendary wizard who appears in the story of "Duzichun-chuan", one of the Chuanqi novels written in the Tang Age, and is said to have lived on Mt. Emei Shan.

4. *Carabus* (s. str.) *vigilax* BATES, 1890

(Figs. 5, 12, 18)

Carabus vigilax BATES, 1890, Entomologist, **23**, p. 211; type locality: Wa-shan, alt. 6,000 feet; Chia-ting Fu, alt. 1,000 feet.

Apotomopterus (*Acoptopterus*) *vigilax*: LAPOUGE, 1927, Misc. ent., **30**, pp. 219, 220; 1932, Gen. ins., (192 C), p. 672.

Carabus (*Apotomopterus*) *vigilax*: BREUNING, 1932, Best.-Tab. eur. Coleopt., (104), pp. 225, 226.

Male genitalia. Aedeagus less arcuate especially in the basal portion, with the apical lobe moderately elongate and gradually narrowed to the apex which is rounded in lateral view; endophallus with the basic structure similar to that of *C.* (s. str.) *yunnanus*; CP amber-coloured, rather lightly sclerotized, luffa-like in shape, much longer than wide, widest before the middle, with the apex broadly rounded and densely coated with granules; basal part of CP strongly ridged, forming a wide V in dorsal view, with the central part rather roundly protuberant dorsad in lateral view; BS as in the other species mentioned above; BSL strikingly developed to form a flap-like membraneous inflation; LBL well developed and bilobed; RBL absent.

Female genitalia. BC well developed, though the lateral lobes being not so clear; OLA about twice as long as wide, widest much before the middle, with the anterior margin broadly rounded, the posterior being slightly re-entrant at the middle; VLA rather high and well sclerotized; ILA large, almost perfectly round in shape, cup-like, and strongly sclerotized; the sclerotization partly becoming more conspicuous with marked pigmentation to give the surface of ILA mottled pattern; VA recognisable though small; ES small, with the vertical plate rather well developed.

Specimens examined. 1 ♂, Mt. Emei Shan, 1,700 m alt., central Sichuan, 15–V–1986, in coll. H. KEZUKA; 1 ♀, Mt. Emei Shan, 1,800 m alt., central Sichuan, 24–VI–1987, in coll. H. KEZUKA.

Notes. LAPOUGE (1927, p. 220) erected the subgenus *Acoptopterus* for *C. vigilax* mainly based upon its strongly cordate pronotum and much elongate terminal segment of labial palpus. BREUNING (1932, pp. 178, 179) treated it as a synonym of *Apotomopterus*, because he regarded the subgeneric characters of the former as secondarily developed ones common to some Sichuanese species belonging to the latter. Actually, this species is rather peculiar in some external features, which remind us of certain species of the Nepalese subgenus, *Meganebrius*. However, basic structure of the genitalia proves that this species is nothing but a member of *Carabus* (s. str.), and

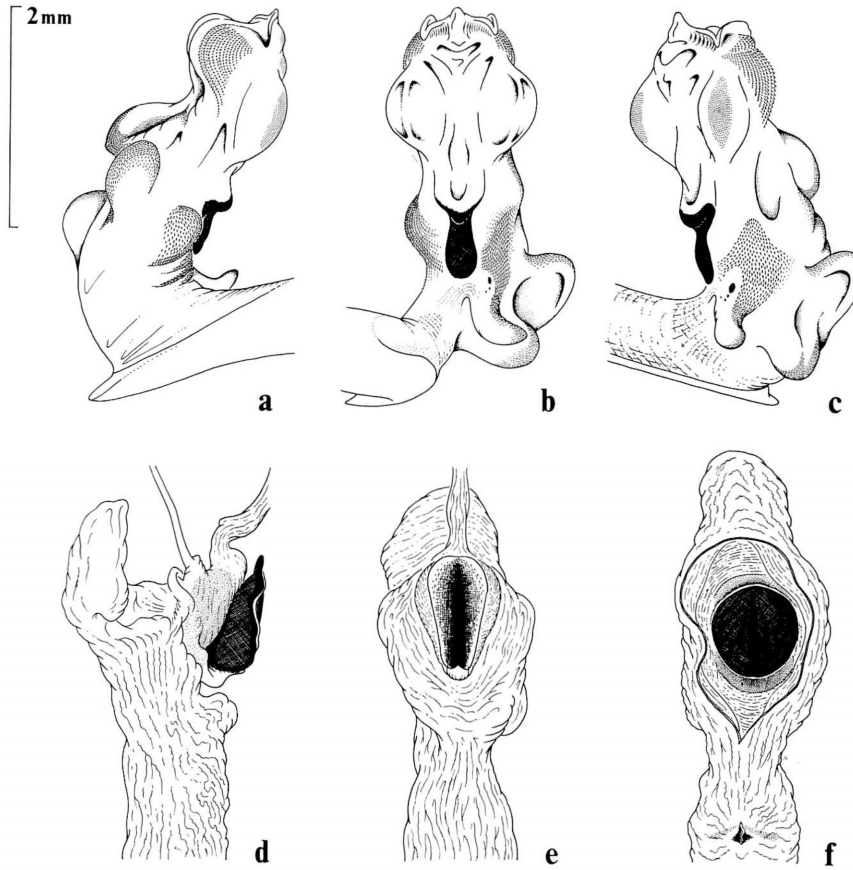


Fig. 18. Genital organ of *Carabus* (s. str.) *vigilax* BATES, from Mt. Emei Shan, central Sichuan. ——a–c, Endophallus; a, right lateral view; b, dorsal view; c, left lateral view.——d–f, Female genitalia; d, right lateral view; e, ventral view; f, dorsal view (dorsal wall of vagina partly removed to show inner plate of ligular apophysis).

LAPOUGE's subgenus seems to have little taxonomic significance also from this viewpoint.

5. *Carabus* (s. str.) *nanosomus* HAUSER, 1931

(Figs. 6, 13, 19)

Carabus (*Apotomopterus*) *nanosomus* HAUSER, 1931, Mitt. dt. ent. Ges., **2**, p. 5; type locality: Prov. Chinae Szechuan mer., Mts. Kingfushan, 2,000 m, prope flum.; Sungkanho.——BREUNING, 1932, Best.-Tab. eur. Coleopt., (104), pp. 226, 227.

Apotomopterus (s. str.) *nanosomus*: LAPOUGE, 1932, Gen. ins., (192 c), p. 677.

Male genitalia. Aedeagus with the apical lobe a little more elongate than

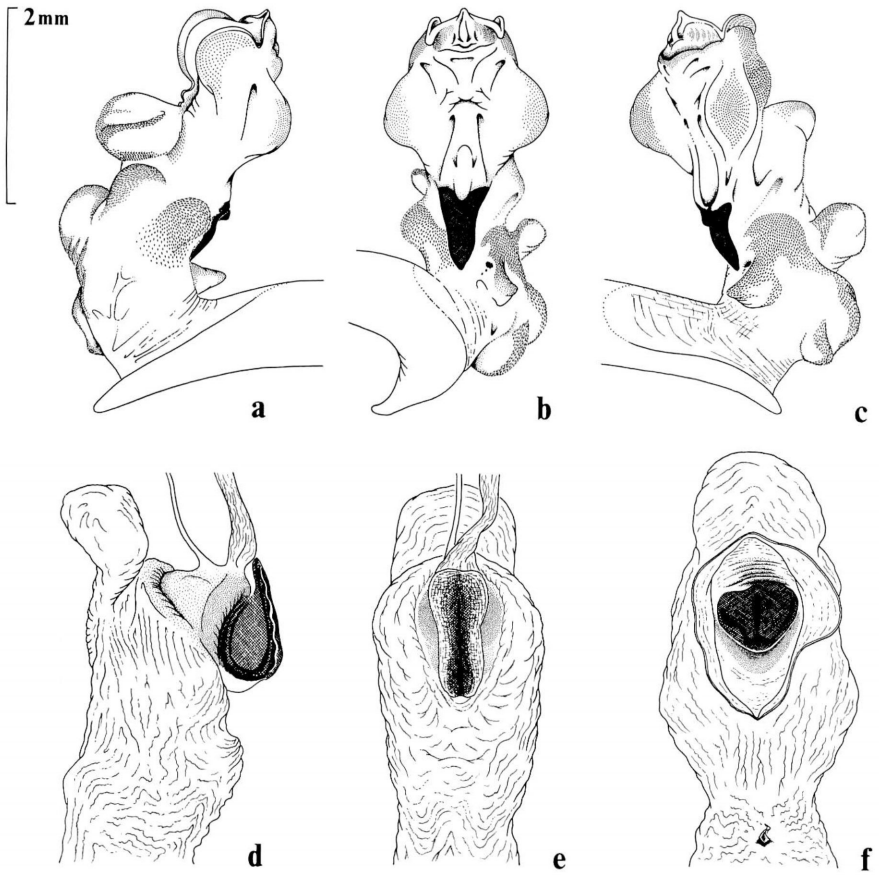


Fig. 19. Genital organ of *Carabus* (s. str.) *nanosomus* HAUSER, from Mt. Jinfo Shan, Southeast Sichuan.——a–c, Endophallus; a, right lateral view; b, dorsal view; c, left lateral view.——d–f, Female genitalia; d, right lateral view; e, ventral view; f, dorsal view (dorsal wall of vagina partly removed to show inner plate of ligular apophysis).

in *C.* (s. str.) *vigilax*; CP sagittiform, about 1.6 times as long as wide, widest at the base, and gradually narrowed to the apex which is rather sharply pointed; viewed laterally, central part of the basal ridge strikingly protuberant to form a subtriangular projection, and median portion of CP gently convex dorsad; BS, BSL and LBL as in *C.* (s. str.) *vigilax*, RBL also absent.

Female genitalia. BC as in *C.* (s. str.) *vigilax*; OLA very narrow, about twice as long as wide, rather weakly constricted at the middle, with the anterior margin broadly rounded, the posterior also rounded and slightly re-entrant at the middle; VLA rather high and moderately sclerotized; ILA a little wider than long, widest before the middle, much gradually narrowed posteriad than anteriad, with the posterior margin obtusely rounded and not clearly re-entrant at the middle; ES very small,

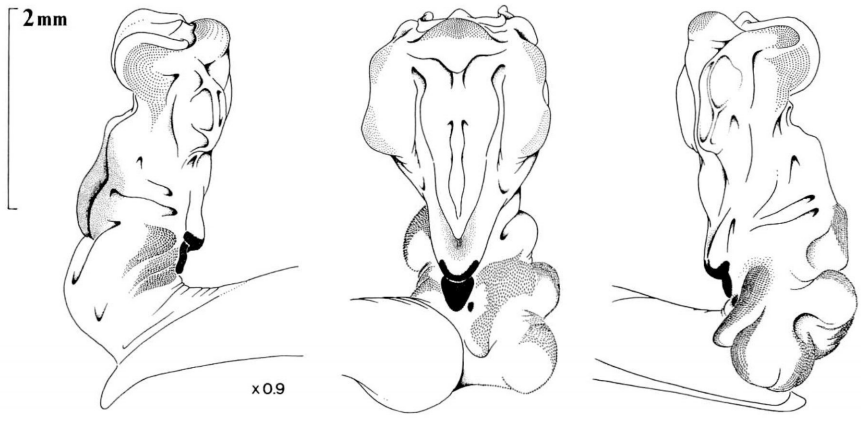


Fig. 20. Endophallus of *Carabus* (s. str.) *nestor* BREUNING, from Mt. Jinfo Shan, Southeast Sichuan; a, right lateral view; b, dorsal view; c, left lateral view.

with the vertical plate rather high.

Specimens examined. 1 ♂, "Giufu Shan (=error of Ginfu Shan=Jinfo Shan !), Szechuan, 1,500–2,000 m, REITTER, E." in coll. H. KEZUKA; 1 ♂, "same data", in coll. Y. IMURA; 1 ♀, "same data"/"*Apotomopt. nanosomus*"/"MUSEUM PARIS, COLL P. RAYNAUD" (MP).

Notes. This species has some peculiar external features common to *C.* (s. str.) *vigilax*, *e. g.*, long and slender palpi and legs, strongly cordate prothorax, but is much different from the latter in the shape of CP and ligular apophysis. The presence of hairless ventral depressions on the segments 5 to 7 of male antennae is also diagnostic.

6. *Carabus* (s. str.) *nestor* BREUNING, 1934

(Figs. 7, 14, 20)

Apotomopterus nestor BREUNING, 1934, Folia zool. hydrobiol., **6**, p. 30; type locality: Szetschuan, Kin-fu-shan in Höhe von 1,000 bis 2,000 m.

Male genitalia. Aedeagus with the ventral margin more strongly arcuate near the apex than in the other species; endophallus large and rather depressed, with relatively wide and inflated apical part; CP situated a little behind the middle, rather small and strawberry-shaped, with the surface fully coated with dense granules; basal part of CP strikingly ridged, forming a wide U in dorsal view, and conspicuously protuberant dorsad in lateral view; dorsal wall of endophallus connecting with CP also conspicuously swollen, forming a long U in dorsal view, and the swelling is much more elongate longitudinally than in the other species; BS and BSL almost as in the other species; LBL large and bilobed; RBL absent.

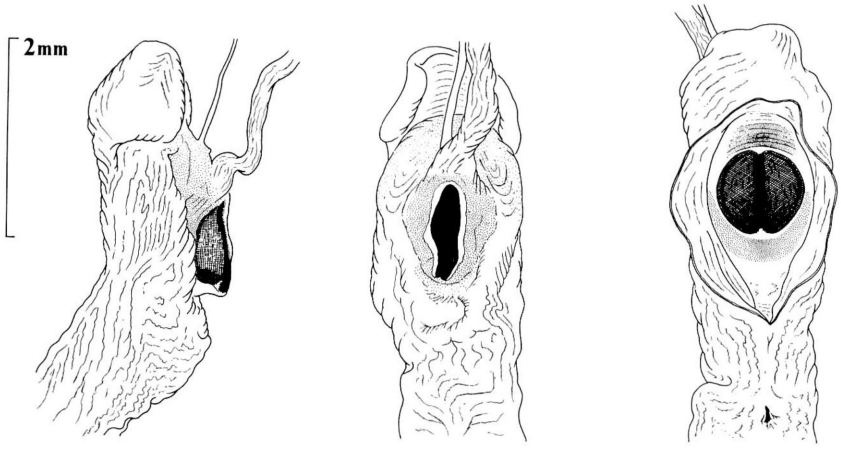


Fig. 21. Female genitalia of *Carabus* (s. str.) *vigil* SEMENOW, from "Minchow", Gansu; a, right lateral view; b, ventral view; c, dorsal view (dorsal wall of vagina partly removed to show inner plate of ligular apophysis).

Specimen examined. 1 ♂, "Kin-fu-Shan, Szetschuan"/"PARATYPES"/"*Apotomopterus nestor*, mihi, Paratyp, det. BREUNING" (NMB).

Notes. This species is rather unique in the conformation of endophallus, above all in the shape of CP. The type locality of this interesting species, Mt. Jinfo Shan (=Kinfu Shan), situated near the Guizhou border at the southeastern end of Sichuan Sheng, is the same as that of *C.* (s. str.) *nanosomus*, though I do not know whether they really coexist. Sympatry of the two species belonging to *Carabus* (s. str.) is also observed on Mt. Emei Shan, central Sichuan, where both *C.* (s. str.) *tieguanzi* nov. and *C.* (s. str.) *vigilax* are recorded.

7. ***Carabus*** (s. str.) ***vigil*** SEMENOW, 1898

(Figs. 8, 21)

Carabus striatus: SEMENOW, 1887, Horae Soc. ent. ross., **21**, pp. 398–400; type locality: "entre les villages Syr-gou et Katapou, non loin de la ville Min-tchéou dans la prov. Kan-sou". [Nec CHAUDOIR, 1869, Rev. Mag. Zool., **1869**, p. 25.]

Carabus vigil SEMENOW, 1898, Horae Soc. ent. ross., **31**, p. 351.

Apotomopterus (*Ohomopterus*) *vigil*: LAPOUGE, 1932, Gen. ins., (192 c), p. 673.

Carabus (*Apotomopterus*) *vigil*: BREUNING, 1932, Best.-Tab. eur. Coleopt., (104), pp. 227, 228.

Female genitalia. BC developed, with the ventral side deeply concave to form a pair of distinct lateral lobes extending ventrad; OLA strongly pigmented, narrow and slender, somewhat spindle-shaped with the posterior part a little distorted; VLA not so high; ILA almost circular in the outline, somewhat hinge-like, with hemi-

circular discs on either side of the mid-line gently convex above; both the anterior and posterior margins of ILA a little re-entrant at the middle; VA recognisable though small; ES very small, hardly pigmented at the base, with a spine-like vertical plate.

Specimen examined. 1 ♀, "Minchow, Kansu"/"*Apotomopterus vigil* SEM." (NMB).

Notes. Since I have been unable to examine the male genitalia, taxonomic status of this species is not definitive at present. So far as concerned with the characteristic conformation of female genitalia, however, this species is considered to belong to *Carabus* (s. str.), and I place it tentatively at the side of the above species. Its slender, somewhat spindle-shaped OLA and large, circular ILA may suggest an affinity of *C.* (s. str.) *vigil* to *C.* (s. str.) *granulatus*.

要　約

井村有希: *Carabus yunnanus* およびその近縁種の帰属. —— *Carabus yunnanus* FAIRMAIRE は, 中国雲南省から記載された小型のオサムシで, 日本のヒメオサムシ種群の各種によく似た外部形態をもち, 長いあいだトゲオサムシ亜属 *Apotomopterus* に置かれてきた. しかし, 交尾器を検討した結果, 本種は内袋の基本形質においてトゲオサムシとは大きく異なっていることがあきらかになった. さらに, じゅうらいトゲオサムシとして扱われてきたいくつかの小型種についても, その交尾器を検討したところ, 以下の各種がトゲオサムシから除外されるべきであるとの結論が得られた: *C. bornianus* HAUSER, *C. vigilax* BATES, *C. nanosomus* HAUSER, *C. nestor* BREUNING, *C. vigil* SEMENOW.

本論文では, 上記の種をすべてオサムシ亜属に移し, その根拠となる♂♀交尾器の図示と記載を行なった. また最近, 四川省中部の峨眉山より得られた小型の種を調べた結果, オサムシ亜属に属する新種と判明したので, *C.* (s. str.) *tieguanzi* という名を与えて記載した. 本新種は, ♂交尾器内袋の形質や, ♂の触角腹側に無毛凹陥部を欠く点などから, *C.* (s. str.) *bornianus* にもっとも近縁のものと思われる. *tieguanzi* という名は, 中国唐代の伝奇小説, 杜子春伝に登場し, 峨眉山に住んでいたといわれる仙人, 鉄冠子にちなんでつけたものである.

References

BATES, H. W., 1890. Coleoptera collected by Mr. PRATT on the Upper Yang-Tsze, and on the borders of Tibet. *Entomologist*, **23**: 209–213.

BREUNING, S., 1926. Zur Kenntnis asiatischer Caraben. *Koleopt. Rdsch.*, **12**: 67–80.

—— 1932–'37. Monographie der Gattung *Carabus* L. *Best.-Tab. eur. Coleopt.*, (104–110): 1–1610, 41 pls. Reitter, Troppau.

—— 1934. Ueber Carabini. *Folia zool. hydrobiol., Riga*, **6**: 29–40.

CHAUDOIR, M. DE, 1869. Descriptions de Cicindélètes et de Carabiques nouveaux. *Rev. Mag. Zool.*, **1869**: 22–28.

DEUVE, Th., 1989. Nouveaux Carabidae des collections de l'Institut Zoologique de l'Academia Sinica de Pékin (Coleoptera) (1). *Nouv. Rev. Ent.*, (n. s.), **6**: 159–171.

—— & Y. IMURA, 1990. Nouveaux *Carabus* (*Apotomopterus*, *Morphocarabus*, *Scambocarabus*) (Coleoptera, Carabidae) des régions montagneuses de Chine. *Elytra, Tokyo*, **18**: 1–13.

FAIRMAIRE, L., 1886 a. Diagnoses de Coléoptères nouveaux. *Le Naturaliste*, **8**: 223–224.

—— 1886 b. Descriptions de Coléoptères de l'intérieur de la Chine. *Annls. Soc. ent. Fr.*, **6**:

303–356.

HAUSER, G., 1922. Beitrag zur Carabenfauna Ostasiens. *Arch. Naturg.*, (A), **87**: 103–109.

——— 1931. Weiterer Beitrag zur Kenntnis der Untergattung *Apotomopterus* (Col. Carab.). *Mitt. dt. ent. Ges.*, **2**: 4–5.

ISHIKAWA, R., 1973. Notes on some basic problems in the taxonomy and the phylogeny of the subtribe Carabina. *Bull. natn. Sci. Mus., Tokyo*, **16**: 191–215.

——— 1978. A revision of the higher taxa of the subtribe Carabina (Coleoptera, Carabidae). *Ibid.*, (A), **4**: 45–68.

LAPOUGE, G. V. DE, 1913–'28. Carabes nouveaux ou mal connus. *Misc. ent.*, **21**, **26**, **28**, **30**: 3–229.

——— 1929–'53. Coleoptera Adephaga, Fam. Carabidae, Subfam. Carabinae. *In* WYTSMAN, P. (ed.), *Genera Insectorum*, (192): ME, A–C, E+1–747, 7 maps, 10 pls.

MAINDRON, M., 1906. Notes sur les Carabidae du Yunnan (Col.) (première note). *Bull. Soc. ent. Fr.*, **1906**: 215–217.

MEURGUES, G., & G. LEDOUX, 1966. Intérêt de l'étude du sac interne dévaginé et en extension. *Annls. Soc. ent. Fr.*, (n. s.), **2**: 661–669.

REITTER, E., 1896. Bestimmungs-Tabelle der europäischen Coleopteren, Carabidae, 1, Carabini, gleichzeitig mit einer systematischen Darstellung sämmtlicher Subgenera der Gattung *Carabus* L. *Verh. naturf. Ver. Brünn*, **34**: 38–198.

SEMENOW, A., 1887. Insecta a Cl. G. N. POTANIN in China et in Mongolia novissime lecta. I. Tribus Carabidae. *Horae Soc. ent. ross.*, **21**: 390–427.

——— 1898. Symbolae ad cognitionem generis *Carabus* (L.) A. MOR., II, Formarum novarum decas III et IV. *Ibid.*, **31**: 315–371.

STURANI, M., 1967. Ligula ed endofallo in alcune specie appartenenti generi *Carabus* LINNAEUS (s. l.), *Calosoma* WEBER e *Campalita* MOTSCHOULSKY (Coleoptera Carabidae). *Boll. Soc. ent. ital.*, **97**: 9–21.

Elytra, *Tokyo*, **18** (2): 154, November 15, 1990

新 刊 紹 介

Les Coléoptères du Monde, Vol. 8, Carabini 1 —*Apotomopterus*, *Ohomopterus*, *Archaeocarabus*, *Isiocarabus*, *Morphocarabus* (1)—.

By P. RATTI, P. CAVAZZUTI, A. CASALE & S. BATTONI.
122 pp., 27 pls. 1990. Sciences Nat, France. 875 F.

Sciences Nat 社からシリーズとして出されている“世界の甲虫”に，いよいよオサムシが登場することになった．今回出版された第 1 部は，中国大陸から極東地域に分布する種を多く含むグループを扱っているので，わが国の研究者，愛好家にとってもきわめて興味深く，重要なものといえよう．

15 枚の原色図版に収められた 112 種の顔ぶれはなかなか見事で，中国，ビルマ，ラオスなどから 1～数頭の標本しか知られていないような珍品もかなり含まれている．本書で初めて図示される種もかなりの数にのぼるであろう．欧米の各博物館に保管されている基準標本の写真もきわめて貴重で，レニングラードの *Carabus* (*Archaeocarabus*) *relictus* や，スミソニアンの *C.* (*A.*) *kweitshauensis* などを目にしたときにはおおいに感激した．

それにしても，これだけ充実した標本を扱っておきながら，内容的には本書もまた，悪評高い同シリーズの伝統をしっかりと守っているようである．図版の前後に，仏語と英語による同内容の本文を配した構成となっているが，種ごとの解説が簡単すぎるうえ，検索表も付いていないので，種や亜種の正確な認定はほとんど不可能に近い．種の配列は，ブルメンタールのチェックリスト（ブロイニングの総説発行後に記載された種を補って個人的に作成されたもの）をほぼそのまま踏襲したに過ぎず，外部形態のみに依存したその古典的分類体系は，とても容認できるものではない．*Apotomopterus* のなかには明らかに系統の異なる種が含まれているし，*Morphocarabus* という，いわば巨大なルツボのなかに，複数の系統に由来するグループをすべて詰め込んで涼しい顔をしていられる無神経さに呆れるのは，筆者ばかりではあるまい．学名の綴りや同定の誤りなど，アラを探しはじめればきりがなく，インセクト・マガジン (1970, オサムシ特集号) で日本語により暫定的に提示された型名が，あたかも正式に記載された学名であるかのごとくラテン語表記されているのには唖然とさせられる．分布図にいたっては，もはや誤りをいちいち指摘する気も失せるシロモノで，邦産種のそれを見ると，あまりの惨状に誰しも思わず目を覆いたくなるだろう．他の地域も推して知るべしで，中国産種の分布図はブロイニングの焼き直しに過ぎないし，朝鮮半島産のものについても，この地域を扱ううえで必須の文献である KWON & LEE のモノグラフ (1984) がまったく無視されている．

本書がこうまで低質なものになってしまった原因のひとつは，ブロイニングの種の配列に固執するあまり，*Apotomopterus* や *Isiocarabus* といった，世界のオサムシのなかでももっとも知られていないグループから先に手をつけてしまった点にもあるだろう．著者らの地元であるヨーロッパ産のものから始めていれば，もう少しはましな仕事ができたものと信じたい．それにしても，文献，情報の収集ならびに原記載の正確な検討に対する努力が決定的に不足していて，これではとうぶん，既刊の巻と同様の酷評をあび続けることは避けられまい．1 頭の図示もなかった“ブロイニング”に出てくる種の大半を原色で示し，絵合わせによる同定を容易にした功績は大きいが，それ以外の部分については，イタリア人の著者 4 人のもつビジョンやオリジナリティといったものがなんら感じられない本に仕上がってしまっている．それとも冒頭に述べられているように，本書は“オサムシのレビジョンを試みたものではなく，単純に既知種の図解に徹した”ものと割り切って，あまり目くじらを立てず，図示された珍品を楽しく眺めておけばよい性格のものなのだろうか？ 日本国内での価格は 25,000 円前後．

(井村有希)

Elytra, Tokyo, **18** (2): 155–165, November 15, 1990

Broscine Carabid Beetles of the Genus *Eobroscus* (Coleoptera, Carabidae)

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Abstract A new subgenus belonging to the genus *Eobroscus* KRYZHANOVSKIJ is erected under the name of *Orobroscus*, for the type species, *Eobroscus* (*Orobroscus*) *masumotoi*, from Taiwan and *E. bhutanensis* MORVAN from Bhutan. It is mainly characterized by smooth claw segments and secondary sexual characters in the male. Redescriptions and brief notes are given on all the known species of the genus.

The genus *Eobroscus* is a small group of medium-sized broscine carabids, originally erected by KRYZHANOVSKIJ (1951, p. 538) for an Asian species. Only a single species, *E. bhutanensis* MORVAN (1982, p. 77), has been added since its establishment. It is mainly characterized by the following points: 1) head with a single supraorbital pore on each side; 2) presence of a deep transverse sulcus on the neck constriction; 3) sides of gula with two oblique foveae on each side; 4) in the male, penultimate sternite with a single tubercle at the median part, and 5) at least, proximal four segments of tarsi strongly rugose dorsad.

Through the courtesy of Dr. S.-I. UÉNO and Mr. K. MASUMOTO, I was able to examine an interesting species of this genus obtained in Taiwan. Judging from the configuration of male genital organ and presence of two pairs of anal setae in the male, the Taiwanese broscine seemed to bear a close relationship with *E. bhutanensis* recorded only from Bhutan. However, I was unable to draw a final conclusion solely on the basis of the original description. In order to clarify its true systematic position, I asked for a loan of the type specimen of *E. bhutanensis* to the Naturhistorisches Museum Basel, and was granted it through the courtesy of Dr. M. BRANCUCCI. After a direct comparative study, it became evident that the Taiwanese specimens must belong to a new species and that both the Taiwanese and Bhutanese forms must be separated subgenerically from the type species of *Eobroscus*. Their descriptions will be given in the present paper.

The abbreviations used herein are as follows: HW – greatest width of head; PW – greatest width of pronotum; PL – length of pronotum, measured along the median line; PA – width of pronotal apex; PB – width of pronotal base; EW – greatest width of elytra; EL – greatest length of elytra; M – arithmetic mean.

Before going further, I wish to express my deep gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for reading the manuscript of this paper and giving me the opportunity to study on the invaluable material. Thanks

are also due to Mr. Kimio MASUMOTO of Tokyo University of Agriculture for supplying me with broscine specimens, and to Professor Masataka SATÔ of Nagoya Women's University for his kind help. Further, I am deeply indebted to Dr. Michel BRANCUCCI of the Naturhistorisches Museum Basel for the loan of the type specimen of *Eobroscus bhutanensis* MORVAN under his care.

Key to the Subgenera

1 (2) Anal sternite provided with a pair of setae in ♂, with two pairs of them in ♀; in ♂, proximal three segments of each protarsus furnished beneath with adhesive hairs; claw segments longitudinally strigose on the dorsal surface ..... *Eobroscus* s. str.

2 (1) Anal sternite provided with two pairs of setae in both sexes; in ♂, proximal two segments of each protarsus furnished beneath with adhesive hairs; claw segments smooth on the dorsal surface..... *Orobroscus* MORITA, nov.

Eobroscus (s. str.) ***lutshniki*** (ROUBAL)

[Japanese name: Murasaki-sujiashi-gomimushi]

(Figs. 1–3, 6, 11)

Broscus Lutshniki ROUBAL, 1928, Wien. ent. Ztg., **45**: 90. —— JEDLIČKA, 1963, Reichenbachia, Dresden, **2**: 56.

Eobroscus lutshniki: KRYZHANOVSKIJ, 1968, Ent. Obozr., **47**: 173. —— ISHIDA, 1971, Ent. Rev. Japan, Osaka, **23**: 63. —— NAKANE, 1978, Nat. & Ins., Tokyo, **13**(2): 6. —— UÉNO, 1985, Coleopt. Japan Col., Osaka, **2**: 63, pl. 12, fig. 23. —— LAFER, 1989, Opred. Nasek. Dal'nego Vostoka SSSR, **3**(1): 126.

Chilotomus chalybaeus: KÔNO, 1936, Biogeographica, Tokyo, **1**: 79 [nec FALDERMAN, 1835].

Eobroscus richteri KRYZHANOVSKIJ, 1951, Ent. Obozr., **31**: 538. —— NAKANE, 1963, Icon. Ins. Japon. Col. nat. ed., Tokyo, **2**: 22, pl. 11, fig. 21.

Broscus richteri: JEDLIČKA, 1963, Reihenbachia, Dresden, **2**: 54.

Tosawabroscus amabilis S. UÉNO, 1953, Shin Konchû, Tokyo, **6**(7): 49 [nom. nud.]. —— ISHIDA, 1958, Akitu, Kyoto, **7**: 17.

Length: 14.61–15.49 mm (from apical margin of clypeus to apices of elytra).

Body elongate, with narrow fore body and relatively short antennae. Colour dark brown with purplish lustre.

Head convex, with frontal furrows very shallowly and widely impressed in front and divergent behind; eyes large; genae relatively convex; lateral grooves deep, situated just inside eyes and a little divergent behind; neck constriction rather distinct with a deep transverse sulcus; mandibles long, hooked at apices, each usually with a single seta; mentum with two pairs of setae; mentum tooth rather wide, more or less bifid or slightly emarginate; submentum with three pairs of setae; gula rarely with transverse wrinkles; each side of gula with two oblique foveae; area between the two foveae strongly convex; apical margin of labrum almost straight, and with six

setae; clypeus with a pair of setae; antennae relatively short; relative lengths of antennal segments as follows: I: II: III: IV: V: VI: XI≒1: 0.63: 1.42: 1.22: 1.03: 1.14: 1.20; segment XI pointed at apex; microsculpture almost vanished.

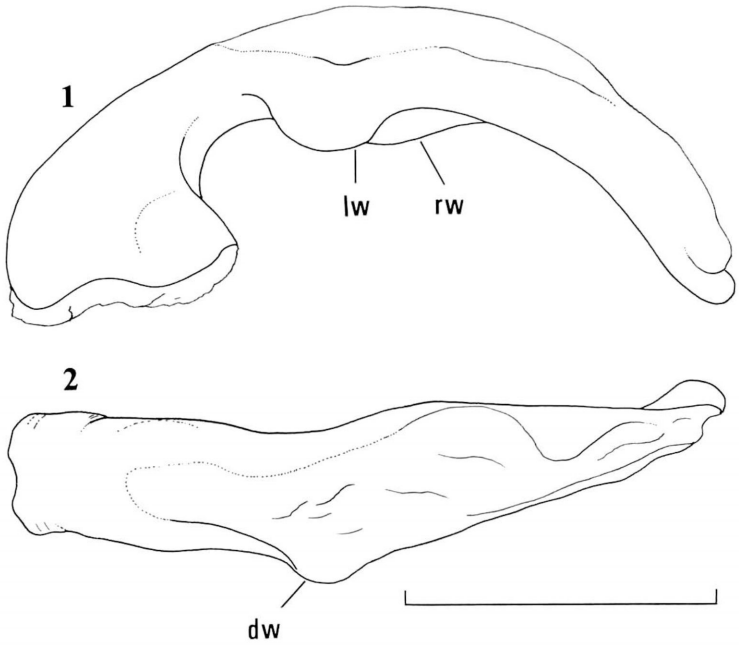
Pronotum cordate and convex, a little wider than long, widest at about three-fifths from base; PW/HW 1.12–1.19 (M 1.17) in 4 ♂♂, 1.14–1.16 (M 1.15) in 4 ♀♀, PW/PL 1.03–1.15 (M 1.09) in 4 ♂♂, 1.00–1.07 (M 1.03) in 4 ♀♀, PW/PA 1.31–1.41 (M 1.34) in 4 ♂♂, 1.31–1.37 (M 1.35) in 4 ♀♀, PW/PB 1.42–1.46 (M 1.44) in 4 ♂♂, 1.42–1.48 (M 1.45) in 4 ♀♀; apex straight, a little wider than base, PA/PB 1.04–1.12 (M 1.08) in 4 ♂♂, 1.06–1.08 (M 1.08) in 4 ♀♀; sides strongly arcuate in front, very weakly sinuate behind and then parallel towards hind angles; reflexed lateral borders very narrow; anterior pair of marginal setae inserted at about a fourth from apex, with no additional seta, posterior one inserted a little before hind angles; median line clearly impressed on the disc, reaching neither apex nor base; basal part with coarse punctures; base weakly arcuate at middle, slightly emarginate near hind angles, and very weakly oblique at the sides; apical transverse impression obsolete; no appreciable basal foveae; hind angles obtuse; microsculpture almost vanished.

Elytra oblong-ovate, widest at about middle or at a level a little behind middle, and more gradually narrowed towards bases than towards apices; EW/PW 1.63–1.68 (M 1.65) in 4 ♂♂, 1.65–1.74 (M 1.70) in 4 ♀♀, EL/EW 1.47–1.58 (M 1.52) in 4 ♂♂, 1.50–1.55 (M 1.53) in 4 ♀♀; striae superficial, weakly punctate, becoming shallower at the sides; basal pore present, being situated on interval 2 and close to stria 2; scutellar striole wanting; intervals flat; apical striole short, very shallow, and free at the anterior end or joining stria 7; a single pore situated inside apical striole; marginal series composed of three pores; microsculpture distinct, consisting of isodiametric meshes in both sexes.

Apical part of prosternum, prepisternum, prepimeron, mesosternum and apical part of metasternum sparsely and coarsely punctate; mesepisternum, metepisternum and sides of basal sternite rarely with coarse punctures; anal sternite with a pair of setae in ♂, with two pairs of them in ♀.

Legs rather long and slender; protibiae straight, gently dilated towards apices, not produced at outer apical angles, and with longitudinal strigae and spines in apical halves; meso- and metatibiae with longitudinal strigae and spines though the proximal portions are smooth; in both sexes, all tarsal segments longitudinally strigose, and proximal three segments usually with additional spine(s) on the dorsal surface (cf. Figs. 3 & 6); in ♂, proximal three segments of each protarsus widely dilated and furnished beneath with adhesive hairs, though not produced inwards at apices, proximal two segments of each mesotarsus also furnished beneath with adhesive hairs.

Aedeagus tubular, arcuate, widely membraneous on dorsum, and with three wings (cf. Fig. 1) at about middle; two wings (rw & lw) situated on each lateral edge of the ventral side, and produced ventrad; right wing larger than the left; dorsal surface of dorsal wing (dw) membraneous; basal part rather large, with large basal orifice which is open dorsally (cf. BALL, 1956, p. 41); viewed laterally, apical lobe



Figs. 1–2. Aedeagus of *Eobroscus* (s. str.) *lutshniki* (ROUBAL) from Marunuma, Gunma Pref., Japan; 1, left lateral view (lw: left wing, rw: right wing); 2, dorsal view (dw: dorsal wing). (Scale: 1.5 mm.)

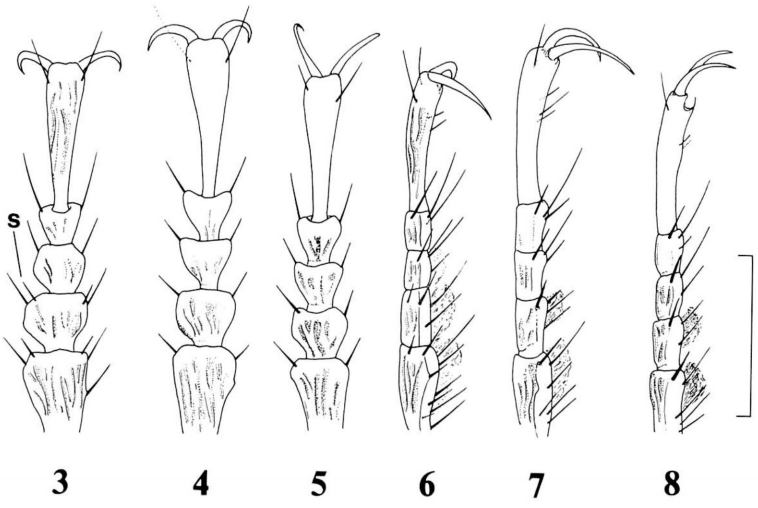
short and widely rounded; viewed dorsally, apical part curved to the right and strongly compressed. Styles rather large and broad at the proximal parts, each bearing long hairs.

Specimens examined. 1 ♂, Mt. Kitaguni-yama, Mutsu-shi, Aomori Pref., 30–VI–1985, S. MORITA leg.; 1 ♀, same locality, 23–IX–1985, S. YAMAUCHI leg.; 1 ♀, Ajigasawa, Riv. Akaishi-gawa, Aomori Pref., 25–VIII–1985, S. YAMAUCHI leg.; 1 ♂, Oirase, Fukaura-chô, Aomori Pref., 20–VIII–1989, A. ABE leg.; 1 ♂, 2 ♀♀, Marunuma, Gunma Pref., 31–VIII–1972, S. MORITA leg.; 1 ♂, Mt. Mitô-san, Okutama, Tokyo, 9–VII–1978, S. MORITA leg.

Range. Eastern Siberia, Sakhalin, northwestern China and Japan (Hokkaido, Honshu, Shikoku and Kyushu).

Notes. This species is usually taken at light in mountainous areas. However, the specimens collected by myself were found from under stones along narrow streams.

According to the drawings given by KRYZHANOVSKIJ (1951, p. 539), the continental specimen examined by himself is distinguished from the Japanese one by the following points: 1) submentum with two pairs of setae; 2) genae more convex; 3) apical margin of pronotum weakly emarginate; 4) basal margin of pronotum arcuate, and 5) median line reaching basal margin of pronotum. Unfortunately, it is impossible



Figs. 3–8. Right protarsi in the male of *Eobroscus* spp.; 3–5, dorsal view; 6–8, right lateral view. —— 3, 6. *E.* (s. str.) *lutshniki* (ROUBAL) (s: additional spine). —— 4, 7. *E.* (*Orobroscus*) *bhutanensis* MORVAN. —— 5, 8. *E.* (*Orobroscus*) *masumotoi* MORITA, sp. nov. (Scale: 1 mm.)

to determine the presence or absence of a pair of setae near the mentum tooth because of inadequacy of the sketch, but the Japanese form seemed to me to belong to true *lutshniki*.

Subgenus ***Orobroscus*** MORITA, nov.

Type species: *Eobroscus masumotoi* MORITA, sp. nov.

As was already shown in the key, this new subgenus is distinguished from the nominotypical one by the following points: 1) anal sternite provided with two pairs of setae in both sexes; 2) in ♂, proximal two segments of each protarsus furnished beneath with adhesive hairs; 3) all tarsal segments without additional spines on the dorsal surface; and 4) claw segments smooth on the dorsal surface.

Notes. In the broscine taxonomy, the presence or absence of adhesive hairs on the ventral surface of protarsi and the number of setae on anal sternite in the male are regarded as important key characters at subgeneric or generic level (cf. TOWNSEND, 1971, p. 183; HABU, 1973, p. 85; DOSTAL, 1984, p. 134). Though *Eobroscus* is characterized by having three wings on the surface of aedeagus, the same genitalic peculiarity is also found in the Nepalese broscine, *Broscosoma monticola* HABU (1973, p. 87, fig. 6). It had better be regarded as being specific, since the relationship between them does not appear very close.

Eobroscus (*Orobroscus*) *bhutanensis* MORVAN

(Figs. 4, 7, 9–10)

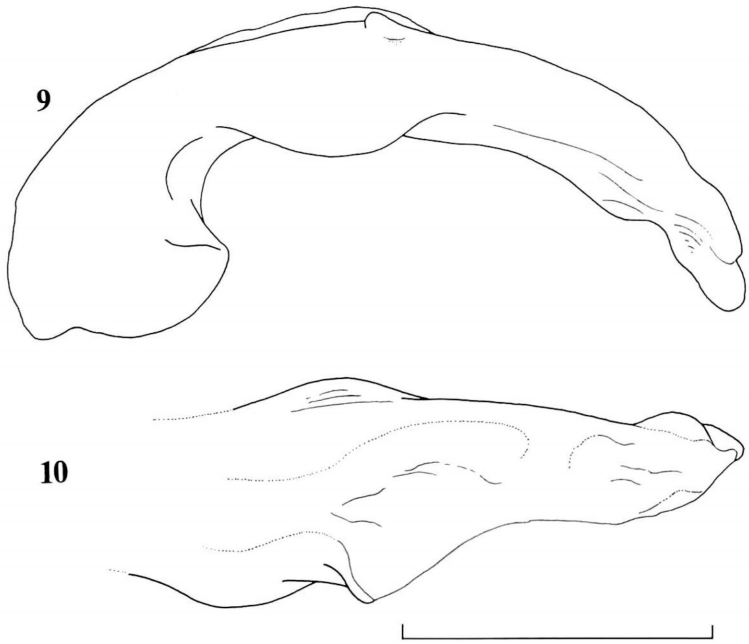
Eobroscus bhutanensis MORVAN, 1982, Ent. basil., 7: 77, figs. 1–8; type locality: Dorjee Khandu, Umgeb. Thimpu, Bhutan.

This Bhutanese species was fully described by MORVAN. It is characterized mainly by rather large body, blackish coloration and wide pronotum. To facilitate comparison, drawings of protarsus and male genital organ are produced herewith.

Type depository. Naturhistorisches Museum Basel.

Range. Bhutan; known only from the type locality.

Specimens examined. 1 ♂ (holotype), "Bhutan Dorjee Khandu"/"Thimphu Umgeb. 1. 9. 1976"/"*Eobroscus bhutanensis* n. sp. MORVAN"/"HOLOTYPE".



Figs. 9–10. Aedeagus of *Eobroscus* (*Orobroscus*) *bhutanensis* MORVAN; 9, left lateral view; 10, dorsal view. (Scale: 1.5 mm.)

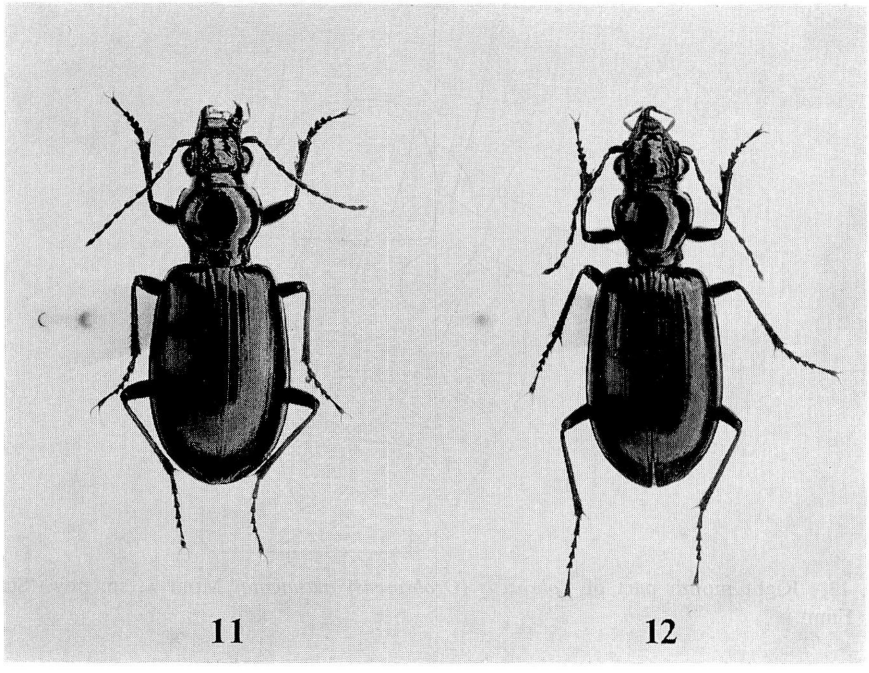
Eobroscus (*Orobroscus*) *masumotoi* MORITA, sp. nov.

[Japanese name: Taiwan-murasaki-sujiashi-gomimushi]

(Figs. 5, 8, 12–18)

Length: 14.51–15.20 mm (from apical margin of clypeus to apices of elytra).

Body elongate, with rather large head. Colour blackish brown with purplish lustre; fore body darker than hind one.



Figs. 11–12. —— 11. *Eobroscus* (s. str.) *lutshniki* (ROUBAL), from Mt. Kitaguni-yama in Japan. —— 12. *E.* (*Orobroscus*) *masumotoi* MORITA, sp. nov., from A-li Shan in Taiwan.

Head convex, with frontal furrows widely impressed and divergent behind; eyes large; genae relatively convex; lateral grooves situated just inside eyes, straight, and a little diverging and deepening posteriorly; neck constriction rather distinct, with a deep transverse sulcus; mandibles long, hooked at apices, each with a single seta; mentum with two pairs of setae; mentum tooth wide, very slightly emarginate or widely rounded; submentum with three pairs of setae though in the holotype, the right side of submentum bears a single additional seta (cf. Fig. 13); gula almost smooth; each side of gula with two oblique foveae; the area between the two foveae strongly convex; apical margin of labrum almost straight and with six setae; clypeus with a pair of setae; relative lengths of antennal segments as follows: I: II: III: IV: V: VI: XI≒1: 0.60: 1.33: 1.01: 0.99: 0.99: 1.21; apex of segment XI strongly pointed; no appreciable microsculpture.

Pronotum cordate and convex, a little wider than long, widest at about seven-tenths from base; PW/HW 1.06 in the holotype, 1.03–1.13 in 2 ♀♀, PW/PL 1.06 in the holotype, 1.10–1.15 in 2 ♀♀, PW/PA 1.27 in the holotype, 1.26–1.31 in 2 ♀♀, PW/PB 1.48 in the holotype, 1.43–1.48 in 2 ♀♀; apex straight, a little wider than base, PA/PB 1.17 in the holotype, 1.09–1.17 in 2 ♀♀; sides moderately arcuate in front, very weakly sinuate and then slightly divergent towards hind angles, which are obtuse; reflexed lateral borders very narrow, but in the allotype, they become wider

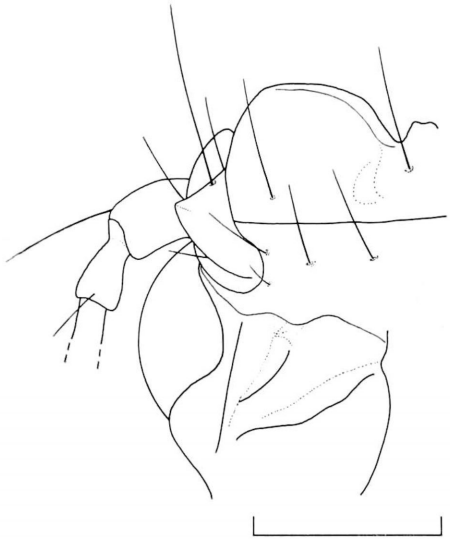


Fig. 13. Right mouth part of *Eobroscus* (*Orobroscus*) *masumotoi* MORITA, sp. nov. (Scale: 1 mm.)

from the level of the widest part to apical angles; median line shallow, reaching neither apex nor base; anterior pair of marginal setae situated at about the widest part, with no additional seta, posterior one situated a little before hind angles; basal part sparsely and coarsely punctate; no appreciable basal foveae; base moderately arcuate at middle, weakly oblique close to hind angles; microsculpture almost vanished.

Elytra oblong-ovate, widest a little behind the middle; EW/PW 1.69 in the holotype, 1.62–1.63 in 2 ♀♀, EL/EW 1.58 in the holotype, 1.65–1.69 in 2 ♀♀; striae very shallow, obsolete at the sides though the stria 8 somewhat deepens apically, striae 1–3 indistinctly crenulate; basal pore present, being situated on interval 2 and close to stria 2; scutellar striole wanting; intervals flat; apical striole very shallow and joining stria 7; a single pore present inside apical striole; marginal series composed of three pores; microsculpture distinct, consisting of irregular lines or partially of irregular meshes in ♂, of polygonal meshes in ♀.

Prosternum coarsely and sparsely punctate in the area a little before each procoxa; prepisternum and prepimeron rarely with coarse punctures; sternites except for the anal one with wrinkles and coarse punctures.

In ♂, two proximal segments of pro- and mesotarsi furnished beneath with adhesive hairs; all tarsal segments with no additional spines on the dorsal surface; claw segments almost smooth on the dorsal surface.

Aedeagus tubular, arcuate, widely membraneous on dorsum, and with three wings; two wings (right & dorsal wings) situated at about middle, the remaining one (left wing) situated at 3/7 from base; right wing narrow, with several longitudinal

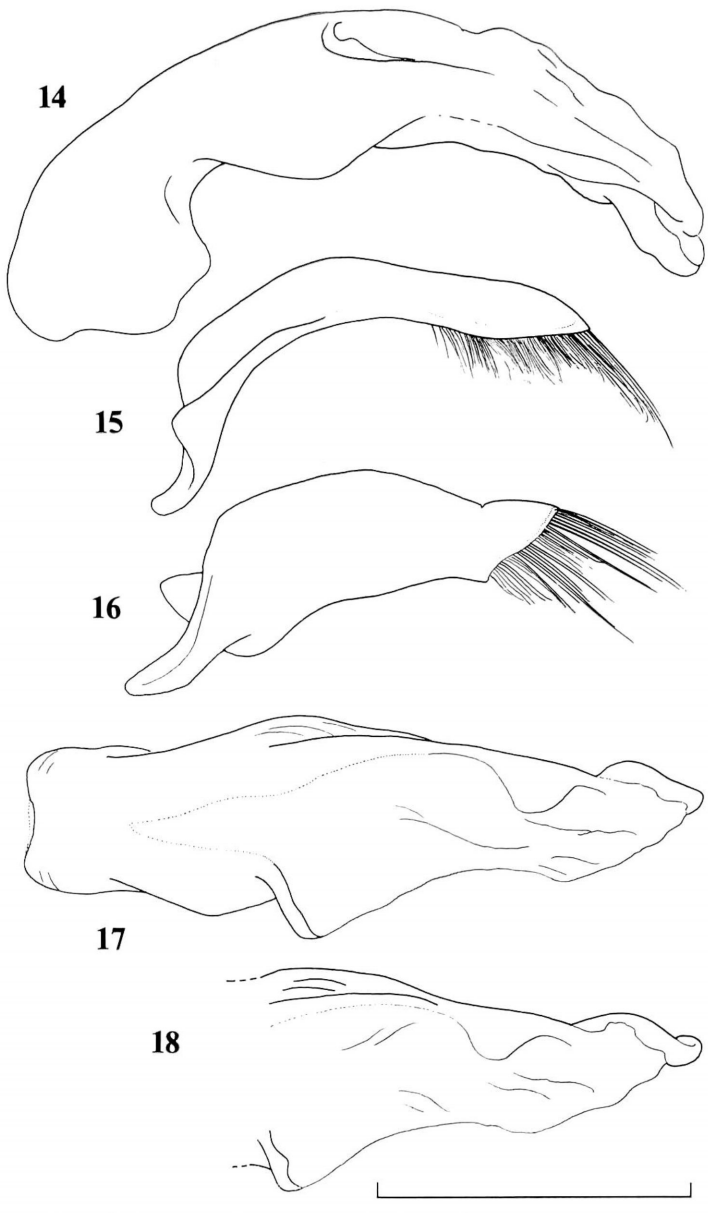


Fig. 14–18. Male genital organ of *Eobroscus* (*Orobroscus*) *masumotoi* MORITA, sp. nov.; 14, aedeagus, left lateral view; 15, right style, left lateral view; 16, left style, left lateral view; 17, aedeagus, dorsal view; 18, apical part of aedeagus, dorso-apical view. (Scale: 1.5 mm.)

wrinkles at the base; dorsal surface of dorsal wing membraneous though the proximal margin is heavily sclerotized; left wing wide and produced ventrad; viewed laterally, apical lobe short and widely rounded; viewed dorsally, apical lobe slightly inclined

to the right and strongly compressed. Styles large and long, right style narrower than the left; each style with a row of hairs.

Type series. Holotype: ♂, 25-VI-1981, K. MASUMOTO leg. Allotype: ♀, 8-VIII-1978, Y. SHIBATA leg. Paratype: 1 ♀, 25-VI-1981, K. MASUMOTO leg.

The holo- and allotypes are deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo. The paratype is deposited in my collection.

Though aberrant in the number of setae at the right side of submentum (cf. Fig. 13), only the single male specimen available for this study was selected for the holotype.

Type locality. A-li Shan in Chia-i Hsien, Taiwan.

Notes. Though seemingly different, this new broscine is closely allied to *E. bhutanensis*. It is distinguished from the Bhutanese species by the following points: 1) body smaller; 2) lighter coloration on the dorsal surface with stronger purplish lustre; 3) genae shorter; 4) pronotum less strongly arcuate at the sides; 5) elytra less arcuate at the sides; and 6) aedeagus more robust with shorter apical lobe.

It is expected that more species of this genus will be found by future investigations in a wide blank area between Taiwan and Bhutan, especially in South China.

This new species is dedicated to Mr. Kimio MASUMOTO, one of the collectors of this rare broscine.

要　　約

森田誠司: ムラサキスジアシゴミムシ属について. —— ムラサキスジアシゴミムシ属は, オサムシモドキ亜科 Broscinae に属する小さい一群で, 頸部に横長の深い溝をもつこと, 雄の腹部亜末端節に小突起が認められることなどの主要な特徴をもつ. ここでは, 日本産の標本に基づいてムラサキスジアシゴミムシ *Eobroscus lutshniki* (ROUBAL) を再記載し, 雄交尾器を図示した. また, 台湾で採集された標本を, ブータンから記載されている *E. bhutanensis* MORVAN の正基準標本と比較検討した結果, 新種とみとめて記載し, *E. masumotoi* と命名した. 両種は, 雄の腹部末端節の剛毛が2対であること, 雄の前付節の基部2節の下面に粘着毛をもつこと, 第5付節背面に縦皺がないことなどの特徴から, 基準種とは亜属を異にするものと考えられるので, 新亜属 *Orobroscus* を創設した.

References

ANDREWES, H. E., 1935. Coleoptera. Carabidae. II. – Harpalinae – I. *Fauna of British India, including Ceylon and Burma*. xvi+323 pp., 5 pls., 1 map. Taylor & Francis, London.

BALL, G. E., 1956. Notes on the genus *Zacotus* LE CONTE, 1869, and on the classification of the tribe Broscini (=Broscidae *sensu* JEANNEL, 1941. Coleoptera, Carabidae). *Coleopt. Bull., Rochester*, **10**: 33–52.

DOSTAL, A., 1984. Neue taxa aus der Gattung *Chaetobroscus* SEMJO[sic]NOV 1900 (Coleoptera: Carabidae). *Ent. Z., Frankfurt*, **94**: 134–138.

HABU, A., 1973. On a collection of Carabidae from Nepal made by the Hokkaido University Scientific Expedition to Nepal Himalaya, 1968 (I). *Bull. natn. Inst. agr. Sci., Tokyo*, (C), (27): 81–132.

ISHIDA, H., 1958. Garaboidea [sic] (Coleoptera) of Ohsugi Valley and Mt. Ohdaigahara (I). *Akitu, Kyoto*, **7**: 15–41. (In Japanese.)

ISHIDA, H., 1971. The specific name of *Eobroscus lutshniki* (ROUBAL). *Ent. Rev. Japan, Osaka*, **23**: 63.

JEDLIČKA, A., 1963. Monographie des Tribus Broscini aus Ostasien (Coleoptera, Carabidae). *Reichenbachia, Dresden*, **2**: 53–59.

KÔNO, H., 1936. Die Käfer-Fauna vom Daisetsu Gebirge. *Biogeographica, Tokyo*, **1**: 75–104, 1 pl. (In Japanese.)

KRYZHANOVSKIJ, O. L., 1951. *Eobroscus*, novyi rod zhuzhelits (Coleoptera, Carabidae) iz Primorskogo kraia. *Ent. Obozr.*, **31**: 538–540. (In Russian.)

——— 1968. New and poorly known ground-beetles (Coleoptera, Carabidae) from the fauna of U. S. S. R. and adjacent countries. *Ent. Obozr.*, **47**: 160–175. (In Russian.)

LAFER, G. Sh., 1989. Podotriad Adephaga. *In* LERA, P. A. (ed.), *Opredelitel' Nasekomykh Dal' nego Vostoka SSSR v Shesti Tomakh*, **3**(1): 67–257. (In Russian.)

MORVAN, P., 1982. Quatre nouveaux Carabiques du Bhoutan (4^{e} note) (Coleoptera: Carabidae, Broscini, Pterostichini, Anchomenini). *Ent. basil.*, **7**: 77–88.

NAKANE, T., 1963. Harpalidae. *In* NAKANE, T., *et al.* (eds.), *Icongraphia Insectorum Japonicorum Colore naturali edita*, **2**: 22–54, pls. 11–27. Hokuryukan, Tokyo. (In Japanese.)

——— 1978. The beetles of Japan (new series). 47. Harpalidae 1. *Nat. & Ins., Tokyo*, **13**(2): 6–11. (In Japanese.)

——— & S.-I. UÉNO, 1953. The Coleoptera of Japan [10]. *Shin Konchû, Tokyo*, **6**(7): 43–49. (In Japanese.)

ROUBAL, J., 1928. *Broscus Lutshniki* sp. n. (Coleopt. Carab.). *Wien. ent. Ztg.*, **45**: 90–91.

TOWNSEND, J. I., 1971. Entomology of the Aucklands and other Islands south of New Zealand: Coleoptera: Carabidae: Broscini. *Pacif. Ins. Mon.*, **27**: 173–184.

UÉNO, S.-I., 1985. Carabidae (Nebriinae, Elaphrinae, Loricerinae, Scaritinae, Broscinae, Trechinae). *In* UÉNO, S.-I., Y. KUROSAWA & M. SATÔ (eds.), *The Coleoptera of Japan in Color*, **2**: 54–88. Hoikusha, Osaka. (In Japanese.)

Elytra, *Tokyo*, **18** (2): 166, November 15, 1990

新 刊 紹 介

Opredelitel' Nasekomykh Dal'nego Vostoka SSSR v Shesti Tomakh. Tom 3. Zhestkokrylye, Ili Zhuki. Chast' 1. [Определитель Насекомых Дальнего Востока СССР в Шести Томах. Том 3. Жесткокрылые, Или Жуки. Часть 1]. Ed. P. A. Lera [П. А. Лера]. 572 pp. 1989. Nauka, Leningrad.

日本の昆虫相，とくに北海道など北日本の昆虫相の研究に不可欠な，ソ連極東地方の昆虫分類検索第3巻として，いよいよ甲虫類が登場した．3部に分割して出版されるものらしく，このたび刊行された第1部には，甲虫類の概説と，ナガヒラタムシ亜目，オサムシ亜目，ツブミズムシ亜目，およびカブトムシ亜目のうちのダルマガムシ科からコメツキムシ科までが収められている．(ちなみに，第1巻 (1986) には昆虫類全体の概説と無翅昆虫類からアザミウマ目まで，第2巻 (1988) にはカメムシ目が収載された．)

本文の記事は，12人の研究者の分担執筆で，概説とムクゲキノコムシ科を G. O. Krivolutskaya，科までの検索とエンマムシ上科を O. L. Kryzhanovskij，ナガヒラタムシ亜目，オサムシ亜目，ツブミズムシ亜目，マルドロムシ科，シデムシ科，タマキノコムシ科，デオキノコムシ科，マルトゲムシ科，ドロムシ上科の大部分などを G. Sh. Lafer，ダルマガムシ科とガムシ科を A. G. Shatrovsky，アリヅカムシ科とコケムシ科を S. A. Kurbatov，クワガタムシ科とコガネムシ科を科または亜科によって E. Ja. Berlov，O. I. Kalinina および G. V. Nikolajev のだれか，ナガフナガタムシ科など3科を A. B. Egorov，マルハナノミダマシ科を N. B. Nikitsky，タマムシ科を A. V. Alexeev，コメツキムシ科を E. L. Gurjeva が，それぞれ担当している．

これで，ハネカクシ科を除くコメツキムシ科までの甲虫類のすべてが網羅されたことになり，それぞれの属ごとに，多くの図をともなったかなり詳しい種までの検索表と分布の概略が記述されているので，たいへん使いやすい．しかし，科によっては属までの記述で終わっているものもあり，オサムシ科ミズギワゴミムシ亜科のミズギワゴミムシ族やナガゴミムシ亜科の多くの属のように，種名さえ挙げられていない群も散見される．これらに関する解説は，第2部か第3部に補遺として収載される予定だと記されているが，いずれにしても全篇が完結すれば，日本の甲虫研究者にとってひじょうに便利な，そしてもっとも重要な文献のひとつになることは間違いないだろう．

なお，本書の第2部は，1990年に刊行され，ヒゲブトコメツキ科からハムシ科までが収載されると予告されている．

(上野俊一)

Elytra, Tokyo, **18** (2): 167–173, November 15, 1990

The Anophthalmic Trechine Beetles from the Southwestern Tip of Hokkaido, Northeast Japan[1)]

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Abstract Two anophthalmic species of trechine beetles are recorded from a low hill near the southwestern tip of Hokkaido, Northeast Japan. One of them is *Epaphiopsis* (*Epaphiama*) *oligops* S. UÉNO hitherto known from only the alpine zone of a nearby mountain. The other is a peculiar long-legged species probably belonging to the *Trechiama* group, and though the male is unknown, a new genus is erected for it. The new name given is *Accoella akirai*.

In the summer of 1989, a female specimen of a very strange trechine beetle was collected by Mr. Akira SATO on a low hill near Matsumaé at the southwestern tip of Hokkaido, Northeast Japan, and submitted to me for taxonomic study through the courtesy of Mr. Seiji MORITA. At first sight, it looked like a member of *Epaphiama*, but evidently differed from that subgenus in the slender buccal appendages, long legs and larger number of setiferous dorsal pores on the elytra. In these respects, it seemed closer to *Trechiama*, especially to the group of *T. borealis* (cf. UÉNO, 1971), but the unique configuration of its prothorax and elytral striae distinguished it from all the known species, both described and undescribed, of that genus, which amounted to well more than one hundred. To determine its true affinity, it was necessary to examine male genitalic characters usually adopted for analysing trechine phylogeny.

Since then, Mr. SATO searched for the beetle incessantly, but always without success. Then, in the summer of this year, I myself made two trips to the collecting site, and with the aid of three excellent researchers, made every possible effort to obtain additional material. Unfortunately, however, the small area in which lies the collecting site of the trechine in question is not good for excavating the upper hypogea, and we were able to locate only a very few spots suitable for the excavation. After all, we failed in obtaining any, and instead, found some specimens of another blind species, which had theretofore been known from only the alpine zone of a nearby mountain. This discouraging result of our field investigations led me to conclude that it would be extremely difficult to obtain male specimens of the strange trechine beetle, and though the single female specimen now at my hands is not sufficient for determining its systematic position, I have decided to describe it in the present paper, provisionally under a new genus, in view of its importance in many respects. I believe that the new

1) This study is supported by the Grant-in-aid for Scientific Research No. 63540603 from the Ministry of Education, Science and Culture, Japan.

taxon will hold its validity at least as a subgenus, even if future investigations may prove that it can be included in one of the well known genera.

The abbreviations used in this paper are the same as those explained in previous papers of mine.

Before going further, I wish to express my sincere thanks to Professor Masataka SATÔ, Professor Yoshiaki NISHIKAWA, Ms. Akiko SAITO and Mr. Akira SATO, all of whom kindly helped my investigations in the field, and to Mr. Seiji MORITA who entrusted me with the study of the very important specimen.

Epaphiopsis (Epaphiama) oligops S. UÉNO, 1978

Epaphiopsis (Epaphiama) oligops S. UÉNO, 1978, Bull. natn. Sci. Mus., Tokyo, (A), **4**, pp. 128, 140, figs. 10–12; type locality: Mt. Nakasengen-daké; 1985, Coleopt. Japan Col., Osaka, **2**, p. 66, pl. 13, fig. 10.

Epaphiama oligops: CASALE & LANEYRIE, 1982, Mém. Biospéol., **9**, p. 83.

Additional specimens examined. 3 ♂♂, 1 ♀, Ohmori-yama, 130 m alt. on E slope, Matsumaé-chô, Oshima, SW Hokkaido, NE Japan, 4～5–VIII–1990, S. UÉNO, Y. NISHIKAWA & M. SATÔ leg. (NSMT); 1 ♀, same locality but 50 m in altitude, 5–VIII–1990, Y. NISHIKAWA leg. (NSMT).

Notes. The Matsumaé specimens recorded above are slightly different from the type series in the shape of the pronotum, whose sides are either straight or very slightly sinuate behind the middle. They are, however, otherwise identical with the latter, including the aedeagal characteristics, and cannot be discriminated even as a geographical race.

The new locality of *E. oligops* is only 12.2 km distant to the south by west from Mt. Nakasengen-daké, on which were found the type specimens, but lies at a much lower place. Consequently, the habitat of the new population is utterly different from that of the alpine one. While the types were found from beneath large stones lying at the bottoms of steep gullies in the alpine zone, the Matsumaé specimens were dug out from the upper hypogean zone 1 m or more below the surface. This is interesting, since certain anophthalmic trechines have been known to occur only in caves at low altitude but on the surface at high elevations. *Epaphiopsis oligops* shows the same pattern of altitudinal difference of its habitats, and if the alpine population were not known, it could be regarded as a true subterranean inhabitant.

Genus *Accoella* S. UÉNO, nov.

Type species: *Accoella akirai* S. UÉNO, sp. nov.

Intermediate between *Trechiama* JEANNEL (1927, pp. 129, 141) and *Epaphiama* JEANNEL (1962, pp. 175, 188); probably closer to the former because of its long-legged facies and chaetotaxial peculiarities, but unusually similar to the latter in the

conformation of its body though much elongated.

Body long and narrow with small head and prothorax, depigmented, anophthalmic, and devoid of inner wings; appendages long and slender, but the antennae are relatively short.

Head small, subquadrate, slightly narrower than long, with entire frontal furrows which are very deeply impressed before the level of posterior supraorbital pore; eyes not functional, completely flat, with remnants of ommatidia; genae only feebly convex and entirely glabrous; neck very wide; labrum transverse, with deeply emarginate apical margin; mandibles fairly slender though broad at the bases, rather feebly arcuate near sharp apices, right mandible tridentate, with an obtuse but distinct premolar tooth, left mandible bidentate; mentum transverse, not fused with submentum, with the tooth in apical emargination short and broad, almost simple though somewhat truncated at the tip; submentum sexsetose; ligula hardly porrect, with the apical margin very slightly arcuate, straight at the median part and octosetose; paraglossae thin, slightly arcuate, and extending much beyond the apex of ligula. Palpi slender, with penultimate segments gradually dilated towards apices, obviously shorter than apical segment and entirely glabrous in maxillary palpus, very slightly longer than apical segment and quadrisetose in labial palpus. Antennae relatively short though fairly slender, with the terminal segment not the longest.

Pronotum narrow, somewhat barrel-shaped, with arcuate sides and truncated apex and base, and without appreciable ante-basal sinuation of side borders; front angles obtuse and not produced; hind angles also obtuse though forming on each side a small rectangular tooth at the tip; sides entirely bordered and rather widely reflexed, with two pair of marginal setae, the posterior one of which is almost on hind angles; basal transverse impression widely interrupted at middle; basal foveae semicircular and fairly deep; postangular carinae very obtuse.

Elytra oblong-ovate, deeply, coarsely and entirely punctato-striate, with prehumeral borders complete to the base of stria 5; stria 2 forming apical anastomosis with stria 3, on which lies the preapical pore at about the level of the terminus of apical striole; scutellar striole distinct though short; apical striole short but deep, moderately curved, and almost joining stria 5 which forms subapical anastomosis with stria 6; internal dorsal series composed of three setiferous pores, all lying on stria 3, external dorsal series of two or three pores on stria 5; marginal umbilicate pores aggregated and regular, the four pores of the humeral set being ranged equidistantly.

Microsculpture of head fine though distinct, mostly consisting of more or less wide meshes; that of pronotum and elytra mostly composed of fine transverse lines, though more or less degenerated on the latter. Ventral surface completely glabrous and smooth; anal sternite provided with two pair of setae in ♀. Legs long and slender; protibiae straight, gently dilated towards apices, longitudinally grooved on the external faces, and glabrous on the anterior faces even at the apical portions; tarsi slender, segment 4 with a long ventral apophysis in pro- and mesotarsi.

Male genitalia unknown.

Range. Known so far only from the southwestern tip of Hokkaido in Northeast Japan.

Notes. The type species of this new genus differs from all the known species of *Trechiama* in the unique shape of prothorax, which does not show any tendency to become cordate and whose hind angles are not sharply produced, and in the deeply impressed and coarsely punctate elytral striae, which remind us of those of *Epaphiama* or *Thalassoduvalius* (UÉNO, 1956, 1978 b). Its relatively short antennae are also exceptional if it takes part in the genus *Trechiama*, since they are not in due proportion to long legs and buccal appendages. On the other hand, rather peculiar elytral chaetotaxy shown by the type species is of the same type as that found in several undescribed species of the *oreas* group of *Trechiama*, which may indicate its remote affinity to the latter group. Having been unable to scrutinize male genitalic features, I prefer to regard the new species as belonging to an isolated taxonomic group generically different from *Trechiama*.

This new genus of indeterminable affinity is dedicated to Ms. "Akko" SAITO of the Natural History Museum and Institute, Chiba, who devoted painstaking but unsuccessful effort to obtain additional specimens of the type species.

Accoella akirai S. UÉNO, sp. nov.

[Japanese name: Matsumaé-mekura-chibigomimushi]

(Fig. 1)

Length: 5.40 mm (from apical margin of clypeus to apices of elytra).

Anophthalmic species of elongate body form, with narrow fore body and rather parallel-sided elytra. Colour reddish brown, shiny, with mandibles and elytra somewhat darker; labrum, palpi, scape and apical halves of antennae, ventral surface of hind body, and legs more or less lighter than dorsum, mostly yellowish brown.

Head subquadrate, very slightly longer than wide, and depressed above, with frontal furrows rather lightly arcuate and not angulate; frons and supraorbital areas gently convex, the latter bearing two pair of supraorbital pores lying on lines convergent posteriorly, the anterior one of which is lightly foveolate; genae feebly convex behind middle, flat at the anterior parts which bear completely flat trace of eyes; neck constriction very shallow though distinct; antennae relatively short, reaching basal four-ninths of elytra in ♀, with segment 2 about two-thirds as long as segment 3, which is equal in length to segment 4 or 5, segments 6–10 subcylindrical, gradually decreasing in length towards terminal segment, which is longer but obviously narrower than scape and about as long as or slightly shorter than one of segments 3–5, segments 8–9 each fully three times as long as wide.

Pronotum small though wider than head, not transverse, as long as wide, subquadrate, and widest at about apical third, with the sides almost straight at middle, very feebly arcuate and lightly convergent in apical third and basal two-ninths; apex

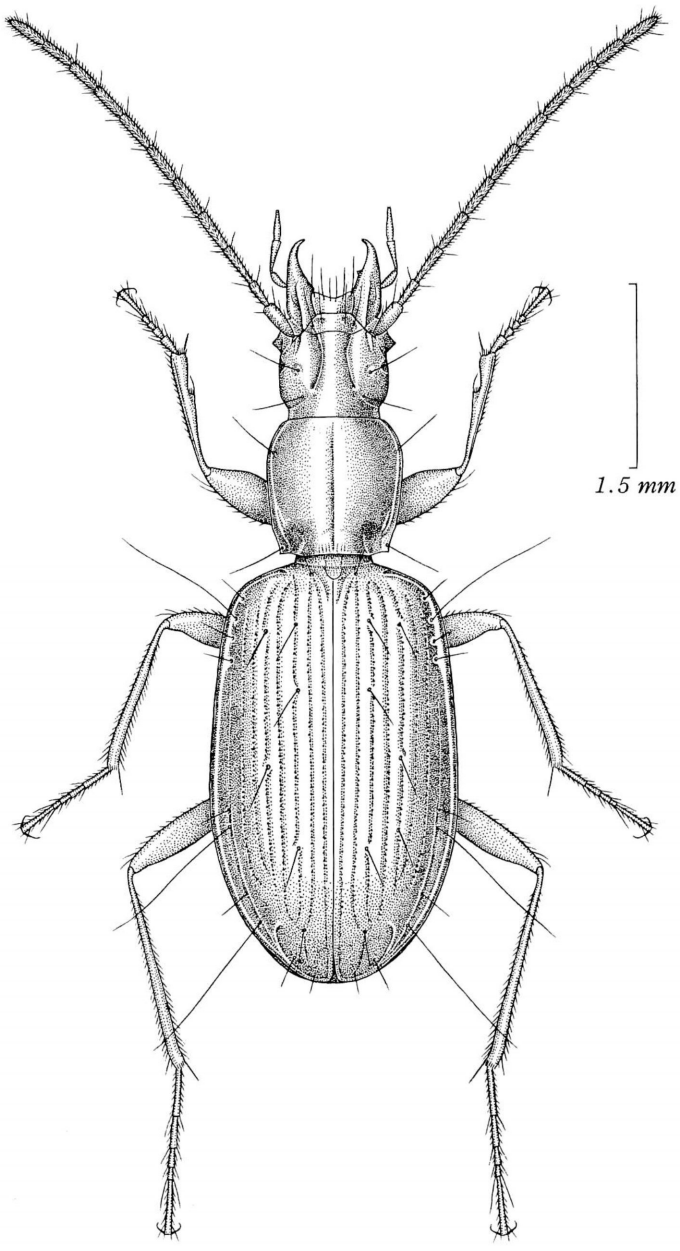

Fig. 1. *Accoella akirai* S. UÉNO, gen. et sp. nov., ♀, from Ohmori-yama in Matsumaé-chô.

very slightly arcuate, with front angles obtuse though distinct; base a little wider than apex, straight at middle, slightly oblique and very slightly emarginate on each side just inside hind angle, which is obtuse but widely reflexed and forms a small rectangular

tooth at the tip; PW/HW 1.29, PW/PL 1.00, PW/PA 1.44, PW/PB 1.25, PB/PA 1.15; surface gently convex, not steeply declivous at the sides except near front angles, with vague transverse striations at the lateral parts; median line deeply impressed on the disc, almost reaching both apex and base, but neither widening nor deepening in basal area; apical transverse impression close to apical margin though indistinct; basal transverse impression not sharply defined, laterally included in large basal foveae, which are deep and smooth at the bottoms; basal area longitudinally strigose.

Elytra oblong-ovate, much wider than prothorax, widest slightly before the middle, and more regularly narrowed towards apices than towards bases; EW/PW 1.81, EL/EW 1.62; shoulders distinct though rounded, with prehumeral borders very feebly arcuate and not particularly oblique; sides very slightly arcuate from behind shoulders to the middle, then lightly so to shallow but distinct preapical emargination, and rounded at apices which form a narrow re-entrant angle at suture; surface widely depressed on the disc, hardly convex except for lateral and narrow apical parts, which are steeply declivous; striae deeply impressed and coarsely punctate throughout, 1–5 deepened in basal area, 3 forming apical anastomosis with 4 and then with 2, 5 forming subapical anastomosis with 6, 7 deeply impressed to apical end which is curved inwards and abruptly terminated, 8 somewhat deepened behind the middle set of marginal umbilicate pores and coarsely punctate even in that part; scutellar and apical strioles as described under the genus; intervals convex throughout though less so at the side than on the disc, apical carina short but prominent; stria 3 with three setiferous dorsal pores at about 1/8, 2/7 and 2/3 from base respectively, stria 5 also with three setiferous dorsal pores on the right elytron of the holotype at about 1/8, 4/9 and 2/3 from base respectively, but the third pore is lacking on the left elytron; preapical pore lying near the anterior end of the field of apical striole, more widely distant from apex than from suture, and about equidistant from suture and from the terminal portion of apical striole.

Ventral surface and legs as described under the genus; sternites 3–5 each with a single pair of setae along the posterior margin; segment 1 longer than segments 2–3 together but shorter than segments 2–4 together in both meso- and metatarsi.

Male unknown.

Type specimen. Holotype ♀, 1–VII–1989, A. SATO leg. Deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Ohmori-yama, 100 m in altitude on the ENE slope, in Matsumaé-chô of Oshima, near the southwestern tip of Hokkaido, Northeast Japan.

Notes. The type specimen of this interesting species was found, together with *Nebria ochotica*, from beneath a large stone lying on a narrow grass-grown terrace at the side of a narrow shaded stream flowing down through a deciduous broadleaved forest on the eastern slope of Ohmori-yama Hill. It is, however, obvious that this spot was not the natural habitat of the trechine beetle, since that terrace was subject to occasional floods of the stream. When I visited the gully at the beginning of July, 1990, both the terrace and the large stone were there as they had been one year before,

but when I revisited the place at the beginning of August, the terrace was scraped away by the previous flood and transformed into a barren platform. Most probably, therefore, the type specimen was carried down by a flood water from somewhere near the source of that stream, though we were unable to locate its original habitat. Judging from its facies, *Accoella akirai* must be an upper hypogean species, whose natural habitat cannot be easily found out due to the unfavourable ground condition of the low hill.

This new species is named after Mr. Akira SATO, who is eagerly investigating the carabid fauna of the Matsumaé area and unexpectedly collected the type specimen of the present trechine beetle.

要　　約

上野俊一: 北海道松前地方のメクラチビゴミムシ類. —— 北海道の南西端に位置する松前地方の大森山から，複眼の退化した2種のチビゴミムシ類を記録した．そのひとつは，これまで中千軒岳の高山帯のみから知られていたセンゲンチビゴミムシ *Epaphiopsis* (*Epaphiama*) *oligops* S. UÉNO で，標高の低い (50～130 m) 大森山では，地表から 1 m 以上も下の地下浅層に生息していた．他の1種は，ナガチビゴミムシ属とケムネチビゴミムシ属のキタチビゴミムシ亜属との中間的な特徴をもつ特異な新種で，雄が未知であるために確かな類縁関係はわからないが，おそらく前者と同じ属群のものではないかと考えられる．分類学的にも生物地理学的にも重要な発見であることと，採集地点付近の地質条件があまり良好でなく，雄の標本が容易には得られそうにないこととを考慮して，この新種をいちおう新属のものと認め，マツマエメクラチビゴミムシ *Accoella akirai* S. UÉNO と命名した．

References

CASALE, A., & R. LANEYRIE, 1982. Trechodinae et Trechinae du monde. Tableau des sous-familles, tribus, séries phylétiques, genres, et catalogue général des espèces. *Mém. Biospéol.*, **9**: i+1–226.

JEANNEL, R., 1927. Monographie des Trechinae. Morphologie comparée et distribution géographique d'un groupe de Coléoptères. (Deuxième livraison). *Abeille, Paris*, **33**: 1–592.

—— 1962. Les Trechini de l'Extrême-Orient. *Rev. fr. Ent.*, **29**: 171–207.

UÉNO, S.-I., 1956. New halophilous trechids of Japan (Coleoptera, Harpalidae). *Mem. Coll. Sci. Univ. Kyoto*, (B), **23**: 61–68.

—— 1971. The trechine beetles of the Hidaka and the Yûbari Mountain Ranges in Hokkaido, northern Japan. *Mem. natn. Sci. Mus., Tokyo*, (4): 5–28.

—— 1978 a. The cryptozoic trechines of the subgenus *Epaphiama* (Coleoptera, Trechinae). *Bull. natn. Sci. Mus., Tokyo*, (A), **4**: 123–146.

—— 1978 b. The *Thalassoduvalius* (Coleoptera, Trechinae) of the Izu area, Central Japan. *Mem. natn. Sci. Mus., Tokyo*, (11): 123–130, pl. 6.

—— 1985. Carabidae (Nebriinae, Elaphrinae, Loricerinae, Scaritinae, Broscinae, Trechinae). *In* UÉNO, S.-I., Y. KUROSAWA & M. SATÔ (eds.), *The Coleoptera of Japan in Color*, **2**: 54–88. Hoikusha, Osaka. (In Japanese.)

Elytra, Tokyo, **18** (2): 174, November 15, 1990

日本海側から記録されたタカオチビゴミムシ

上野俊一・高野　勉

UÉNO, S.-I., & T. TAKANO: A Record of *Paragonotrechus paradoxus* (Coleoptera, Trechinae) from the Northern Side of Central Honshu, Japan

タカオチビゴミムシ *Paragonotrechus paradoxus* S. UÉNO は，ハバビロチビゴミムシ群に属する特異な種で，色素の消失，複眼の縮小，口器（とくに大顎），触角および肢の伸長など，地下生活に対するいちじるしい適応を示しているにもかかわらず，上翅の下に完全な後翅をそなえている．1981 年の春に，東京都下の高雄山で地下浅層から発見され，顕著な新属新種として同年の夏に記載された (UÉNO, 1981)．この後翅はじゅうぶんに機能するものと思われたが，生息場所が地表から 60 cm ぐらい下の地下浅層に限られていたので，実際にそれが使われるのかどうかはわからなかった．

ところが，翌 1982 年の 8 月になって，同じ高雄山の薬王院で，外燈の下を歩いている 1 個体が夜間に採集され，また，1985 年の 8 月には，赤石山脈南部の黒法師岳で，夜間に倒木の上を歩いている 1 個体が発見されて，この種が夏季には飛びまわるらしいということが，かなりの確度をもって推察できるようになった．そして，1987 年の 8 月，富士山北麓の精進湖で，夜間採集の幕に飛来した 1 個体がついに採集されて，繁殖期にはタカオチビゴミムシが地上へ出てきて飛翔するのだ，という事実が確認された (UÉNO, 1988)．

既知の採集地点は，関東山脈内部から富士山を経て赤石山脈の南部にいたる，本州中央部太平洋側の狭い範囲に限られていたが，1989 年の 9 月に，日本海側の富山県下で，この種であろうと思われる 1 個体が，ダムの堰堤に設けられた水銀燈の下で夜間に採集されたので，ここに記録しておく．

検視標本：1 ♀，富山県東砺波郡庄川町小牧，小牧ダム（標高 180 m），14-IX-1989, 高野 勉採集．

この個体は，太平洋側のものに比べて前胸部がやや狭く (PW/HW 値 1.32, PW/PL 値 1.11, EW/PW 値 1.82)，基方へあまり狭まらないので基縁の幅が広いが (PW/PB 値 1.28, PB/PA 値 1.26)，採集地点が，もっとも近い既知の産地からでも 170 km ほど北西へ離れているし，この程度の種内変異は広域分布種としてありうるものと考えられる．将来，雄の個体が発見されれば，同定がより確実なものになるだろう．

なお，DEUVE から上野への私信によれば，中国の山西省から記載された *"Agonotrechus" sinicola* DEUVE, 1989 は，タカオチビゴミムシ属のものかもしれない，ということである．もし，この見解が正しければ，分布の由来を解析するうえで，重要かつ興味深い事例になるものと思われる．

文　献

DEUVE, Th., 1989. Carabidae et Trechidae nouveaux des collections entomologiques de la North-West Agricultural University de Yangling, Shaanxi (Coleoptera). *Entomotaxonomia*, **11**: 227–235.

UÉNO, S.-I., 1981. A remarkable new trechine beetle found in a superficial subterranean habitat near Tokyo, Central Japan. *J. speleol Soc. Japan*, **6**: 1–10.

上野俊一，1985. オサムシ科（マルクビゴミムシ亜科からチビゴミムシ亜科まで）．上野俊一ほか（編著），原色日本甲虫図鑑，**2**: 54–88. 保育社，大阪．

UÉNO, S.-I., 1988. Flight of *Paragonotrechus paradoxus* (Coleoptera, Trechinae). *Kontyû, Tokyo*, **56**: 459–460.

Elytra, Tokyo, **18** (2): 175–178, November 15, 1990

Occurrence of a New *Kurasawatrechus* (Coleoptera, Trechinae) at the Central Part of the Abukuma Hills, East Japan[1)]

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Abstract A new anophthalmic trechine beetle of the genus *Kurasawatrechus* is described from the upper hypogean zone at the central part of the Abukuma Hills, East Japan, under the name of *K. zenbai*. It is unique in the complete absence of pubescence on the body surface, but seems to belong to the group of *K. quadraticollis*. With this discovery, the distributional range of the species-group is considerably enlarged towards the north.

Dealing with the anophthalmic trechine beetles of the Yamizo Mountains, I noticed that the southern two-thirds of the mountain range bore a close faunal relationship with the southern part of the Abukumas (cf. UÉNO, 1990, p. 6). This conclusion was drawn from an analysis of the distributional pattern shown by the group of *Kurasawatrechus quadraticollis*, whose members were then unknown from the central part of the Abukuma Hills.

Late in the spring of this year, three specimens of a *Kurasawatrechus* were dug out by Mr. Souhachi ZENBA from a colluvium deposited at the side of a narrow stream on the central Abukumas, and were submitted to me for examination through Mr. Sumao KASAHARA. They seemed to belong to a new species of the *quadraticollis* group, but since all the three were females and since they were unique in the absence of pubescence on the body surface, I was unable to determine their systematic position with confidence. However, on the occasion of the annual meeting of the three major speleological groups of Japan held in August, Mr. Shinzaburo SONE and I had a chance to visit the collecting site of the trechine beetle, and obtained a short series of additional specimens containing five males in a good condition. This collection enabled me to ascertain that my conjecture was correct, and the known range of distribution of the species-group was considerably extended towards the north.

In this short paper, I will describe the new species under the name of *Kurasawatrechus zenbai* in dedicating it to its discoverer. The abbreviations used are the same as those explained in previous papers of mine.

I wish herewith to express my deep indebtedness to Messrs. Sumao KASAHARA, Shinzaburo SONE and Souhachi ZENBA for their kind support of my study.

1) This study is supported by the Grant-in-aid for Scientific Research No. 63540603 from the Ministry of Education, Science and Culture, Japan.

Kurasawatrechus zenbai S. UÉNO, sp. nov.

[Japanese name: Zenba-mekura-chibigomimushi]

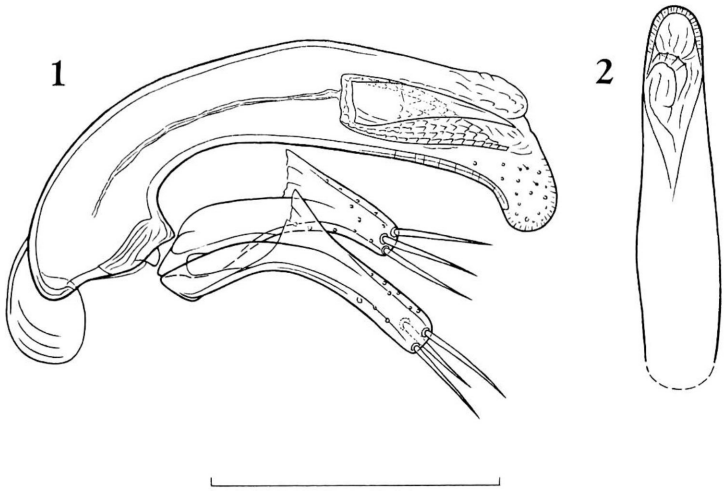
(Figs. 1–2)

Length: 2.65–3.25 mm (from apical margin of clypeus to apices of elytra).

Belonging to the group of *K. quadraticollis* and probably related to *K. intermedius* S. UÉNO (1989 a, p. 112, figs. 5–6; 1990, p. 4) of the Torinoko block of the Yamizo Mountains, but distinguished at first sight from that species by the glabrous body surface, especially elytral intervals, smaller prothorax with narrower base, oval elytra with narrower basal areas and more oblique bases, and different configuration of male genitalia.

Colour dark reddish brown, shiny; palpi, apical halves of antennae, ventral surface of hind body, and legs (at least tarsi) more or less lighter than dorsum. Head as in *K. intermedius*, with antennae usually reaching basal third of elytra. Pronotum a little smaller and more clearly contracted basad than in *K. intermedius*, widest at about five-sevenths from base, with the sides a little more shallowly sinuate at about basal third or a little behind that level; base widely though shallowly emarginate, about as wide as or slightly wider than apex; PW/HW 1.31–1.34 (M 1.32), PW/PL 1.11–1.18 (M 1.15), PW/PA 1.23–1.29 (M 1.26), PW/PB 1.18–1.23 (M 1.22), PB/PA 1.00–1.08 (M 1.04); surface devoid of pubescence, but provided with a longitudinal row of three or four short setae on each side of median line and often with one or two additional ones on each anterior lateral part; meshes of microsculpture coarser and obviously less transverse than in *K. intermedius*; other features as in the latter species. Elytra oval, widest at about three-sevenths from bases, and equally narrowed towards bases and towards apices, with the basal areas obviously narrower than in *K. intermedius*; EW/PW 1.52–1.58 (M 1.55), EL/EW 1.39–1.46 (M 1.42); basal margins more clearly oblique than in *K. intermedius*; shoulders effaced; sides regularly arcuate from humeral angles to slight preapical emargination, and almost conjointly rounded at apices; striae superficial and smooth, becoming finer at the side with the exception of stria 8 which is deeply impressed in apical half, scutellar striole vestigial; apical striole deeply impressed near apex, almost straight or very slightly curved outwards at the anterior part, and usually merging into stria 7 though sometimes joining stria 5; intervals flat, completely glabrous and smooth, apical carina short but prominent; stria 3 with two setiferous dorsal pores at 1/5–1/4 and 3/7–1/2 from base respectively. Ventral surface glabrous and smooth, devoid of pubescence even on prosternum; sternites with normal setae. Legs as in *K. intermedius* though somewhat slenderer.

Male genital organ very small and lightly sclerotized, not unlike that of *K. intermedius* but differing from the latter in many details including the configuration of aedeagal apical lobe and of copulatory pieces. Aedeagus only one-fifth as long as elytra, compressed, only very slightly arcuate at middle, but rather abruptly curved ventrad at both the basal and apical parts; basal orifice small, with the sides only very slightly emarginate; sagittal aileron large and protruding, though hyaline; apical lobe



Figs. 1–2. Male genitalia of *Kurasawatrechus zenbai* S. UÉNO, sp. nov., from Kumakura in Furudono-machi; left lateral view (1), and apical part of aedeagus, dorso-apical view (2).

short, abruptly bent ventrad and poorly sclerotized on the dorsal side, broad and widely rounded at the tip in lateral view, narrow but evenly rounded at the tip in dorsal view; ventral margin almost straight at middle in profile. Copulatory pieces large and elongate, about one-third as long as aedeagus, left piece only slightly shorter and narrower than the right and acuminate at the apex, right piece covered with teeth and scales except for a proximal portion. Styles strongly arcuate, left style much longer than the right and devoid of ventral projection, each bearing three stout setae, of which the median one is inserted on the internal face and the other two at the apex.

Type series. Holotype: ♂, allotype: ♀, 25–VIII–1990, S. UÉNO leg. Paratypes: 3 ♀♀, 27–V–1990, S. ZENBA leg.; 5 ♂♂ (incl. 1 teneral ex.), 25–VIII–1990, S. UÉNO & S. SONE leg. All deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Kumakura, 480 m in altitude, in Takabô of Furudono-machi, Fukushima Prefecture, East Japan.

Notes. This new species is unique in the glabrous body surface which is devoid of pubescence even on the elytral intervals and prosternum, but seems to be related to *K. intermedius* of the *quadraticollis* group. From *K. quadraticollis* S. UÉNO (1974, p. 112, figs. 7–9; 1985, p. 87, pl. 16, fig. 18), which occurs in the southern part of the Abukumas, it is more widely different in both the external and genitalic configuration. The type locality of the former species is about 57 km distant to the southwest beyond the deep valley of the Kuji-gawa River from that of *K. zenbai*, while that of the latter is about 60 km distant to the south by west but on the same hill range. Mt. Yamizo-san, the type locality of *K. yamizonis* S. UÉNO (1988 b, p. 108, figs. 2–4;

1990, p. 4, fig. 2), is nearer to Kumakura in Furudono-machi as it lies about 37 km west-southwest of the latter, but *K. yamizonis* belongs to the *eriophorus* group and is radically different from the present species. Further investigations are needed for clarifying the actual distribution of the *quadraticollis* group, especially in the vicinities of Hanazono-san and at the eastern side of the central part of the Abukuma Hills.

All the specimens of the type series of *K. zenbai* were dug out from the upper hypogean zone near the source of a shaded branch stream of the Iritôno-gawa River which flows southeast into the Pacific Ocean. Though the species looks endogean in general appearance, its habitat was, at least in the summer, typically upper hypogean, being 60–120 cm below the surface and just above the bed-rock. It was rather active when exposed and quickly ran about among rock debris coated with soft clay.

要　約

上野俊一：阿武隈山地の中央部におけるメクラチビゴミムシの発見.—— 阿武隈山地の中央部に位置する福島県古殿町高房熊倉から，クラサワメクラチビゴミムシ属の1新種を記載した．この種は地下浅層にすみ，体表のどの部分も細毛におおわれていない点で，これまでに記載されている邦産のどの種とも異なっているが，体形や雄交尾器の形状から判断して，アブクマメクラチビゴミムシ種群に含め，ゼンバメクラチビゴミムシ *Kurasawatrechus zenbai* S. UÉNO と命名した.

References

UÉNO, S.-I., 1974. The cave trechines (Coleoptera, Trechinae) of the Abukuma Hills in East Japan. *Bull. natn. Sci. Mus., Tokyo*, **17**: 105–116, 2 folders.

——— 1985. Carabidae (Nebriinae, Elaphrinae, Loricerinae, Scaritinae, Broscinae, Trechinae). *In* UÉNO, S.-I., Y. KUROSAWA & M. SATÔ (eds.), *The Coleoptera of Japan in Color*, **2**: 54–88. Hoikusha, Osaka. (In Japanese.)

——— 1988 a. A new *Kurasawatrechus* (Coleoptera, Trechinae) from northeastern Kwantô, Central Japan. *Elytra, Tokyo*, **16**: 1–5.

——— 1988 b. The *Kurasawatrechus* (Coleoptera, Trechinae) of the Yamizo Range, Central Japan. *Ibid.*, **16**: 107–116.

——— 1990. Anophthalmic trechine beetles of the Yamizo Mountains in Central Japan. *Mem. Tochigi pref. Mus.*, (8): 1–7. (In Japanese, with English summary.)

Elytra, Tokyo, **18** (2): 179–184, November 15, 1990

The Patrobine Carabids (Coleoptera) from the Kii Peninsula, Central Japan

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Abstract Three patrobine carabids, including a new geographical race of *Apatrobus ohdaisanus* (NAKANE), are recorded or described from the Kii Peninsula, Central Japan.

The first record of patrobine carabid beetle from the Kii Peninsula was made by ISHIDA (1958, p. 18) on the basis of two medium-sized species collected on Mt. Ohdaigahara-zan, which is situated on the borders between Mie and Nara Prefectures. They are *Penetretoides* [nom. nud.] sp. nov. and *Diplous depressus* (GEBLER). Later in 1963, the former was described by NAKANE (1963, p. 23) under the name of *Patrobus* (*Patrobus*) *ohdaisanus*. Since its discovery, nothing has been added to our knowledge concerning the patrobine carabid fauna of the peninsula. However, recent investigations made by Messrs. Shotarô TANAKA and Hiroshi IWASAKI have revealed that another interesting form occurs on Mt. Gomanodan-zan (=Mt. Gomanodan-yama) lying to the west-southwest of Mt. Ohdaigahara-zan.

A careful comparative study of their male genitalia has shown that the aedeagus of this form is almost identical with that of *P. ohdaisanus*, with the exception of slight differentiation of inner armature. Thus, I will describe it as a new subspecies of the latter in this paper. At the same time, all the patrobine carabids hitherto found in the peninsula will be enumerated.

The abbreviations used herein are the same as those explained in my previous papers.

Diplous depressus (GEBLER)

Patrobus depressus GEBLER, 1829, in C. F. LEDEBOUR, Reise, 2, p. 49.
Diplous depressus: HABU, 1951, Kontyû, Tokyo, **19**, p. 70. —— ISHIDA, 1958, Akitu, Kyoto, **7**, p. 18. —— MORITA, 1985, Coleopt. Japan Col., Osaka, **2**, p. 102, pl. 19, fig. 29.
Other references are omitted.

Specimens examined. 6♂♂, 4♀♀, Dorogawa, Nara Pref., 2–VII–1988, S. MORITA leg.

Notes. Though widespread in both lowlands and mountainous areas in Hokkaido, Honshu and Shikoku, I was unable to find any of its records from western Honshu and Kyushu.

Patrobus flavipes MOTSCHULSKY

Patrobus flavipes MOTSCHULSKY, 1864, Bull. Soc. imp. Natur. Mosc., **37** (3), p. 191. —— HABU, Akitu, Kyoto, **9**, p. 5. —— MORITA, 1985, Coleopt. Japan Col., Osaka, **2**, p. 101, pl. 19, fig. 19.
Other references are omitted.

Specimens examined. 4 ♂♂, 1 ♀, Taira, Shirahama-chô, Wakayama Pref., 9–V–1985, S. TANAKA leg.; 3 ♂♂, Shagawa, Shirahama-chô, Wakayama Pref., 10–V–1986, S. MORITA leg.

Notes. This species is widely distributed in China, Korea and Japan. In Japan, the beetle is common at least on plains.

Apatrobus ohdaisanus ohdaisanus (NAKANE)

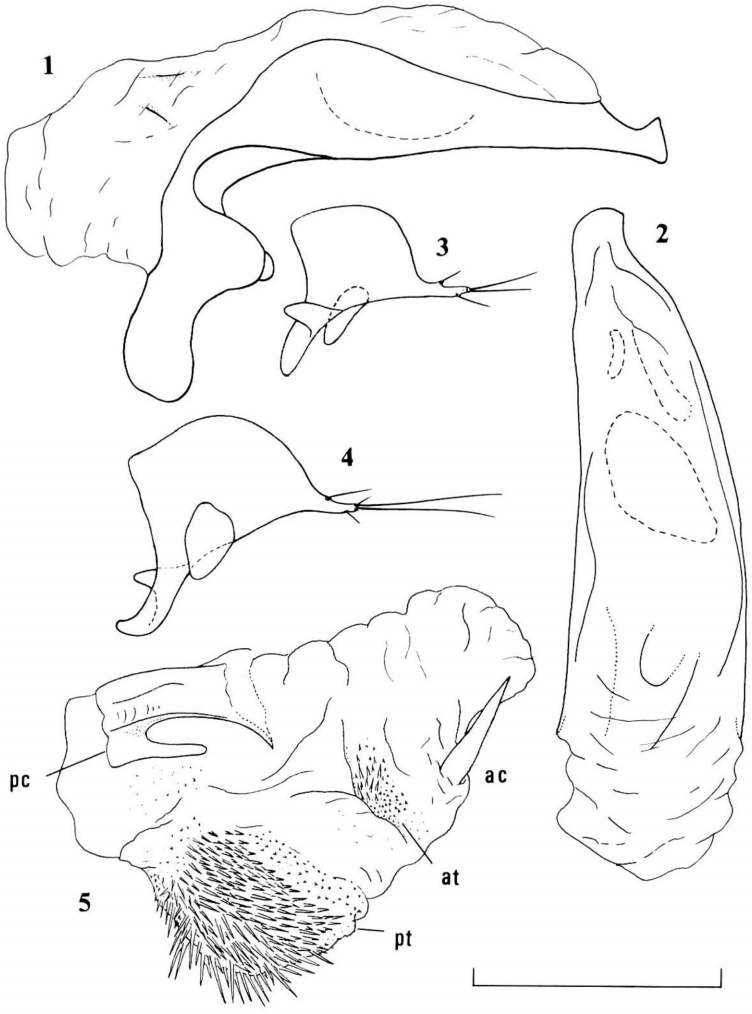
(Figs. 1–5)

Penetretoides [nom. nud.] sp. nov.: ISHIDA, 1958, Akitu, Kyoto, **7**, p. 18.
Patrobus (*Patrobus*) *ohdaisanus* NAKANE, 1963, Fragm. coleopt., Kyoto, (6), p. 23.
Patrobus (*Apatrobus*) sp.: HABU, 1976, Trans. Shikoku. ent. Soc., **13**, p. 16.
Apatrobus ohdaisanus: MORITA, 1985, Coleopt. Japan Col., Osaka, **2**, p. 102.
Other references are omitted.

Additional description. Relative lengths of antennal segments as follows: I: II: III: IV: V: VI: XI≒1: 0.44: 1.64: 1.04: 0.94: 0.99: 1.10; standard ratios of body parts as follows: PW/HW 1.29–1.36 (M 1.31) in 7 ♂♂, 1.31–1.38 (M 1.33) in 3 ♀♀, PW/PL 1.24–1.32 (M 1.28) in 7 ♂♂, 1.27–1.36 (M 1.31) in 3 ♀♀, PW/PA 1.43–1.50 (M 1.46) in 7 ♂♂, 1.41–1.50 (M 1.45) in 3 ♀♀, PW/PB 1.35–1.38 (M 1.37) in 7 ♂♂, 1.34–1.38 (M 1.36) in 3 ♀♀, PA/PB 0.91–0.96 (M 0.94) in 7 ♂♂, 0.92–0.96 (M 0.94) in 3 ♀♀, EW/PW 1.30–1.39 (M 1.34) in 7 ♂♂, 1.33–1.40 (M 1.37) in 3 ♀♀, EL/EW 1.48–1.56 (M 1.52) in 7 ♂♂, 1.52–1.56 (M 1.54) in 3 ♀♀.

Aedeagus rather stout with an elongate basal part; apical lobe flat and twisted, with obtusely rounded and ventro-apically produced right corner, and angulate and dorsally produced left corner; inner sac armed with two copulatory pieces and two teeth-patches; proximal copulatory piece (pc) moderately sclerotized, saddle-like, and with an elongate lobe which is heavily sclerotized and apically produced; apical copulatory piece (ac) heavily sclerotized, spine-like and lying obliquely at apical fourth; proximal teeth-patch (pt) very large, lying at the left side at about middle of aedeagus, and a little distant from proximal copulatory piece; apical teeth-patch (at) small, lying on the right side of apical copulatory piece; styles very poorly sclerotized, broad, right style being shorter than the left, and with four or five setae at apical part.

Specimens examined. 12 ♂♂, 3 ♀♀, Mt. Ohdaigahara-zan, Nara Pref., 26–VIII–1973, S. MORITA leg.



Figs. 1–5. Male genitalia of *Apatrobus ohdaisanus ohdaisanus* (NAKANE). —— 1, Aedeagus, left lateral view; 2, same, dorsal view; 3, separated right style, left lateral view; 4, separated left style, left lateral view; 5, separated and everted inner sac, showing sclerotized armature (ac: apical copulatory piece, at: apical teeth-patch, pc: proximal copulatory piece, pt: proximal teeth-patch). (Scale: 1.00 mm.)

Apatrobus ohdaisanus spinosus MORITA, subsp. nov.

(Figs. 6–12)

Distinguished from the nominotypical subspecies by the following points: Genae more tumid; pronotum with widely rounded apical angles; basal foveae more strongly punctured, and larger but shallower; elytral striae deeper. Relative lengths of an-

tennal segments as follows: I: II: III: IV: V: VI: XI≒1: 0.44: 1.62: 1.02: 0.95: 0.98: 1.11.

Standard ratios of body parts as follows: PW/HW 1.32–1.36 (M 1.34) in 5 ♂♂, 1.31 in ♀, PW/PL 1.23–1.33 (M 1.30) in 5 ♂♂, 1.36 in ♀, PW/PA 1.38–1.50 (M 1.45) in 5 ♂♂, 1.45 in ♀, PW/PB 1.36–1.44 (M 1.40) in 5 ♂♂, 1.42 in ♀, PA/PB 0.93–1.00 (M 0.96) in 5 ♂♂, 0.98 in ♀, EW/PW 1.31–1.36 (M 1.33) in 5 ♂♂, 1.44 in ♀, EL/EW 1.50–1.59 (M 1.53) in 5 ♂♂, 1.53 in ♀.

Aedeagus robust with large basal part; apical lobe of aedeagus a little longer than in the nominotypical subspecies in lateral view; an elongate lobe of proximal copulatory piece much wider, and with widely rounded left proximal corner; both teeth-patches (pt & at) much larger than in the nominotypical subspecies; proximal teeth-patch lying near proximal copulatory piece; each style provided with four or five setae.

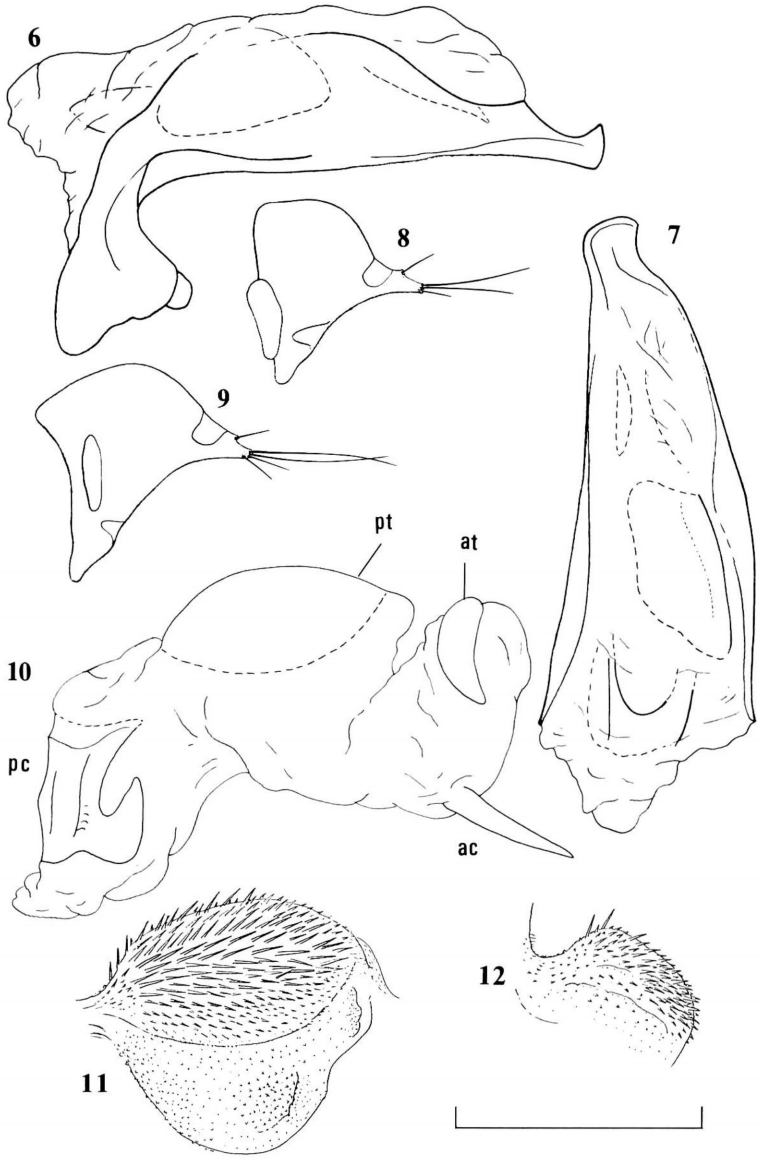
Type series. Holotype: ♂, 22～25–VIII–1988, S. TANAKA leg. Allotype: ♀, 23–VII–1989, S. TANAKA leg. Paratypes: 1 ♂, 14～15–IX–1983, S. TANAKA leg.; 1 ♂, 24–IX–1983, H. IWASAKI leg.; 2 ♂♂, 5–VIII–1989, S. TANAKA leg.; 2 ♂♂, 13–VIII–1989, S. TANAKA leg.

The holo- and allotypes are preserved in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Type locality. Mt. Gomanodan-zan, Wakayama Prefecture in Central Honshu, Japan.

Notes. The type locality of this new subspecies is about 53 km distant to the west-southwest from that of the nominotypical one over the deep valley of the Totsugawa River. It has become evident that the carabid fauna of Mt. Gomanodan-zan is considerably different from that of Mt. Ohdaigahara-zan. Two flightless carabids were described from the same mountain, that is, *Pterostichus shibatai* ISHIDA (1961, pp. 7–8) and *Epaphiopsis elongata* S. UÉNO (1962, pp. 63–67), both of which have very interesting distributional ranges. According to recent investigations, the distributional range of the former covers the northern part of the Kinki District and probably extends to the western part of the Chûbu District. It has never been found on Mt. Ohdaigahara-zan, though it is one of the best known collecting sites for Japanese carabid specialists, and is almost certainly not extant on the mountain. The latter is probably endemic to Mt. Gomanodan-zan.

In concluding, I wish to thank Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his kindness in reading the original manuscript of this paper. My thanks are also due to Dr. Alexander DOSTAL for his kind help, and to Messrs. Shotarô TANAKA and Hiroshi IWASAKI for offering invaluable material for this study.



Figs. 6–12. Male genitalia of *Apatrobus ohdaisanus spinosus* MORITA, subsp. nov. —— 6, Aedeagus, left lateral view; 7, same, dorsal view; 8, separated right style, left lateral view; 9, separated left style, left lateral view; 10, separated inner sac, showing sclerotized armature (ac: apical copulatory piece, at: apical teeth-patch, pc: proximal copulatory piece, pt: proximal teeth-patch); 11, everted proximal teeth-patch; 12, everted apical teeth-patch. (Scale: 1.00 mm.)

要　約

森田誠司: 紀伊半島のヌレチゴミムシ類. —— 紀伊半島からは, これまでに2種のヌレチゴミムシ類が知られているにすぎない. いずれも大台ケ原山より記録されたもので, そのうちのひとつは, 固有種のオオダイヌレチゴミムシ *Apatrobus ohdaisanus* (NAKANE), 他のひとつは, 北海道から四国までの各地に普通のヒメカワチゴミムシ *Diplous depressus* (GEBLER) である. ここでは両種を再記録し, 前者の雄交尾器を記載した. さらに護摩壇山で採集されたヒメヌレチゴミムシ属 *Apatrobus* の1種を, おもに雄交尾器の内部構造から判断して, オオダイヌレチゴミムシの亜種と認め, *A. o. spinosus* という新亜種名を与えて記載した. また, 各地に普通のキアシヌレチゴミムシ *Patrobus flavipes* MOTSCHULSKY を記録した.

References

GEBLER, F. A., 1829. Bemerkungen über die Insekten Sibiriens, vorzuglich des Altai. *In* LEDEBOUR, C. F. (ed.), *Reise durch das Altai-Gebirge und die soongorische Kirgisen-Steppe*, *Berlin*, **2**(2): 1–228.

HABU, A., 1951. On two Japanese species of the genus *Diplous*. *Kontyû*, *Tokyo*, **19**: 69–71. (In Japanese.)

——— 1976. Three new species of *Apatrobus*, a subgenus of *Patrobus*, from Shikoku, Japan (Coleoptera, Carabidae). *Trans. Shikoku ent. Soc.*, **13**: 9–17.

——— & K. BABA, 1960. A new species of *Patrobus* from Mts. Iide, with the key to the *Patrobus*-species of Japan (Coleoptera, Carabidae). *Akitu*, *Kyoto*, **9**: 1–10.

ISHIDA, H., 1958. Garaboidea [sic] (Coleoptera) of Ohsugi Valley and Mt. Ohdaigahara (I). *Akitu*, *Kyoto*, **7**: 15–20. (In Japanese.)

——— 1961. Two new species of *Nialoe* TANAKA from western Japan (Coleoptera: Harpalidae). *Ent. Rev. Japan*, *Osaka*, **13**: 7–10.

MORITA, S., 1985. Carabidae (Bembidiinae, Patrobinae). In UÉNO, S.-I., Y. KUROSAWA & M. SATÔ (eds.), *The Coleoptera of Japan in Color*, **2**: 89–103. Hoikusha, Osaka. (In Japanese.)

MOTSCHULSKY, V. DE, 1864. Énumération des nouvelles espèces de Coléoptères rapportés de ses voyages. *Bull. Soc. imp. Natur. Mosc.*, **37** (3): 171–240.

NAKANE, T., 1963. New or little-known Coleoptera from Japan and its adjacent regions, XVIII. *Fragm. coleopt.*, *Kyoto*, (6): 23–26.

——— 1978. The Beetles of Japan (new series). 52. Harpalidae 6. *Nat. & Ins.*, *Tokyo*, **13**(9): 9–12. (In Japanese.)

UÉNO, S.-I., 1962. Primitive trechids of the subgenus *Epaphiopsis*. *Mem. Coll. Sci. Univ. Kyoto*, (B), **29**: 41–74.

Elytra, Tokyo, **18** (2): 185–191, November 15, 1990

The Japanese Species of the Genus *Morion* (Coleoptera, Carabidae)

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Abstract The Japanese species of the carabid genus *Morion* are dealt with. *Morion japonicum* BATES is redescribed, and its new localities are recorded. A new species is described from the Ogasawara Islands under the name of *M. boninense* sp. nov.

The carabid genus *Morion* LATREILLE is well known because of its peculiarly *Passandra*-like facies and saproxylophilous habits. Its members are mostly tropical, and only a few species reach temperate areas. *Morion japonicum* BATES, which was previously known only from western Honshu and Kyushu, is such a rare exception.

In recent years, morionine specimens from various parts of the Japanese Islands become available for our study. Their localities include the Island of Yaku-shima off southern Kyushu, the Island of Okinawa-hontô of the Ryukyus, and the Island of Haha-jima of the Ogasawara Islands. Of these, the specimens from the former two islands are identical with the mainland form, while those from the last-named evidently belong to a different species. Its occurrence was first noticed by KUROSAWA (1976), who surmised that the morionine could be endemic to the island group. Our careful examination has proved that his conjecture is correct. It is clearly different from all the known species of the genus in the configuration of the prothorax and elytra as well as in other details.

In the present paper, we are going to redescribe *M. japonicum* first, and then to describe the new species under the name of *M. boninense* sp. nov. The abbreviations used herein were already explained in previous papers of the first author.

Before going further, we wish to express our deep gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for affording facilities to examine the specimens under his care, and for reading the manuscript of this paper. Our thanks are also due to Messrs. Hiroshi MAKIHARA, Seiji MORITA, Masatoshi NISHIMURA, Masao TÔYAMA and Susumu YAMAGUCHI for their kind help in supplying with materials and literature.

Morion (Neomorion) japonicum BATES

[Japanese name: Kuchiki-gomimushi]

Morio Japonicus BATES, 1883, pp. 242–243 (Kiushiu; Konose, Yuyama).
Morion japonicus: CSIKI, 1929, p. 481.
Morion japonicum: OHKURA & UÉNO, 1955, p. 45, pl. 12, fig. 228. —— NAKANE, 1963, p. 40; 1978, p. 22. —— TANAKA, 1985, p. 105.

Description. Length 13.2–17.0 mm. Width 4.2–5.2 mm. Elongate, depressed, black, shiny. Head flat, though the vertex and supraorbital areas are convex; eyes well prominent together with temporae; mandibles stout; apical margins of both labrum and clypeus distinctly emarginate; clypeal suture deep; frontal furrows long, extending far beyond the post-eye level, strongly and linearly impressed, divergent posteriad, and arcuate at the posterior parts; lateral furrows deep, almost reaching the middle of temporae; genae excavated for receiving the antennae in repose, which are short, moniliform, and hardly extending beyond the middle of pronotum; terminal segment of maxillary palpus fusiform, ca. 1.6 times as long as the penultimate; mentum tooth bifid at apex.

Pronotum gently convex, widest at the middle, ca. 1.3 times as wide as head (PW/HW 1.29–1.31, mean 1.30), as wide as base in almost the same proportion (PW/PBW 1.27–1.34, mean 1.31), ca. 1.4 times as wide as long (PW/PL 1.34–1.45, mean 1.39); lateral margins gently divergent posteriad in apical halves, then gently arcuate and convergent posteriad, and often weakly sinuate a little before base; basal parts vaguely notched just before basal angles, which are rectangular; apical margin finely bordered on each side, gently emarginate at middle, then almost straightly and obliquely extending to apical angles, which are not produced, though rounded at the tips; median line deep; basal foveae deep, divergent anteriad, with linear impressions parallel to lateral margins at the bottoms.

Elytra oblong, flat, a little wider than pronotum (EW/PW 1.07–1.13, mean 1.11), ca. 2.7 times as long as pronotum (EL/PL 2.69–2.76, mean 2.73), ca. 1.8 times as long as wide (EL/EW 1.75–1.82, mean 1.79); basal border incomplete, short and straight, merely extending from shoulders to the base of stria 5; shoulders dentate, though blunt at the tips; lateral margins straight and parallel to each other from behind shoulders to apical third; preapical emarginations distinct; scutellar striole very short, lying along scutellum; striae deeply impressed throughout, weakly notched at the bottoms; intervals evenly convex throughout, but interval 7 is distinctly raised at shoulders; interval 3 with a dorsal pore at apical third; marginal series of pores 18–19 in number, the apicalmost one large, adjoining stria 7. Wings full.

Venter shiny, impunctate; prosternal process bordered at apex. Legs stout; protibiae with outer apical angles strongly produced, pointed at apices; protarsi almost the same in shape between the two sexes, though basal three segments bear ventral adhesive hairs in the male; metatarsi wide.

Specimens examined. 1 ♀, Mt. Kasuga-yama, Takisaka, Nara Pref., 12–VI–1949,

N. YATÔ leg.; 1 ♀, Mt. Kasuga-yama, Nara Park, Nara Pref., 12–V–1950, S. SHIBANAI leg.; 1 ♀, Cape Sata, Ohsumi, Kagoshima Pref., 29–V–1953, S. KIMOTO leg.; 1 ♂, Mt. Aigo-dake, Is. Yaku-shima, Kagoshima Pref., 5–VIII–1972, T. WATANABE leg.; 1 ♂, 1 ♀, Oku, Is. Okinawa-hontô, Okinawa Pref., 30–VI–1976, H. MAKIHARA leg.

Distribution. Japan: Honshu (Kinki District), Kyushu, Is. Yaku-shima, Is. Okinawa-hontô.

Notes. This species is rather variable in size and shape of the prothorax, but in all the individuals we have examined, the elytra are exactly parallel-sided with the intervals evenly convex throughout. In his original description, BATES (1883) mentioned that *M. japonicum* might be a mere geographical variant of *M. orientale* DEJEAN, but pointed out that he never saw any "variety in which the interstices are nearly equally convex throughout the elytra, near the suture as well as on the sides, as they are in *M. Japonicus*."

JEANNEL (1948, pp. 614–615, fig. 287 e) gave a description and illustration of the male genital organ of *M. orientale* from India, and HABU (1985, p. 11, fig. 112) reported the female stylus of the same species from Thailand. *Morion japonicum* is clearly discriminated from *M. orientale* by different configuration of the genitalia in both sexes. In *M. japonicum*, the aedeagal apex is simply pointed, and the apical stylus bears three spines inserted on the outer ventral margin, while in *M. orientale*, the aedeagal apex is distinctly produced and somewhat twisted to the right, and the apical stylus bears only two spines at the same place. We have seen a male specimen of *M. orientale* from Sulawesi, which has wide pronotum (PW/PL 1.56), flat intervals of the elytra, and the aedeagal apical lobe produced like a beak.

The subgenus *Neomorion* was erected by JEANNEL (1948, pp. 613, 614) for *M. orientale*. It is mainly characterized by the last abdominal sternite unisetose on each side of the apical margin in both sexes, while in the subgenus *Morion* (s. str.), it is plurisetose in both sexes. All the Oriental species including *M. japonicum* and the following new species belong to the former subgenus.

Morion (Neomorion) boninense sp. nov.

[Japanese name: Ogasawara-kuchiki-gomimushi]

(Figs. 1–3)

Morion sp.: KUROSAWA, 1976, p. 23. —— NISHIMURA & ARAI, 1989, p. 41.

Description. Length 14.6–16.6 mm. Width 4.8–5.2 mm. Oblong, depressed, black and shiny; mandibles, labrum, femora and tibiae dark reddish brown to blackish; palpi, antennae and tarsi reddish brown. Head similar to that of *M. japonicum*, though the frontal furrows are finer than those of *M. japonicum*. Pronotum subquadrate, gently convex, narrower than in *M. japonicum*, ca. 1.3 times as wide as head (PW/HW 1.29–1.34, mean 1.31), as wide as base, as wide as long in almost the same proportion (PW/PBW 1.31–1.35, mean 1.32; PW/PL 1.22–1.35, mean 1.29); lateral

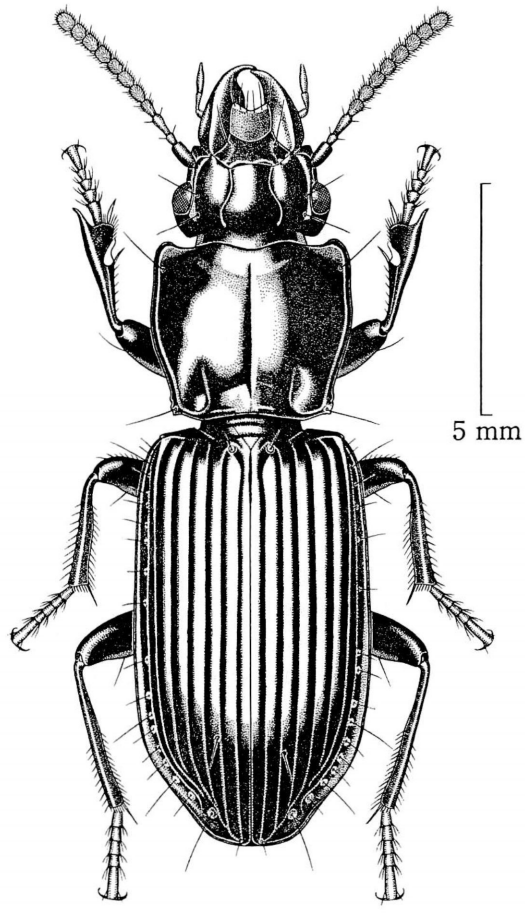
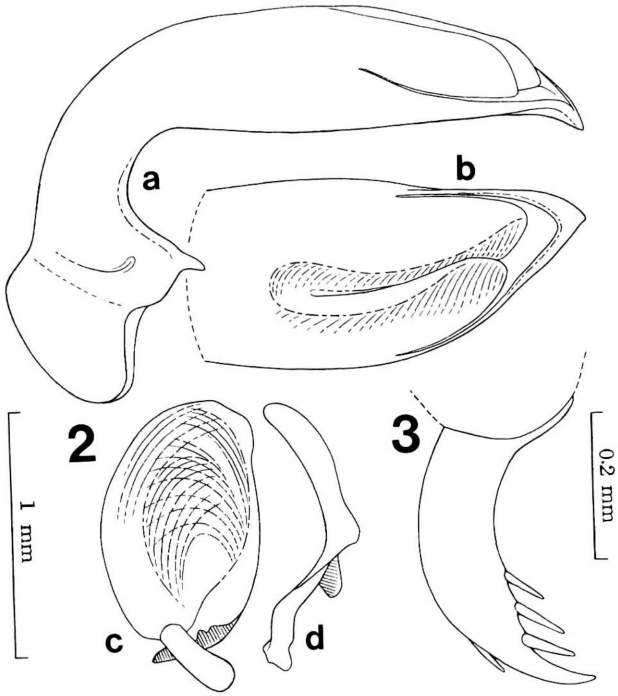


Fig. 1. *Morion* (*Neomorion*) *boninense* sp. nov., ♂, from Is. Haha-jima of the Ogasawara Islands.

margins generally straight and parallel to each other, or sometimes weakly roundish in apical halves and slightly divergent posteriad; apical margin finely bordered on each side, gently emarginate at middle, then sinuately extending to apical angles, which are roundly produced; median line deep, though finer than in *M. japonicum*; basal foveae deep, divergent anteriad as in *M. japonicum*; apical crescent and basal transverse depressions vague.

Elytra oblong, ca. 1.1 to 1.2 times as wide as pronotum (EW/PW 1.11–1.23, mean 1.16), ca. 2.6 times as long as pronotum (EL/PL 2.56–2.67, mean 2.60), ca. 1.7 times as long as wide (EL/EW 1.69–1.75, mean 1.72); basal border as in *M. japonicum*; lateral margins parallel to each other in anterior two-thirds, though slightly arcuate, while they are utterly straight, or often slightly concave in *M. japonicum*; lateral reflexed



Figs. 2–3. Genitalia of *Morion* (*Neomorion*) *boninense* sp. nov., from Is. Haha-jima of the Ogasawara Islands. —— 2, Male genitalia: a, aedeagus in left lateral view; b, apical half of aedeagus in dorsal view; c, left paramere; d, right paramere. —— 3, Left stylus of female genitalia.

borders becoming finer posteriad, disappearing before preapical emargination, then finely appearing again behind the emargination to apices, while they are continuous and complete in *M. japonicum*; scutellar striole, striae and convex intervals as in *M. japonicum*; marginal series of pores 17–18 in number. Inner wings shorter than elytra, not folded. Venter shiny, wholly impunctate; prosternal process bordered at apex.

Aedeagus stout, strongly and rectangularly bent at basal third, then almost straightly extending to apical part, though gently curved downwards at apex in lateral view; apical half wide in dorsal view, tapering apicad, and pointed at apex; apical aperture covered with bilobed lamella; left paramere wide, subovate; right one slender, obtusely bent at middle, depressed in apical half, and rounded at apex; apical stylus in female slender, arcuate, tapered towards apex, with a spine on dorsal outer margin and with three spines on ventral outer margin; apical foramen and seta absent.

Type series. Holotype: ♂, Is. Haha-jima, Ogasawara Islands, 20～21–X–1982, H. MAKIHARA leg.; allotype: ♀, same locality as for the holotype, 27–VI–1976, Y. KUROSAWA leg.; paratypes: 3 ♀♀, same data as for the holotype; 3 ♀♀, same locality as for the holotype, 1～8–VII–1986, H. MAKIHARA leg.; 1 ♀, same locality, 9～12–

VII–1986, H. MAKIHARA leg.; 1 ♀, Mt. Kuwanoki-yama, Is. Haha-jima, 10–VI–1986, S. YAMAGUCHI leg.; 2 ♂♂, same locality, 26–VI–1987, M. NISHIMURA leg.; 1 ♀, same locality, 13～25–X–1973, collector unknown; 3 ♀♀, same locality, 28–V–1989, collector unknown.

The holo- and allotypes are deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo. The paratypes are separately preserved in the collections of the authors and of S. MORITA.

Distribution. Japan: Ogasawara Islands (Is. Haha-jima).

Notes. The present new species somewhat resembles the preceding one in appearance, but is easily distinguished from the latter by narrower and squarer pronotum with prominent apical angles, and less parallel-sided elytra with interrupted lateral borders. Besides, the inner wings are rudimentary, which is exceptional for a member of *Neomorion* and may be regarded as a peculiarity of an insular species.

要　約

笠原須磨生・佐藤正孝: 日本産クチキゴミムシ属の種. —— 日本に産するクチキゴミムシ属 *Morion* のゴミムシは，九州の神ノ瀬と湯山から記載され，本州の奈良春日山を分布の北限とするクチキゴミムシ *M. japonicum* BATES がただ一種知られるのみであった．本篇では，この種を再記載して，屋久島と沖縄本島を分布域に加え，近縁とされている *M. orientale* DEJEAN との異同についても言及した．さらに，小笠原諸島の母島から，同属の1新種オガサワラクチキゴミムシ *M. boninense* を記載した．本種は，前胸背板の形態や，上翅側縁の縁取りが翅端前で中断され，後翅が退化傾向にあることなどで，前種と容易に区別される．すでに黒沢 (1976) が指摘しているように，島嶼化のかなり進んだ小笠原の固有種と考えられる．

References

BATES, H. W., 1883. Supplement to the geodephagous Coleoptera of Japan, chiefly from the collection of Mr. George LEWIS, made during his second visit, from February, 1880, to September, 1881. *Trans. ent. Soc. London*, **1883**: 205–290, pls. 12–13.

CHAUDOIR, M. DE, 1880. Essai monographique sur le Morionides. *Bull. Soc. imp. Natur. Mosc.*, **55**(2): 317–384.

CSIKI, E., 1929. Carabidae: Harpalinae 3. *In* JUNK, W., & S. SCHENKLING (eds.), *Coleopterorum Catalogus*, pars 104 (pp. 347–527). W. Junk, Berlin.

HABU, A., 1985. Female genitalia of Pterostichini species mainly from Japan. Supplement: *Morion* (Coleoptera, Carabidae). *Ent. Rev. Japan, Osaka*, **40**: 9–11.

JEANNEL, R., 1948. Coléoptères Carabique de la Région Malgache (Deuxième partie). *Faune Emp. fr.*, **10**: i–iii+373–765. Larose, Paris.

KUROSAWA, Y., 1976. Beetle fauna of the Bonin Islands, with a consideration on its origin and constitution (1). *Gekkan-Mushi, Tokyo*, (68): 21–26. (In Japanese.)

NAKANE, T., 1963. Harpalidae. *In* NAKANE, T., *et al.* (eds.), *Iconographia Insectorum Japonicorum Colore naturali edita*, **2**: 22–54, pls. 11–27. Hokuryukan, Tokyo. (In Japanese.)

——— 1978. The beetles of Japan (new series) 53. Harpalinae 7. *Ins. & Nat., Tokyo*, **13**(11): 20–23. (In Japanese.)

NISHIMURA, M., & K. ARAI, 1989. On insects recorded on Hahajima and Chichijima, the Bonin Islands in 1987. *Bull. Kanagawa pref. Mus.*, (Nat. Hist.), (18): 35–45. (In Japanese.)

OHKURA, M., & S.-I. UÉNO, 1955. Harpalidae. *In* JAPAN COLEOPT. SOC. (ed.), *Coloured Illustrations of the Insect of Japan*, (Coleoptera): 25–45, pls. 6–12. Hoikusha, Osaka. (In Japanese.)

TANAKA, K., 1985. Pterostichinae, Zabrinae. *In* UÉNO, S.-I., Y. KUROSAWA & M. SATÔ (eds.), *The Coleoptera of Japan in Color*, **2**: 104–139. Hoikusha, Osaka. (In Japanese.)

Elytra, Tokyo, **18** (2): 191–192, November 15, 1990

Lectotype Designation of *Carabus micros* HERBST (Coleoptera, Trechinae)

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Having examined the type material of *Lasiotrechus discus* (FABRICIUS) in 1973, I found that it was a melange of two similarly looking species, *L. discus* and *Trechoblemus micros* (HERBST). To avoid possible confusion in the future, I then selected the lectotype for the former species in accordance with the traditional usage (UÉNO, 1974).

Next problem to be cleared up was to ascertain whether or not such a situation also exists in the type material of *T. micros*. My study of HERBST's specimens was realized through the courtesy of Dr. F. HIEKE, to whom my sincere thanks are due. However, this was much more difficult than that of FABRICIUS' ones. First of all, the old specimens preserved in the collection of the Zoologisches Museum of the Museum für Naturkunde der Humboldt-Universität zu Berlin were rearranged, and probably remounted in part, by either G. W. F. PANZER or J. K. W. ILLIGER, which makes it difficult to determine which ones were really seen by HERBST and which ones were not.

There are seven specimens, all bearing a white label inscribed "55449", which must be the catalogue number of *T. micros*. Two specimens (♂♂) bear a red label with the words "Panzer/Plesiotypus/Illiger", and one of them also bears a white label inscribed "Germ.

Boruß. [=Borussia=Prussia]". Of the remaining five (2 ♂♂, 3 ♀♀), one male bears a very small white label with the words "*micros* Hbt ? ♀ Berol. [=Berolina=Berlin]". This must not be HERBST's specimen because of the question mark on the label, and the other four may not be original, either, since they are mounted in the same style as the question-marked one. Under this situation, the two specimens with the red label had better be considered original irrespective of the word "Plesiotypus", and I designate the specimen without locality label as the lectotype of *Carabus micros* HERBST=*Trechoblemus micros* (HERBST). I believe that my decision is reasonable, because PANZER sometimes put two red labels "Type Panzer" and "Plesiotypus Panzer" to the same specimen.

Trechoblemus micros (HERBST, 1784)

Carabus micros HERBST, 1784, in FÜESSLY, Arch. Insecteng., **5**(2), p. 142; type locality: Berlin.
Trechus (Trechoblemus) micros: GANGLBAUER, 1892, Käf. Mitteleur., **1**, pp. 187, 191.
Trechoblemus micros: JEANNEL, 1928, Abeille, Paris, **35**, p. 101, figs. 1338–1345.
Other references are omitted.

The lectotype herewith designated perfectly accords with the insect traditionally determined as *T. micros*. It measures 3.95 mm from the apical margin of the clypeus to the apices of the elytra, and has the following standard ratios of body parts: PW/HW 1.27, PW/PL 1.27, PW/PA 1.44, PW/PB 1.32, PB/PA 1.09, EW/PW 1.39, EL/EW 1.71.

References

GANGLBAUER, L., 1892. Familienreihe Caraboidea. *Die Käfer von Mitteleuropa*, **1**: i+I–III+1–557. Carl Gerold's Sohn, Wien.

HERBST, J. F. W., 1784. Verzeichnis seiner Insektensammlung. *Carabus*. *In* FÜESSLY, J. C., *Archiv der Insectengeschichte, Zürich*, **5**(2): 129–143, pl. 29 (col.).

JEANNEL, R., 1928. Monographie des Trechinae. Morphologie comparée et distribution géographique d'un groupe de Coléoptères. (Troisième livraison). Les Trechini cavernicoles. *Abeille, Paris*, **35**: 1–808.

UÉNO, S.-I., 1974. The type material of *Lasiotrechus discus* (FABRICIUS) (Coleoptera, Trechinae). *Kontyû, Tokyo*, **42**: 269.

Elytra, Tokyo, **18** (2): 193–196, November 15, 1990

Note on the Species of the *Agabus congener* Complex (Coleoptera, Dytiscidae) from Japan and the Kurile Islands

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and

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Abstract Previous records of *Agabus congener* (THUNBERG) from Japan and the Kurile Islands are revised. Two different species have been confused under that name. One of them is described as a new species, *A. matsumotoi*, and the other is *A. thomsoni* (J. SAHLBERG).

According to our recent study, we have concluded that some records from Japan and the Kurile Islands of *Agabus congener* (THUNBERG), which is distributed over the Palearctic Region, result from mis-identifications. We therefore propose herewith a new name, *A. matsumotoi*, for the Japanese species. The Kurile species is identified with *A. thomsoni* (J. SAHLBERG).

We are much indebted to Dr. Shun-Ichi UÉNO, Messrs. Terutsune ABE, Hideaki MATSUMOTO and Masato MORI for their kind help in many ways.

Agabus matsumotoi M. SATÔ et NILSSON, sp. nov.

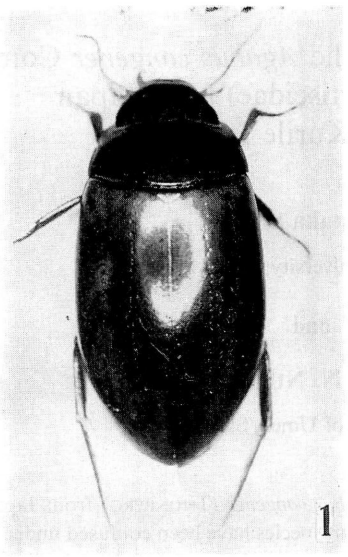
(Figs. 1–2)

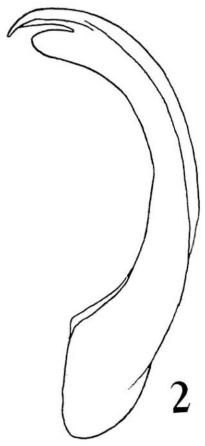
Gaurodytes congener: NAKANE, 1959, Akitu, Kyoto, **8**: 98, fig. 8; 1964, Fragm. coleopt. japon., (2): 5.
Agabus congener: SATÔ, 1985, Coleopt. Japan Col., Osaka, **2**: 194, pl. 35, fig. 3. —— NAKANE, 1989, Nat. & Ins., Tokyo, **24**(9): 14, **24**(11): 27.

Body oblong-oval, ratio of total length to maximum width 1.86–1.93, and polished; head, pronotum, scutellum and ventral surface black with brownish tinge; elytra brown to dark brown with light peripheries; legs and mouth appendages reddish brown.

Head micro-reticulate; clypeus slightly emarginate in front. Pronotum about 2.5 times as broad as long, broadest at the base which is about 1.5 times as broad as anterior breadth; surface micro-reticulate almost as on head.

Elytra about 1.2 times as broad as pronotum, about 1.5 times as long as broad, broadest at apical third, thence slightly narrowed anteriad and distinctly rounded





Figs. 1–2. *Agabus matsumotoi* M. SATÔ et NILSSON, sp. nov. —— 1, Habitus; 2, median lobe of male genitalia in lateral aspect.

posteriad; surface finely micro-reticulate; each elytron furnished with two irregular rows of punctures; interstices from 1st row to lateral side scattered with punctures in posterior two-thirds.

Ventral surface finely striolate and finely micro-reticulate in part. Prosternal process broad, lanceolate, slightly convex and minutely punctate; metasternal wings rather slender, ratio of the width of metacoxa to the width of metasternum 2.7–2.9.

Male genitalia slender; subapical ventral spine more or less stout and rounded at apex.

Length: 8.0–8.7 mm; breadth: 4.3–4.5 mm.

Holotype: ♂, Nisshô-tôge, Hokkaido, 8–VIII–1985, M. SATÔ leg. Allotype: ♀, same data as for the holotype. Paratypes: 26 exs., same data as for the holotype; 17 exs., Tôun, Kamikawa, Hokkaido, 17–VIII–1986, 4–X–1986, H. MATSUMOTO leg.; 18 exs., Tenmaku, Kamikawa, Hokkaido, 4–X–1987, H. MATSUMOTO leg.; 4 exs., Shikotsu-maruyama, Hokkaido, 19–X–1986, M. MORI leg.; 7 exs., Tennyogahara, Daisetsu-zan Mts., Hokkaido, 29–VIII–1977, M. SATÔ leg.; 15 exs., Sekihoku-tôge, Hokkaido, 5–VIII–1985, 20–VIII–1990, M. SATÔ leg.; 12 exs., 30–VIII–1988, Y. & T. ABE leg.; 7 exs., Ranru, Hippu, Hokkaido, 28–IX–1986, 25–X–1986, H. MATSUMOTO leg.; 9 exs., Tanne-mura Marsh, Nemuro, Hokkaido, 31–VIII–1988, Y. & T. ABE leg.; 2 exs., Atosanupuri, Kushiro, Hokkaido, 24–V–1967, I. HIURA leg.; 2 exs., Horoman, Hokkaido, 3–VIII–1985, M. SATÔ leg.; 4 exs., Abeshinai-gawa Keikoku, Hokkaido, 16–VIII–1990, M. SATÔ leg.; 4 exs., Sakkuru, Hokkaido, 16–VIII–1990, M. SATÔ leg.

Holo-, allo- and most paratypes are deposited in the collection of the Biological

Laboratory, Nagoya Women's University. The remaining paratypes are distributed to the collections of the following institutions and entomologists: Natn. Sci. Mus. (Nat. Hist.), Tokyo, Ehime Univ., Umeå Univ., Naturhist. Mus., Basel, Smithsonian Inst., Mr. T. ABE and Mr. H. MATSUMOTO.

The present new species is very closely allied to *Agabus congener* (THUNBERG, 1794), but it is distinguished from the latter by the larger body, rounded subapical ventral spine of male genitalia, broad prosternal process, slender metasternal wings, and so on.

Agabus thomsoni (J. SAHLBERG)

Gaurodytes thomsoni J. SAHLBERG, 1871, Not. Sällsk. Fauna Flora Fennica, **11**: 409.
Gaurodytes congener: KÔNO, 1944, Chishima Gakujutsu-chôsa-kenkyû-tai Hôkokusho, **1**: 81.
Agabus congener: KAMIYA, 1935, Zool. Mag., Tokyo, **47**: 506.
Agabus (*Gaurodytes*) *congener*: KAMIYA, 1938, J. Tokyo Nogyo Daigaku, **5**: 33; 1938, Fauna Nipponica, Tokyo, **10**(8–11): 77.
Agabus sp.: KANO, 1933, Bull. biogeogr. Soc. Japan, **4**: 98.

Though recorded by KÔNO (1944) from Paramusir Island, we have concluded that his *A. congener* does not belong to that species but to *A. thomsoni* according to our re-examination of the specimen used in his report. Besides, the species recorded by KAMIYA (1935, 1938 a, b) and KANO (1933) under the same name also belongs to *A. thomsoni* according to their short Japanese descriptions.

Specimen examined. 1 ♀, Kashiwabara, Paramusir, Kuriles, 20–VII–1941, H. KÔNO & S. SUMIMIYA leg. (Preserved in the collection of Natn. Sci. Mus., Tokyo).

要　　約

佐藤正孝・A. N. NILSSON: 日本と千島の *Agabus congener* 複合種に関する覚え書き. —— 従来, 日本と千島から, *Agabus congener* (THUNBERG) として記録されていたマメゲンゴロウの 1 種について再検討した結果, それらは非常に近似した別の 2 種であることがわかったのでここに報告した. 日本から記録されていた種は新種であることから, *A. matsumotoi* M. SATÔ et NILSSON マツモトマメゲンゴロウと命名した. 千島から記録されていた種は, *A. thomsoni* (J. SAHLBERG) であることが, 河野 (1944) の記録に使われた標本を再検討した結果わかった.

References

KAMIYA, K., 1935. The water beetles from the northern Kuriles. *Zool. Mag., Tokyo*, **47**: 503–508. (In Japanese.)

—— 1938 a. A systematic study of the Japanese Dytiscidae. *J. Tokyo Nogyo Daigaku*, **5**: 1–68, 7 pls.

—— 1938 b. Family Dytiscidae. *In* OKADA, Y., *et al.* (eds.), *Fauna Nipponica*, **10**(8–11): i+1–8+1–137. Sanseido, Tokyo. (In Japanese.)

KANO, T., 1933. Coleopterous insects from the northern Kuriles with some considerations on the insects-fauna of the Kurile Islands. *Bull. biogeogr. Soc. Japan*, **4**: 91–121. (In Japanese.)

KÔNO, H., 1944. Die Käfer-Fauna der Nord-Kurilen (XI. Beitrag zur Kenntnis der Käferfauna der Kurilen). *Chishima gakujutsu-chôsa-kenkyû-tai Hôkokusho*, **1**: 74–92. Sôgô-hoppôbunka-kenkyû-kai, Tokyo. (In Japanese.)

LARSON, D. J., & A. N. NILSSON, 1985. The Holarctic species of *Agabus* (sensu lato) LEACH (Coleoptera: Dytiscidae). *Canad. Ent.*, **117**: 119–130.

NAKANE, T., 1959. On the genus *Gaurodytes* of Japan (Coleoptera, Dytiscidae). *Akitu, Kyoto*, **8**: 95–98. (In Japanese.)

——— 1964–'65. The Coleoptera of Japan (48), Family Dytiscidae (continued). *Fragm. coleopt. japon., Tokyo*, (1–4): 1–16. (In Japanese.)

——— 1989. The beetles of Japan (new series), 87. *Nat. & Ins., Tokyo*, **24**(9): 18–24. (In Japanese.)

NILSSON, A. N., 1981. Notes on some northern species of *Agabus* (Coleoptera, Dytiscidae). *Notul. ent.*, **61**: 191–196.

——— 1984. Nomenclatural and distributional notes on some northern species of *Agabus* (Coleoptera, Dytiscidae). *Ibid.*, **64**: 185–188.

——— 1987. A morphometric study of the two cryptic species *Agabus congener* (THUNBERG) and *A. lapponicus* (THOMSON) (Coleoptera). *Ent. scand.*, **18**: 67–77.

SATÔ, M., 1985. Family Dytiscidae. *In* UÉNO, S.-I., *et al.* (eds.), *The Coleoptera of Japan in Color*, **2**: 183–201. Hoikusha, Osaka. (In Japanese.)

Elytra, Tokyo, **18** (2): 197–207, November 15, 1990

Studies on the Subfamily Steninae (Coleoptera, Oxyporidae) from Japan

XV. Subgenus *Hypostenus* of the Genus *Stenus* LATREILLE, Part 7[1]

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Abstract A key to 51 species of the subgenus *Hypostenus* from Japan is provided. A new species, *Stenus oshimaensis* is described from Amami-Ohshima Is., Kagoshima Pref., and *S. bohemicus* MACHULKA and *S. flavidulus paederinus* CHAMPION are first recorded from Japan.

Stenus flavidulus SHARP

Stenus flavidulus SHARP, 1889, Annls. Mag. nat. Hist., (6), **3**: 334; BERNHAUER & SCHUBERT, 1911, Coleopt. Cat., (29): 174; ADACHI, 1950, Icon. Ins. Japon., p. 996; ADACHI, 1957, J. Tôyô Univ., (11): 191; NAKANE, 1963, Icon. Ins. Japon. Col. nat. ed., **2**: 86; PUTHZ, 1968, Dt. ent. Z., **14**: 142; SHIBATA, 1976, Annual Bull. Nichidai Sanko, (19): 200.

Specimens examined. 1 ex., Nakanogô-Daigo-Yama, Mitsune, Hachijô Is., Tokyo, 1–vi–1964, Y. HIRASHIMA & M. SHIGA leg.; 1 ex., Shôbaru City, Hiroshima Pref., 14–ix–1985, I. OKAMOTO leg.

Distribution. Japan (Honshu, Hachijô Is., Yakushima Is.).

Stenus flavidulus paederinus CHAMPION

(Fig. 1 A, D, H)

Stenus flavidulus paederinus: PUTHZ, 1967, Dt. ent. Z., **14**: 143; PUTHZ, 1973, J. Ent., (B), **42**: 72; ROUGEMONT, 1981, Annli. Mus. civ. Stor. nat. Genova, **83**: 374; PUTHZ, 1981, Reichenbachia, **19**: 8; ROUGEMONT, 1983, Nat. Hist. Bull. Siam Soc., **31**: 53.

Stenus paederinus CHAMPION, 1924, Ent. mon. Mag., **60**: 160; CAMERON, 1940, Proc. R. ent. Soc. Lond., (B), **9**: 87.

Specimens examined. 1 ex., Akagina, Amami-Ohshima Is., Kagoshima Pref., 17–vii–1954, S. MIYAMOTO & Y. HIRASHIMA leg.; 1 ex., Shinmura, Amami-Ohshima Is., Kagoshima Pref., 3–xi–1962, C. OHKUMA leg.; 1 ex., Hatsuno, Amami-Ohshima Is., Kagoshima Pref., 8–v–1982, T. OGATA leg.; 1 ex., Yona, Okinawa Main Is.,

1) Contribution from the Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka (Ser. 3, No. 288).

2) Present address: Natural History Museum and Institute, Chiba, 955–2 Aoba-chô, Chiba, 280 Japan.

Okinawa Pref., 18–iii–1975, Y. WATANABE leg.; 1 ex., same locality, 20–iv–1986, M. YOSHIDA leg.; 3 exs., Genkagawa River, Haneji, Okinawa Main Is., Okinawa Pref., 26–ii–1988, K. MORIMOTO leg.; 1 ex., Yomitan-son, Okinawa Main Is., Okinawa Pref., 25–ii–1988, K. MORIMOTO leg.

Distribution. Japan (Amami-Ohshima Is., Okinawa Main Is.); Oriental Region.

Remarks. *Stenus flavidulus paederinus* CHAMPION is first recorded from Japan, and is easily distinguished from the nominotypical subspecies by the blackish elytral markings. The markings are separated into two parts, each elongate oval in shape (Fig. 1 D), or broadly continuous at the suture (Fig. 1 A). The male genitalia are figured for comparison (Fig. 1 H).

Stenus bohemicus MACHULKA

(Fig. 1 B)

Stenus bohemicus MACHULKA, 1947, Acta ent. Mus. natn. Pragae, **25**: 88; LOHSE, 1964, Staph. I, Käfer Mitt.-Eur., **4**: 122; SMETANA, 1966, Acta ent. bohemoslov., **63**: 327; PUTHZ, 1967, Reichenbachia, **9**: 82; PUTHZ, 1971, Faun. Abh. staat. Mus. Tierk. Dresden, **3**: 141; PUTHZ, 1971, Ent. Blät., **67**: 84; PUTHZ, 1972, Ent. Blät., **68**: 152; PUTHZ, 1974, Fragm. faun., **19**: 439.

Specimens examined. 8 exs., Nakayama Pass, Hokkaido, 22–vi–1986, K. MORIMOTO leg.; 6 exs., Ashoro, Hokkaido, 25–vi–1986, K. MORIMOTO leg.; 1 ex., Aioi, Hokkaido, 24–vi–1986, K. MORIMOTO leg.; 1 ex., Obihiro City, Hokkaido, 6–vi–1980, H. TOGAWA leg.; 1 ex., Piribetsu, Hokkaido, 29–vii–1986, S. NOMURA leg.

Distribution. Japan (Hokkaido); Palearctic Region.

Remarks. This species is first reported from Japan and is collected by sweeping grasses at lowlands and low mountainous areas in Hokkaido.

Stenus oshimaensis sp. nov.

(Fig. 1 C)

Male and female. Body length: 3.8–4.5 mm.

Body black and very shiny; labrum reddish brown; antennae, maxillary palpi and legs pale yellow to yellow.

Head narrower than elytra (0.93: 1), 1.59 times as broad as long, frontoclypeal area covered with silvery white short hairs, interocular area almost flat to weakly convex, with a pair of depressions, which are longitudinal, shallow, indistinct and subparallel, median part between the depressions very weakly convex; punctures large, round, distinct and almost regular, interstices between punctures smooth and very shiny. Antennae slender, reaching posterior margin of pronotum, each segment much longer than broad, 3rd to 8th subequal in breadth, 9th to 11th forming a loose club, with relative lengths of segments from base to apex as 10: 10: 18: 16: 13: 11: 10: 9: 10: 10: 11.

Pronotum shorter than elytra (0.77: 1), longer than broad (1.18: 1), broadest

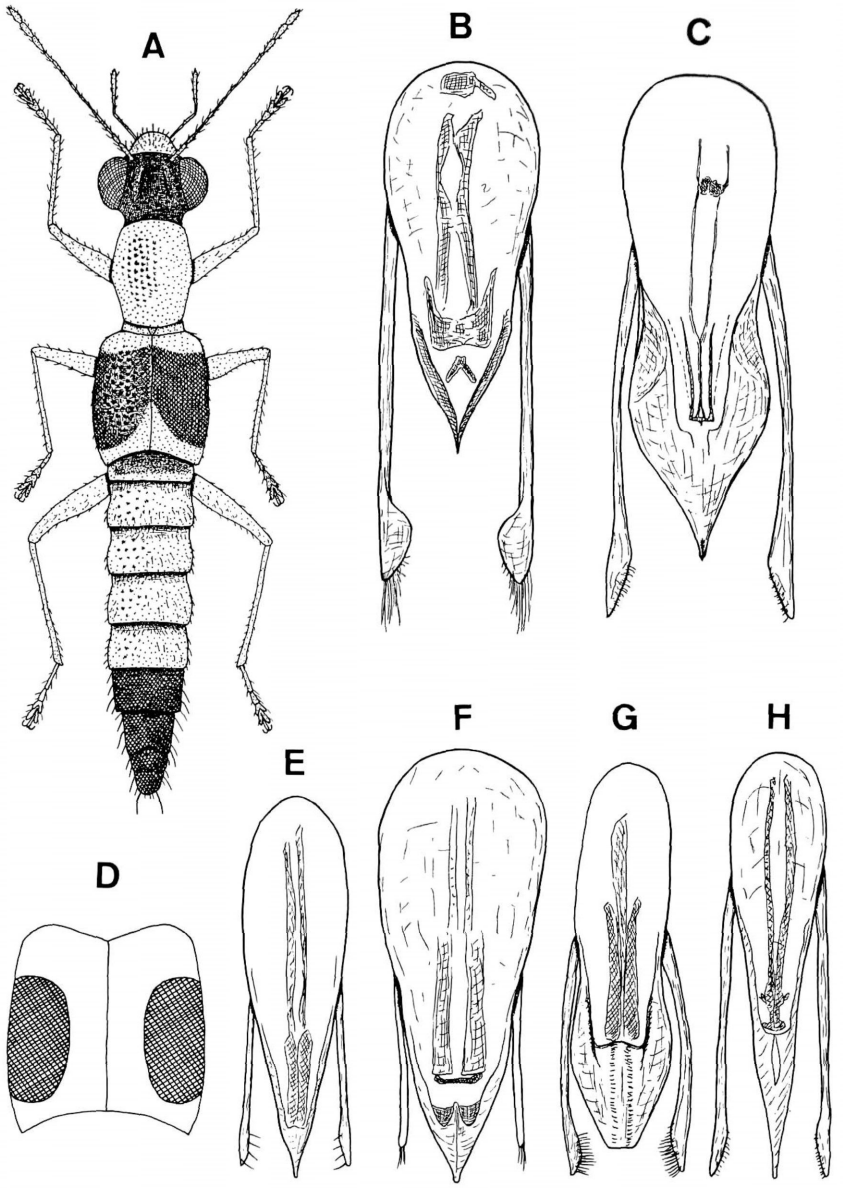

Fig. 1. A, D, H, *Stenus flavidulus paederinus* CHAMPION; B, *S. bohemicus* MACHULKA; C, *S. oshimaensis* sp. nov.; E, *S. dissimilis* SHARP; F, *S. cicindeloides* (SCHALLER); G, *S. velox* SHARP. A, Habitus; B, C, E–H, male genitalia in dorsal view; D, elytra.

near the middle, then gently narrowed both anteriorly and posteriorly; disk almost smooth, with neither median depression nor smooth spot; punctures round, distinct,

dense and a little larger in center than near anterior and posterior margins, interstices between punctures smooth and very shiny.

Elytra a little longer than broad (1.03: 1), well convex above, developed at anterolateral corners, and gently rounded at side margins and posterolateral corners, hind margins together forming an arcuate emargination; disk even, with punctures dense, round and regular. Hind wings functional.

Legs elongate, hind tarsi 0.49 times as long as hind tibiae, with 2nd tarsomere distinctly broader than lst, broadly emarginate at apical margin, 3rd and 4th each strongly bilobed.

Abdomen distinctly narrower than elytra, subparallel-sided, 3rd to 5th segments each broadly impressed at base; punctures moderate in density from 3rd to 8th segments throughout, but becoming gradually smaller posteriorly, interstices between punctures almost smooth and very shiny on 3rd to 6th terga, minutely sculptured on 7th to 8th terga; pubescence sparse, silvery white and decumbent.

Male. Eighth sternum with a deep and V-shaped emargination at the middle of posterior margin; 9th sternum very shallowly emarginate and minutely serrate at posterior margin, gently rounded and without projection at apicolateral corners. Genitalia (Fig. 1 C) with median lobe bulbous at base, moderately constricted near the middle, acutely pointed at apex which is longitudinally carinate on dorsal side; parameres very slender, extending beyond apex of median lobe, obliquely truncate at apices, each with short hairs on apico-internal margin.

Female. Eighth sternum entire at posterior margin.

Holotype, male (Type No. 2695, Kyushu Univ.), Marubatake, Amami-Ohshima Is., Kagashima Pref., 22–iii–1986, T. OGATA leg. Paratypes, 2 exs., same data as for holotype; 1 ex., Hatsuno, Amami-Ohshima Is., Kagoshima Pref., 11–xi–1962, Y. MIYATAKE leg.; 1 ex., Nishinakama, Amami-Ohshima Is., Kagoshima Pref., 10–iv–1976, H. MAKIHARA leg.; 1 ex., Kanpira Fall, Iriomote Is., Okinawa Pref., 15–iv–1975, H. IRIE leg.

Distribution. Japan (Amami-Ohshima Is., Ishigaki Is.).

Remarks. This new species is similar to *Stenus amoenus* BENICK, 1916, but the elytra are immaculate and the 8th sternum of the male is straight at the posterior margin.

Key to the Species of the Subgenus *Hypostenus* of Japan

This key is given for all the 51 Japanese species of the subgenus *Hypostenus*. Keys to some species of *Hypostenus* given by PUTHZ (1968) and HROMÁDKA (1982) are referred.

1 (28) Head usually narrower than or as broad as elytra; elytra well developed at humeral parts; hind wings developed.
2 (9) Body smaller (2.5–3.4 mm).
3 (6) Frons broader; punctures on dorsum larger and denser.
4 (5) Elytra longer; median lobe of male genitalia broader in apical half (PUTHZ,

1968 a, p. 201).....*S. cribellatus* MOTSCHULSKY (=*S. confertus* SHARP).

5 (4) Elytra shorter; median lobe of male genitalia narrower in apical half (Fig. 1 E).....*S. dissimilis* SHARP.

6 (3) Frons narrower; punctures on dorsum smaller and sparser.

7 (8) Pronotum longer, weakly rounded at sides.....*S. concinnus* SHARP.

8 (7) Pronotum shorter, strongly rounded at sides.....*S. oblitus* SHARP.

9 (2) Body larger (4.1–6.0 mm).

10 (13) Body broader; 3rd to 5th abdominal segments each with a median longitudinal keel at base.

11 (12) Body less strongly shiny; punctures on dorsum smaller; legs with tibiae entirely black; parameres of male genitalia extending much beyond apex of median lobe (Fig. 1 B).....*S. bohemicus* MACHULKA.

12 (11) Body more strongly shiny; punctures on dorsum larger; legs with tibiae yellowish at least at inner sides; parameres of male genitalia not extending beyond apex of median lobe (Fig. 1 F).....*S. cicindeloides* (SCHALLER).

13 (10) Body narrower; 3rd to 5th abdominal segments each without median keel at base.

14 (15) Pronotum and 3rd to 6th abdominal segments yellowish red; male genitalia as in Fig. 1 H.

a. Elytra entirely yellow to yellowish red.....*S. flavidulus flavidulus* SHARP.

b. Elytra yellowish with blackish markings (Fig. 1 A, D).....*S. flavidulus paederinus* CHAMPION.

15 (14) Pronotum and abdomen blackish.

16 (23) Body blackish with dark bronze reflection; interocular area without distinctly elevated median part.

17 (20) Head a little narrower than or almost as broad as elytra; interocular area more deeply concave.

18 (19) Pronotum with smaller punctures; median lobe of male genitalia subparallel-sided.....*S. hanami* HROMÁDKA.

19 (18) Pronotum with larger punctures; median lobe of male genitalia moderately constricted near the middle (Fig. 1 G).....*S. velox* SHARP.

20 (17) Head distinctly narrower than elytra; interocular area less deeply concave.

21 (22) Median lobe of male genitalia narrower, narrowed apically; parameres with longer hairs on apico-internal parts.....*S. currax* SHARP.

22 (21) Median lobe of male genitalia broader, gently constricted near the middle; parameres with shorter hairs on apico-internal parts (Fig. 1 C).....*S. oshimaensis* sp. nov.

23 (16) Body blackish with bluish reflection; interocular area with a distinctly elevated median part.

24 (27) Punctures on pronotum larger; pubescence on abdomen erect.

25 (26) Body smaller (4.3–4.5 mm); abdomen with fine and dense punctures on

7th and 8th terga.....*S. weisei* BERNHAUER.

26 (25) Body larger (6.0 mm); abdomen with coarse punctures on 7th and 8th terga.....*S. sedatus* SHARP.

27 (24) Punctures on pronotum smaller; pubescence on abdomen decumbent .....*S. mercator* SHARP.

28 (1) Head usually broader than elytra (except for *S. oni* NAOMI); elytra moderately or strongly constricted at base; hind wings reduced and not functional (*S. rufescens* complex).

29 (30) Abdomen with sparse, long and erect hairs.....*S. jambar* NAOMI.

30 (29) Abdomen with dense, short and decumbent pubescence.

31 (36) Median lobe of male genitalia with a large and broad emargination at apex.

32 (33) Antennae shorter and thicker; pronotum, elytra and 3rd to 6th abdominal segments dark red.....*S. oni* NAOMI.

33 (32) Antennae longer and thinner; pronotum, elytra and 3rd to 6th abdominal segments black.

34 (35) Body broader; labrum blackish; eyes more strongly convex; antennae reaching posterior margin of pronotum; 3rd to 7th abdominal sterna each with a depression or flat area at posteromedian part in male; parameres of male genitalia extending beyond apex of median lobe .....*S. daimio* NAOMI.

35 (34) Body narrower; labrum red to dark red; eyes less strongly convex; antennae not reaching posterior margin of pronotum; 7th sternum only simply flat at posteromedian part in male; parameres of male genitalia extending a little before apex of median lobe.....*S. imasakai* NAOMI.

36 (31) Median lobes of male genitalia various in shape, but never provided with a large emargination at apical margin.

37 (46) Parameres of male genitalia each with one or two tufts of hairs.

38 (43) Interocular area sparsely punctate on the median part between longitudinal depressions; parameres of male genitalia each with two tufts of short hairs.

39 (42) Labrum reddish; eyes less strongly convex; 7th sternum flat or depressed at posteromedian part in male; median lobe of male genitalia broader in apical half; parameres broader, straightly or obliquely truncate at apices.

40 (41) Hind tarsi with lst tarsomeres thinner; 7th sternum flat at posteromedian part in male; parameres of male genitalia curved, straightly truncate at apices.....*S. hijiri* NAOMI.

41 (40) Hind tarsi with lst tarsomeres thicker; 7th sternum depressed at posteromedian part in male; parameres of male genitalia almost straight, obliquely truncate at apices.....*S. carura* NAOMI.

42 (39) Labrum dark brown to black; eyes more strongly convex; 7th sternum

evenly convex at posteromedian part in male; median lobe of male genitalia narrower in apical half; parameres narrower and pointed at apices ..... *S. ryugu* NAOMI.

43 (38) Interocular area moderately or densely punctate on the median part between longitudinal depressions; parameres of male genitalia each with a tuft of short hairs.

44 (45) Body larger (3.5–3.7 mm); 7th sternum flat at posteromedian part in male; median lobe of male genitalia constricted at anterior 1/3; parameres longer ..... *S. hirashimai* NAOMI.

45 (44) Body smaller (3.3 mm); 7th sternum shallowly concave at posteromedian part in male; median lobe of male genitalia almost elongate oval, without constriction; parameres shorter ..... *S. syaca* NAOMI.

46 (37) Parameres of male genitalia without tuft of hairs.

47 (50) Median lobe of male genitalia distinctly constricted near apical 1/3 or the middle.

48 (49) Head entirely black; 8th sternum more shallowly emarginate at posterior margin in male; parameres of male genitalia gently curved outside behind apical 1/3 ..... *S. bosatsu* NAOMI.

49 (48) Head brownish; 8th sternum more deeply emarginate at posterior margin in male; parameres of male genitalia almost straight ..... *S. akojagai* HROMÁDKA.

50 (47) Median lobe of male genitalia without distinct constriction.

51 (70) Seventh sternum with a distinct depression at posteromedian part in male (if the 7th sternum is flat, median lobe of male genitalia is provided with a median longitudinal suture at apical part).

52 (67) Median lobe of male genitalia with a median longitudinal suture at apical sclerotized part (if the median suture is absent, parameres do not extend much beyond the apex of median lobe).

53 (56) Head, pronotum and elytra red to reddish brown; 3rd abdominal sternum flat or depressed in male.

54 (55) Body narrower; abdomen with 4th to 5th sterna each flat at posteromedian part in male; median lobe of male genitalia narrower in apical half ..... *S. gagyumontis* NAOMI.

55 (54) Body broader; abdomen with 4th sternum depressed at posteromedian part and 5th deeply so along the middle in full length in male; median lobe of male genitalia broader in apical half ..... *S. enma* NAOMI.

56 (53) Head blackish; pronotum and elytra yellowish brown to dark brown; 3rd abdominal sternum evenly convex transversely in male.

57 (64) Fourth to 5th abdominal sterna each flat or depressed at posteromedian part in male.

58 (59) Pronotum and elytra with rugose punctures; median lobe of male genitalia almost rounded at lateral margins in apical half .....

.....*S. testaceopiceus* BERNHAUER.

59 (58) Pronotum and elytra with dense and round punctures; median lobe of male genitalia straight or sinuate at lateral margins in apical half.

60 (61) Median lobe of male genitalia narrower, with straight apicolateral margins .....*S. jukata* HROMÁDKA.

61 (60) Median lobe of male genitalia broader, with sinuate apicolateral margins.

62 (63) Head broader; eyes more strongly convex; abdomen blackish; 8th sternum with a deep emargination in male; median lobe of male genitalia broader .....*S. nakanei* HROMÁDKA.

63 (62) Head narrower; eyes less strongly convex; abdomen yellowish brown; 8th sternum with a shallow emargination in male; median lobe of male genitalia narrower.....*S. wasabi* HROMÁDKA.

64 (57) Fourth to 5th abdominal sterna each evenly convex transversely.

65 (66) Labrum reddish; interocular area with interstices between punctures minutely sculptured; 6th sternum flat at posteromedian part in male; median lobe of male genitalia arcuately emarginate at apicolateral margins .....*S. shuheii* NAOMI.

66 (65) Labrum blackish, with reddish anterior margin; interocular area with interstices between punctures almost smooth; 6th sternum evenly convex transversely in male; median lobe of male genitalia straight at apicolateral margins.....*S. nyorai* NAOMI.

67 (52) Median lobe of male genitalia without median longitudinal suture at apical sclerotized part; parameres usually extending much beyond apex of median lobe.

68 (69) Seventh sternum with a narrower depression along the median line, sides of the depressions subparallel in male; parameres of male genitalia broader in apical parts.....*S. amida* NAOMI.

69 (68) Seventh sternum with a broader depression at posteromedian part in male, the depressed part almost semicircular, with sides gradually diverging toward posterior margin; parameres of male genitalia narrower in apical parts.....*S. akome* NAOMI.

70 (51) Seventh sternum convex, flat or with a shallow depression at posteromedian part in male.

71 (80) Parameres of male genitalia slender, extending far beyond apex of median lobe, but not or weakly broadened toward apex.

72 (77) Median lobe of male genitalia narrower in apical half, more or less pointed at apex.

73 (74) Median lobe of male genitalia obtusely pointed at apex, internal margin of apical sclerotized area with a median V-shaped emargination..... .....*S. micuba* HROMÁDKA.

74 (73) Median lobe of male genitalia acutely pointed at apex, internal margin of apical sclerotized area without emargination.

75 (76) Eyes more strongly convex; interocular area more sparsely punctate; median lobe of male genitalia broadest near base, more acutely pointed at apex..... *S. otohime* NAOMI.

76 (75) Eyes less strongly convex; interocular area more densely punctate; median lobe of male genitalia broadest near the middle, less acutely pointed at apex..... *S. kaguyahime* NAOMI.

77 (72) Median lobe of male genitalia broader in apical half, rounded with or without acuminate projection at apex.

78 (79) Antennae with 3rd segment longer, 8th to 9th each elongate subtrapezoidal; interocular area with interstices between punctures distinctly sculptured; median lobe of male genitalia gently rounded at apical margin..... ..... *S. keman* NAOMI.

79 (78) Antennae with 3rd segment shorter, 8th to 9th each elongate oval; interocular area with interstices between punctures indistinctly sculptured; median lobe of male genitalia gently rounded with a minute and acuminate median projection at apical margin..... *S. toshiharui* NAOMI.

80 (71) Parameres of male genitalia extending just to or a little beyond apex of median lobe (if the parameres are longer, they are strongly broadened at the median and/or apical part).

81 (90) Head bicolorous (black and yellowish).

82 (87) Median lobe of male genitalia with an acicular median projection.

83 (86) Interocular area yellowish brown to reddish brown in the middle, blackish along inner margins of eyes; parameres of male genitalia shorter.

84 (85) Antennae yellowish; 6th and 7th abdominal sterna each evenly convex transversely in male; median lobe of male genitalia with longer projection at apex..... *S. asyura* NAOMI.

85 (84) Antennae blackish except for 4 or 5 yellowish basal segments; 6th and 7th abdominal sterna each flat or very shallowly depressed at posteromedian part in male; median lobe of male genitalia with shorter projection at apex..... *S. santira* NAOMI.

86 (83) Interocular area reddish brown in anterior half, blackish in posterior half; parameres of male genitalia longer..... *S. basara* NAOMI.

87 (82) Median lobe of male genitalia obtusely pointed at apex.

88 (89) Interocular area blackish in posteromedian part; male genitalia with median lobe narrower in apical half, parameres shorter..... ..... *S. kazami* NAOMI.

89 (88) Interocular area reddish brown in posteromedian part; male genitalia with median lobe broader in apical half, parameres longer..... ..... *S. bicara* NAOMI.

90 (81) Head unicolorous (blackish or yellowish brown).

91 (94) Elytra reddish brown to brown.

92 (93) Sixth and 7th sterna each shallowly depressed at posteromedian part in

male; median lobe of male genitalia rounded at apicolateral corners ..... *S. rufescens* SHARP.

93 (92) Sixth sternum evenly convex, 7th sternum flat at posteromedian part in male; median lobe of male genitalia angulate at apicolateral corners ..... *S. okamotoi* NAOMI.

94 (91) Elytra entirely black.

95 (100) Interocular area with interstices between punctures minutely sculptured; median lobe of male genitalia broadest at apicolateral corners.

96 (99) Labrum entirely reddish brown; pronotum slightly uneven.

97 (98) Median lobe of male genitalia pointed at apex; parameres just reaching apex of median lobe, each with 3 or 4 setae on apico-internal part..... ..... *S. himiko* NAOMI.

98 (97) Median lobe of male genitalia with a minute emargination at the middle of apical margin; parameres extending a little beyond apex of median lobe, glabrous on apico-internal parts..... *S. syugen* NAOMI.

99 (96) Labrum blackish, with reddish anterior margin; pronotum almost even ..... *S. uneme* NAOMI.

100 (95) Interocular area with interstices between punctures almost smooth; median lobe of male genitalia broadest before the middle..... *S. taoi* NAOMI.

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要　約

直海俊一郎：日本産メダカハネカクシ亜科の研究．XV．メダカハネカクシ属 *Hypostenus* 亜属，7．——本論文で，日本産 *Hypostenus* 亜属のメダカハネカクシ 51 種についての検索表を作成した．また，1 新種，*Stenus oshimaensis* を奄美大島から記載した．さらに，*S. bohemicus* MACHULKA および *S. flavidulus paederinus* CHAMPION を日本から初めて記録した．

Stenus oshimaensis sp. nov. は，*S. amoenus* BENICK, 1916 に似ているが，上翅は黒色無紋で，雄の第 8 腹節腹板後縁部が直線状であることにより区別できる．*Stenus bohemicus* MACHULKA は，ヨーロッパからソ連東部まで広域に分布する種であるが，今回，日本から北海道の平野部の草原のスウィーピングで初めて採集された．*Stenus flavidulus paederinus* CHAMPION は *S. flavidulus flavidulus* に似ているが，上翅が黄色で黒い斑紋があることにより容易に区別できる．本亜種は東洋区に広く分布するが，今回，国内の奄美大島および沖縄本島から初めて記録された．

References

HROMÁDKA, L., 1982. Weitere neue *Stenus*-Arten von Japan (Coleoptera, Staphylinidae). *Fragm. coleopt.*, (33/34): 131–138.

LOHSE, G., 1964. Staphylinidae I (Micropeplinae bis Tachyporinae). *In* FREUDE, H., K. HARDE & G. LOHSE (eds.), *Die Käfer Mitteleuropas*, **4**: 1–264. Goecke & Evers, Krefeld.

MACHULKA, V., 1947. Novy *Stenus* z Pribuzenstva *St.* (*Hypostenus*) *tarsalis* LJ. *Acta ent. Mus. natn. Pragae*, **25**: 87–89.

NAOMI, S., 1988. Studies on the subfamily Steninae (Coleoptera, Oxyporidae) from Japan. IX. Subgenus *Hypostenus* of the genus *Stenus* LATREILLE, Part 1. *Elytra, Tokyo*, **16**: 73–84.

——— 1989 a. Ditto. X. Subgenus *Hypostenus* of the genus *Stenus* LATREILLE (Part 2). *Akitu, Kyoto*, (N. S.), (105): 1–11.

——— 1989 b. Ditto. XII. Subgenus *Hypostenus* of the genus *Stenus* LATREILLE, Part 4. *Elytra, Tokyo*, **17**: 45–52.

——— 1989 c. Ditto. XIII. Subgenus *Hypostenus* of the genus *Stenus* LATREILLE, Part 5. *Ibid.*, **17**: 159–167.

——— 1990 a. Ditto. XIV. Subgenus *Hypostenus* of the genus *Stenus* LATREILLE, Part 6. *Ibid.*, **18**: 45–53.

——— 1990 b. Ditto. XI. Subgenus *Hypostenus* of the genus *Stenus* LATREILLE (Part 3). *Akitu, Kyoto*, (N. S.), (113): 1–10.

PUTHZ, V., 1968 a. On some East Palearctic Steni, particularly from Japan (Coleoptera, Staphylinidae). *Ent. Rev. Japan*, **20**: 41–51.

——— 1968 b. Die *Stenus*- und *Megalopinus*-Arten MOTSCHULSKYS und Bemerkungen über das Subgenus *Tesnus* REY, mit einer Tabelle der paläarktischen Vertreter (Coleoptera, Staphylinidae). *Notul. ent.*, **48**: 197–219.

ROUGEMONT, G. DE, 1981. The stenine beetles of Thailand (Coleoptera, Staphylinidae). *Annli. Mus. civ. Stor. nat. Genova*, **83**: 349–386.

SMETENA, A., 1966. Systematische und faunistische Beiträge zur Kenntnis der Staphylinidenfauna der Tschechoslovakei VII. *Acta ent. bohemoslov.*, **63**: 322–336.

Elytra, Tokyo, **18** (2): 208, November 15, 1990

A New Subspecies of *Pterostichus dandonis* (Coleoptera, Carabidae) from Kappa-dô Cave in Aichi Prefecture, Central Japan

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After the description of *Pterostichus dandonis* KASAHARA (1989, pp. 39–42, figs. 6–8) was published, I received from Mr. Hiroshi IWASAKI some pterostichine specimens obtained in the cave called "Kappa-dô" at Chiiwa lying at the northeastern part of Aichi Prefecture. At first sight, it looked different from all the described species, but a close examination proved that it is basically common with *P. dandonis*. It had better be regarded as a geographical race of the latter. In the following lines, I will describe it under the name of *P. dandonis iwasakii*. I thank Dr. Shun-Ichi UÉNO for his advice, and Mr. Hiroshi IWASAKI for his offering the materials.

Pterostichus* (*Epinialoe*) *dandonis iwasakii subsp. nov.

Length 12.4–13.0 mm. Width 4.8–5.1 mm. Shiny black, somewhat brownish. Eyes less convex than those of the nominotypical form. Pronotum wider (PW/PL 1.36–1.40, mean 1.38) than in the nominotypical form; basal part more or less divergent posteriad; outer side of each basal fovea distinctly and rather ruggedly punctate, while it is smooth in the nominotypical form. Elytra wider (EW/PW 1.30–1.35, mean 1.33; EL/EW 1.39–1.46, mean 1.43), with lateral margins more roundish than in the nominotypical form; intervals almost flat. Meso- and metatarsi somewhat rugose dorsad, while the rugosities are faint or invisible in the nominotypical form. Terminal sternite and male genitalia similar to those of the nominotypical form, though the projection of the former is somewhat wider, and the right paramere of the latter is slenderer at the apical part.

Holotype: ♂, allotype: ♀, paratypes: 2♂♂, Kappa-dô Cave at Chiiwa, Hôrai-chô, Aichi Pref., 21-XII-1987, H. IWASAKI leg. The holo-, and allotypes are deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo. The paratypes are preserved in my collection.

Reference

KASAHARA, S., 1989. Two new relatives of *Pterostichus cristatoides* (Coleoptera, Carabidae) from central Japan. *Elytra, Tokyo*, **17**: 35–43.

Elytra, Tokyo, **18** (2): 209–214, November 15, 1990

A New Species of the Genus *Hesperus* (Coleoptera, Staphylinidae) from Taiwan

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Abstract A new staphylinid beetle belonging to the subgenus *Hesperotropis* of the genus *Hesperus* is described and illustrated from Taiwan under the name of *H.* (*H.*) *babai*. It is closely related to *H.* (*H.*) *perfoliatus* GRIDELLI from Sumatra, but is distinguished by its larger size, different coloration of the body and differently shaped style of male genitalia.

Through the courtesy of Dr. Kintaro BABA, I had an opportunity to examine a number of valuable specimens of staphylinid beetles obtained during his collecting trip to Taiwan in 1986. Among them, I found a very interesting species characterized by having almost straight, sharply edged lateral sides of elytra. It looks like a member of the subgenus *Hesperotropis* of the genus *Hesperus* FAUVEL. The subgenus *Hesperotropis* was described by GRIDELLI (1924) only for his new species, *Hesperus* (*Hesperotropis*) *perfoliatus*, from Sumatra. After a careful examination, it has become clear that the specimen does not agree with the known species in the coloration of the body and in the structure of male genital organ. It seems to be a new species, and will be described in the present paper.

Before going further, I wish to express my cordial thanks to Professor Yasuaki WATANABE of Tokyo University of Agriculture, for his continuous guidance and encouragement, and to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his kindness extended to me in various ways. Hearty thanks are also due to Dr. Kintaro BABA for his help in supplying with material, and to Mr. Akinori YOSHITANI for his assistance in preparing the illustration of the whole insect inserted in the present paper.

Hesperus* (*Hesperotropis*) *babai sp. nov.

(Figs. 1–4)

Body elongate and nearly parallel-sided. Colour pitchy black to black, moderately shining, with last four antennal segments white, mouth-parts and legs reddish brown, last two abdominal segments reddish yellow; head and pronotum with slight silky reflection, abdomen strongly iridescent.

Length: 12.5–13.5 mm.

Male. Head rather large, transverse (greatest width of head/greatest length of head=1.63), suborbicular and moderately wider than pronotum (greatest width of

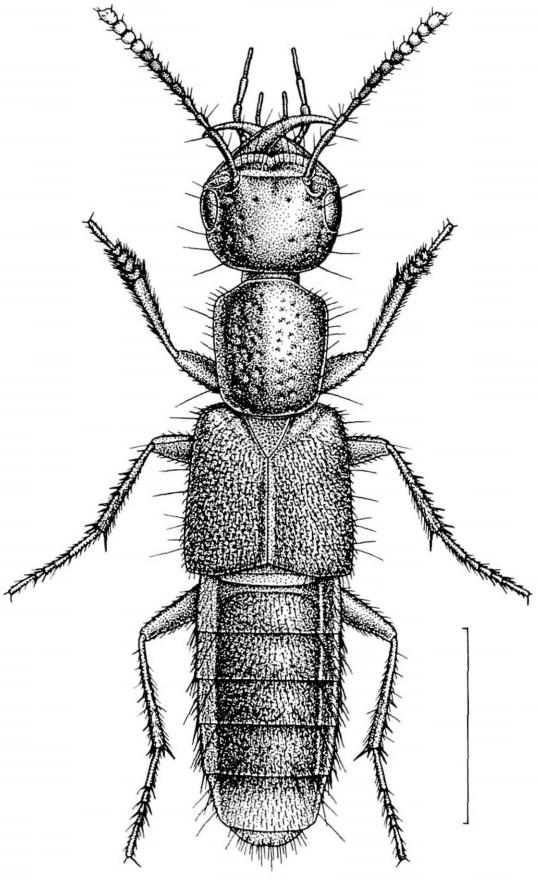
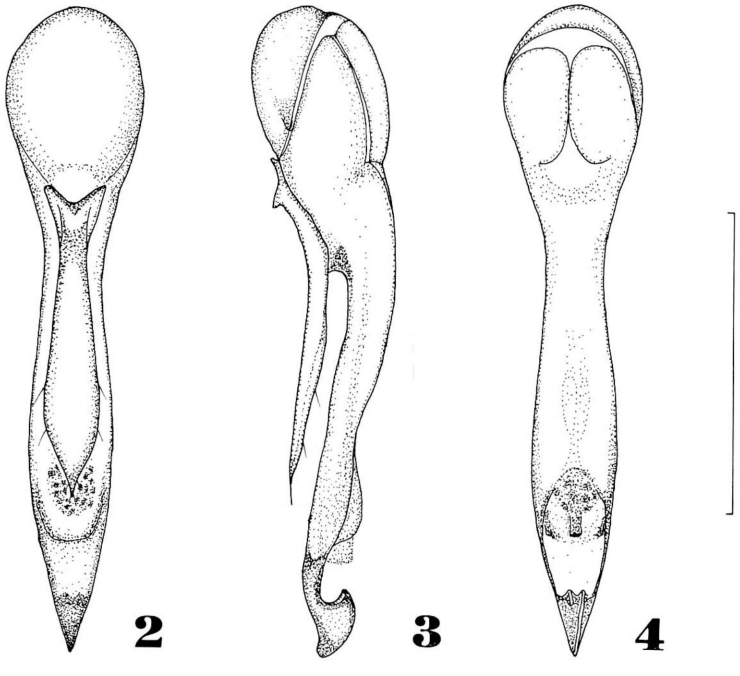


Fig. 1. *Hesperus* (*Hesperotropis*) *babai* sp. nov., ♂, from Sungkang in Taiwan. (Scale: 3.0 mm.)

head/greatest width of pronotum=1.27); eyes large but not very protruding from lateral outlines of head, their longitudinal diameter nearly as long as the posterior areas (longitudinal diameter of eye/length of postocular area=1.02), which are roundly contracted at neck; frons slightly impressed in the middle, almost impunctate; a small anterior frontal puncture situated at the posterior margin of each antennal tubercle, and two large additional setiferous punctures between anterior frontal punctures, forming a transverse row of four punctures as a whole; disc impunctate, provided with several setiferous punctures on posterior half of each side; latero-posterior parts and the area before base closely covered with larger and smaller coarse punctures.

Antennae relatively long, hardly reaching the posterior margin of pronotum, and moderately thickened apicad; three proximal segments polished, the remainings opaque; 1st segment long, thickened towards apex and more than 2.5 times as long as 2nd, 3rd elongate, distinctly longer than broad (length/width=2.20) and a little longer than 2nd (3rd/2nd=1.22), 4th to 10th almost equal in length to one another, 4th to 6th a little longer than broad (length/width=1.27), 7th to 10th transverse (width/length=1.42)



Figs. 2–4. Male genitalia of *Hesperus* (*Hesperotropis*) *babai* sp. nov.; ventral view (2); lateral view (3); dorsal view (4). (Scale: 0.5 mm.)

and each segments dilated apically, apicalmost longer than broad (length/width=1.43), ovbiously longer than 10th (11th/10th=1.43), subacuminate towards the tip.

Pronotum convex above, slightly longer than wide (length of pronotum, measured along the midline/greatest width of pronotum=1.09), and much narrower than elytra (greatest width of pronotum/greatest width of elytra=0.69), widest just behind the humeral angles, and slightly narrowed posteriad, with lateral sides almost straight, anterior margin broadly and gently rounded though subtruncated at middle; anterior angles rounded off and not visible from above, posterior angles broadly rounded; surface covered with microsculpture as on head and with rather sparing and coarse setiferous punctures except for a comparatively broad smooth area along the median line throughout its length. Scutellum large, triangular, densely and coarsely punctured and pubescent, surface with very fine transverse microsculpture.

Elytra subquadrate and flat above, about as broad as long (greatest width of elytra/greatest length of elytra=1.00), though strongly wider than long when measured along suture (greatest width of elytra/length of elytra from the apex of scutellum to the posterior margin=1.78), slightly widened behind; lateral sides strongly bent down from behind humeral angles to before hind angles, with each lateral edge forming almost straight sharp carina; surface moderately coarsely and moderately closely punctured, covered with dark brownish pubescence; no microsculpture.

Abdomen elongate and nearly parallel-sided; first three visible tergites each rather deeply and transversely depressed along the basal part; surface of each tergite moderately coarsely punctured and rather closely pubescent, though the punctures on the last three tergites become smaller and denser than on the basal three; 6th visible sternite rather deeply and subtriangularly excised at the middle of posterior margin. Legs relatively long; protarsi widely dilated.

Male genital organ moderately sclerotized and very elongate, with basal part relatively small and somewhat globular. Viewed ventrally, median lobe gently constricted at basal two-fifths, slightly dilated and then narrowed towards subacute apex; in lateral view, gradually tapered towards hatchet-like apical hook whose dorsal lobe is longer than the ventral. Style elongate, much shorter and narrower than median lobe, markedly constricted at basal fifth, then gently expanded laterad, and then suddenly convergent towards apex in apical fifth; ventral surface fringed with eight very fine short setae, four at apex and two on each lateral margin far distant from apex.

Female. Similar in facies and coloration to male, though the head is about as wide as pronotum (greatest width of head/greatest width of pronotum=1.04); lateral sides of elytra without sharp edge; last abdominal sternite simple; protarsi slightly dilated.

Type series. Holotype: ♂, Sungkang, about 2,200 m alt., Nantou Hsien, 6–IX–1986, K. BABA leg. Allotype: ♀, same data as for the holotype. Paratypes: 5 ♂♂, 3 ♀♀, same data as for the holotype.

The holo- and allotypes are deposited in the collection of the Laboratory of Entomology, Tokyo University of Agriculture, and the paratypes are preserved in the author's private collection.

Distribution. Taiwan.

Notes. This distinctive new species can be recognized from the known members of *Hesperus* on its coloration and the presence of a sharp edge at each lateral side of the elytra. In general appearance it somewhat resembles *H.* (*Hesperotropis*) *perfoliatus* GRIDELLI from Sumatra, but differs from that species in the following points: larger in body size, last two abdominal segments reddish yellow, last four segments of antennae white, and style of male genital organ acutely pointed at apex.

According to Dr. BABA, all the type specimens were captured by beating leaves of broadleaved trees.

The specific name is given after Dr. Kintaro BABA, who kindly offered his interesting material to the author for study.

Hesperus* (*Hesperus*) *taiwanensis SHIBATA, 1973

Hesperus taiwanensis SHIBATA, 1973, Ent. Rev. Japan, **25**: 21; 1986, Annual Bull. Nichidai Sanko, (24): 123.

Specimens examined. Ilan Hsien: 2 ♀♀, Near Chituan, about 1,080 m alt., 23–

VII–1978, Y. SHIBATA leg. Hualien Hsien: 1 ♂, Near Juisui Spa, 3–IV–1982, Y. SHIBATA leg. Nantou Hsien: 22 ♂♂, 9 ♀♀, Koantauchi, about 650 m alt., 15～16–VIII–1970 (holo-, allo- and paratypes); 11 ♂♂, 12 ♀♀, 26–VII–1973, Y. SHIBATA leg.; 10 ♂♂, 6 ♀♀, Nanshanchi, 24–VIII–1973, 2 ♂♂, 3 ♀♀, 30–VII–1977, Y. SHIBATA leg.; 2 ♂♂, 4 ♀♀, Near Lushan Spa, about 1,200 m alt., 27–VII–1977, Y. SHIBATA leg.; 1 ♂, Sungkang, about 2,040 m alt., 30–VII–1983, Y. SHIBATA leg. Chiai Hsien: 1 ♀, Fenchihu, about 1,400 m alt., 10–VIII–1970, 2 ♂♂, 9–VIII–1971 (paratypes), 5 ♂♂, 2 ♀♀, 3–VIII–1973, 2 ♂♂, 1 ♀, 9–VIII–1974, 3 ♀♀, 6–VIII–1976, 1 ♂, 6–VIII–1977, Y. SHIBATA leg.; 3 ♂♂, 2 ♀♀, Tadongshan, about 1,800 m alt., 11–VIII–1981, Y. SHIBATA leg.

Distribution. Taiwan.

Notes. Known from mountain districts of central to northeastern areas. The species is found in rotten bamboo shoots, fungi and under dead leaves. It can be easily distinguished from the preceding new species by the following key.

Key to the Taiwanese Species of *Hesperus*

1. Body smaller (8.5–10.5 mm); last two segments of antennae white; basal three abdominal segments red; lateral sides of elytra simple in both sexes..... ..... *H. taiwanensis* SHIBATA.
— Body larger (12.5–13.5 mm); last four segments of antennae white; abdomen black except for last two segments reddidh yellow; in male, each lateral side of elytra forming a sharp edge.....*H. babai* sp. nov.

要　約

柴田泰利: 台湾産 *Hesperus* 属の 1 新種. ―― 馬場金太郎博士が 1986 年に台湾で採集された多数のハネカクシ科標本の研究を筆者に託されたが，そのなかに顕著な特徴をもつ *Hesperus* 属の 1 新種を見出すことができたので，*Hesperus* (*Hesperotropis*) *babai* と命名記載した.

この種は，南投県松崗，標高 2,200 m で，1986 年 9 月 6 日に広葉樹林でのビーティングで得られたもので，雄の個体は上翅側縁に肩部直後から後縁直前まで続くやや鋭い縦隆起をもつきわめて顕著な種である．この属には現在までに 2 亜属約 130 種が記録され，そのうち約 50 種が東南アジアに分布し，台湾からは従来 1 種が知られていた．1924 年に GRIDELLI は，上翅側縁に縦隆起をもつスマトラ産の *H. perfoliatus* GRIDELLI を基準種として *Hesperotropis* 亜属を創設しているが，その後この亜属からの記録はない．したがって，台湾からの *H. babai* はこの亜属のものとしては 2 番目のものといえる.

H. babai と *H. perfoliatus* とは，前者がより大型，体は黒色で腹部末端 2 節が赤黄色，触角末端 4 節は白色，雄交尾器側片先端は末端に向かって急激に狭まり，先端が鋭く尖るなどの特徴で識別は容易である．なお，台湾からの既知種 *H.* (*Hesperus*) *taiwanensis* SHIBATA とは，縦隆起のあること，体長，体色などにより区別される.

References

BERNHAUER, M., & K. SCHUBERT, 1914. Staphylinidae IV. *In* JUNK, W., & S. SCHENKLING (eds.), *Coleopterorum Catalogus*, pars 57 (pp. 289–408). W. Junk, Berlin.

CAMERON, M., 1932. Coleoptera. Staphylinidae III. *In*: *the Fauna of British India, including Ceylon and Burma*. xiii+443 pp., 4 pls. Taylor & Francis, London.

GRIDELLI, E., 1924. Sesto contributo allo studio degli Staphylinini. Appunti di morfologia e sistematica del genere *Hesperus* FAUV. *Annali Mus. civ. Stor. nat. Giacomo Doria*, **51**: 170–202.

SCHEERPELTZ, O., 1933. Staphylinidae VII, Supplementum I. *In* JUNK, W., & S. SCHENKLING (eds.), *Coleopterorum Catalogus*, pars 129 (pp. 989–1500). W. Junk, Berlin.

——— 1964. Wissenschaftliche Ergebnisse der schwedischen Expedition 1934 nach Indien und Burma. Coleoptera, Staphylinidae (except. Megalopsidiinae et Steninae). *Arkiv Zool.*, **17**(2): 93–371.

——— 1971. Studien an den Arten der Gattung *Hesperus* FAUVEL (Col., Staphylinidae). *Ent. Arb. Mus. Frey*, **22**: 150–197.

SHIBATA, Y., 1973. On the genus *Hesperus* and one allied new genus from Taiwan, with descriptions of two new species (Col., Staphylinidae). *Ent. Rev. Japan*, **25**: 21–27.

——— 1986. A list of genera and species new to Taiwan and new data on distribution of the Staphylinidae discovered from Taiwan since 1973 (Insecta: Coleoptera). *Annual Bull. Nichidai Sanko*, (24): 109–128.

Elytra, Tokyo, **18** (2): 214, November 15, 1990

Records of Some Staphylinid Beetles from Kitadaitô-jima Island, the Ryukyus

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In the present report, are recorded some staphylinid beetles collected by Mr. Yukihiko IZUMI on July 9th, 1971, on Kitadaitô-jima Is., the Ryukyus. The collection consists of the following eight species, all of which are new to the fauna of Kitadaitô-jima Island.

1. *Carpelimus vagus* SHARP, 1 ♀.
2. *Paederus fuscipes* CURTIS, 1 ♂, 2 ♀♀.
3. *Rugilus ceylanensis* (KRAATZ), 1 ♂.
4. *Lithocharis nigriceps* KRAATZ, 1 ♀.
5. *Philonthus aeneipennis* BOHEMAN, 2 ♂♂, 3 ♀♀.
6. *Philonthus rectangulus* SHARP, 2 ♂♂, 1 ♀.
7. *Philonthus variipennis* KRAATZ, 2 ♂♂, 2 ♀♀.
8. *Aleochara puberula* KLUG, 3 ♂♂, 3 ♀♀.

Elytra, Tokyo, **18** (2): 215–219, November 15, 1990

Two New Coprophagous Beetles (Coleoptera, Scarabaeidae) from the Philippines

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Abstract Two new coprophagous scarabaeid species, *Ochodaeus matsudai* sp. nov. and *Phacosoma philippinense* sp. nov., are described from the Philippines. The former resembles *O. decoratus* ARROW, while the latter is related to *P. punctatum* BOUCOMONT.

Through the courtesy of three friends of mine, I was able to examine a long series of scarabaeid specimens from the Philippines. Though a number of scarabaeid species have already been described from this country by some pervious authors, there are still many others awaiting descriptions.

In this paper, I will describe two new species, *Ochodaeus matsudai* sp. nov. and *Phacosoma philippinense* sp. nov., from the Philippines. All the holotypes designated in this paper are deposited in the National Science Museum (Nat. Hist.), Tokyo.

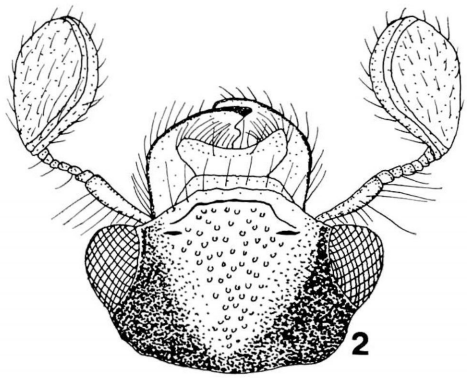
Before going further, I wish to express my sincere gratitude to Mr. Masao TÔYAMA for his constant guidance. I am also indebted to Messrs. Kiyoshi MATSUDA, Koichi SUGINO and Shigeru TAKEDA for their kind offer of materials.

Ochodaeus matsudai sp. nov.

(Figs. 1–2)

Male. Head yellowish brown except for blackish brown latero-posterior areas. Pronotum reddish brown, with five dark brown markings and two paler bands, which are arranged as follows: two large markings behind the anterior margin in the middle: a small round spots just before the middle on each side; transverse markings along the base in the middle; two narrow bands distinctly converging posteriorly between anterior and basal markings. Scutellum blackish brown. Elytron blackish brown, with two distinct yellowish brown irregular bands, which are arranged as follows: a large basal band between the suture and seventh interval, and a posterior one between the second to seventh interval just behind the middle. Mandible yellowish brown except for darker outer margin. Protibiae yellowish brown except for apical dark brown parts.

Head broader than the length excluding mandibles (2.6: 2.0): frons shallowly depressed, densely clothed with semirecumbent long yellowish hairs, rather closely covered with coarse granules, the interspace between granules weakly microgranulose;



Figs. 1–2. *Ochodaeus matsudai* sp. nov., male; 1, dorsal view; 2, head, dorsal view.

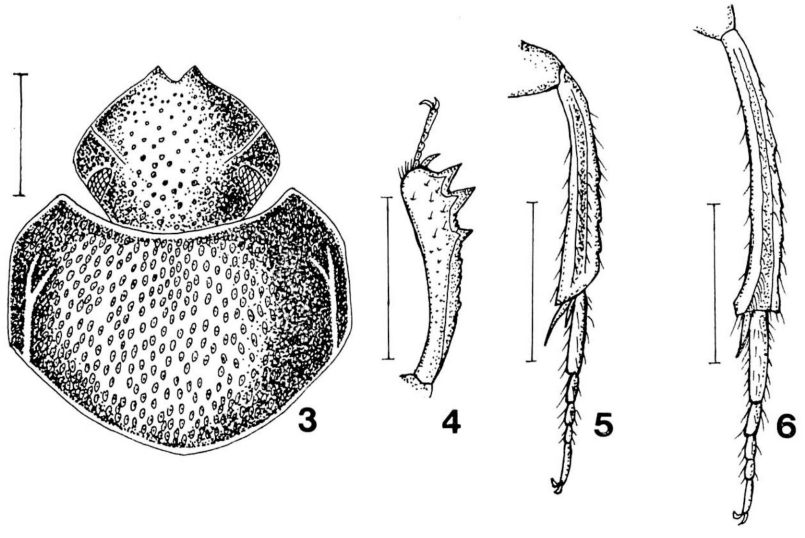
eyes well prominent; clypeal suture subtrapezoidal; clypeus distinctly carinate along the anterior margin, which is rather strongly produced; labrum with the anterior margin shallowly emarginate.

Pronotum convex, broader than long (4.0: 2.2); anterior margin sinuate near the sides, deeply and rather angularly emarginate in the middle; basal margin produced posteriorly and obtusely angulate at the middle, with the marginal line broadened near the middle; anterior angles subrectangular in lateral aspect; posterior angles rounded; surface densely clothed with semirecumbent long yellowish hairs, and densely covered with coarse granules, which become smaller towards the sides, the interspace between granules weakly microgranulose. Scutellum slightly longer than wide, acute at apex, rather densely granulose.

Elytra broader than long (4.3: 3.3); disc shallowly punctato-striate, the punctures distinct and separated by one to two times their diameter from each other, the intervals between striae closely covered with granules, which are smaller than those on head and pronotum, the interspace between granules weakly microgranulose; surface densely covered with long semirecumbent yellowish hairs, which are shorter and partly darker than those on head and pronotum.

Prosternum obsoletely longitudinally carinate at the middle, but the carina does not project anteriorly; anterior margin roughly serrate in the middle. Pygidium slightly convex apically, densely granulose and sparsely punctate. Metatarsus long, with the first segment about as long as the following four united, terminal spur slightly shorter than the first segment.

Length: 7.3 mm; width: 4.2 mm.



Figs. 3–6. *Phacosoma philippinense* sp. nov., male; 3, head and pronotum, dorsal view (scale, 1 mm); 4, protibia, dorsal view (scale, 1 mm); 5, mesotibia, dorsal view (scale, 1 mm); 6, metatibia, dorsal view (scale, 1 mm).

Holotype: ♂, Asin Hot Spring. Luzon Is., Philippines, 10–V–1978, M. BESITAN lgt.

Notes. The present species is somewhat similar to *O. decoratus* ARROW, 1904, but can be distinguished from it by the following characteristics: 1) clypeus narrow and rather abruptly sloped anteriorly, while in *O. decoratus*, it is broad and gently sloped anteriorly; 2) clypeal suture subtrapezoidal, instead of being arcuate; 3) frons shallowly depressed, instead of being flat; 4) markings on elytra distinctly different.

Phacosoma philippinense sp. nov.

(Figs. 3–6)

Male. Body moderately convex, opaque; head and pronotum brown to blackish brown, but the ante-marginal parts are slightly paler; elytra also brown to blackish brown, each with three small pale yellowish spots, the inner spot being located between the second and fourth striae behind the middle, the outer one between the fifth and eighth striae behind the middle, and the apical small one on the third interval at apex, antennae light brown except for blackish brown clubs; mouth-parts and legs light brown.

Head subhexagonal, broader than long (1.7: 1.3), densely covered with rather small ocellate punctures except for the shining basal part of clypeal teeth, the interspace between punctures weakly microgranulose; genae roundly prominent laterally; clypeal suture absent medially, and finely defined laterally; clypeus deeply incised at the

middle, with reflexed tooth on each side of the incision.

Pronotum moderately convex, broader than long (2.8: 1.7); anterior margin emarginate and weakly sinuate near the sides, and finely bordered; lateral margins obtusely angulate at the apical third, parallel in posterior two-thirds, finely bordered throughout; basal margin broadly rounded and bordered; anterior angles prominent; posterior angles obtuse; disc with longitudinal weak carinae near posterior angles along lateral margins, branching in apical parts; surface relatively densely covered with elongate ocellate punctures, bearing a short semirecumbent hooked setae, the interspace between punctures distinctly microgranulose.

Elytra broader than long (3.1: 2.8), though narrower than in the congeners; disc moderately convex, rather deeply, distinctly but finely punctato-striate, the intervals betwee striae weakly crenulate and sparsely covered with inconspicuous small punctures bearing short semirecumbent hooked setae, the interspace between punctures more roughly microgranulose than those on head and pronotum.

Ventral surface more or less microgranulose. Metasternum rather closely covered with setigerous ocellate or horseshoe-shaped punctures medially, and the punctures becoming coarser and sparser laterally. Abdomen with the second to fourth sternites bearing two or three transverse rows of setigerous ocellate punctures on each basal half, the fifth and sixth entirely and rather densely covered with similar punctures. Pygidium strongly convex, rather densely covered with indefinite small punctures. Profemur with a triangular internal tooth at the basal two-fifths, and distinctly bent down at apex. Protibia rather broad, expanded apically, with three sharp apical external teeth, and serrate on external margin basally. Mesotibia slender, with straight internal edge. Metafemur with the internal edge triangularly produced at the basal three-eighths, and serrate in basal three-eighths. Metatibia slender, with internal edge abruptly dilated at apex. Metatarsus rather short, about 0.7 times as long as metatibia.

Female. Elytra slightly broader than those of male. Pro- and metafemora with simple internal margin, without any projections.

Length: 5.5–5.7 mm; width: 3.1–3.5 mm.

Holotype: ♂, Mt. Apo, Mindanao Is., Philippines, 2–IV–1978, K. SUGINO lgt. Paratypes: 1 ♂ 4 ♀♀, same data as for the holotype: 4 ♂♂ 3 ♀♀, same loc., 1–IV–1978, S. TAKEDA lgt.

Notes. The present new species is somewhat related to *P. punctatum* BOUCOMONT, 1914, from Celebes, but can be distinguished from it by the following characteristics: 1) body larger; 2) dorsal surface without any metallic lustre, while in *P. punctatum*, it bears distinct metallic lustre; 3) elytra distinctly punctato-striate, instead of being simply striate except for the first punctato-stria.

要　　約

越智輝雄：フィリピン産食糞性コガネムシ類の2新種. —— フィリピンから *Ochodaeus* 属の1種と *Phacosoma* 属の1種，合計2種の食糞性コガネムシを記載し，前者に，*O. matsudai*，後者に *P. philippinense* という新名を与えた.

References

ARROW, G., 1904. Sound-production in the lamellicorn beetles. *Trans. ent. Soc. London*, **1904**: 709–749.

——— 1931. Coleoptera Lamellicornia Part III (Coprinae). *In*: *The Fauna of British India including Ceylon and Burma*. xii+428 pp., 13 pls., 1 folder. Taylor & Francis, London.

BALTHASAR, V., 1963. Monographie der Scarabaeidae und Aphodiidae der palaearktischen und orientalischen Region, **1**: 391 pp. Prag.

BOUCOMONT, A., 1914. Les Coprophages de l'Archipel Malais. *Annls. Soc. ent. Fr.*, **83**: 238–350.

HELLER, K., 1914. Coleoptera von Seran (Ceram) und Bali. *Ent. Mitt.*, **3**: 296–297.

KUROSAWA, Y., 1968. A revision of the subfamily Ochodaeinae in the Loo-choos, Formosa, and their adjacent regions. *Bull. natn. Sci. Mus., Tokyo*, **11**: 235–243.

PAULIAN, R., 1945. Coléoptères Scarabéides de l'Indochine. *Fn. Emp. fr.*, **3**: i+1–225. Larose, Paris.

SCHMIDT, A., 1913. Coleoptera Lamellicornia Fam. Scarabaeidae Subfam. Aegialinae, Chironinae, Dynamopinae, Hybosorinae, Idiostominae, Ochodaeinae, Orphninae. *In* WYTSMAN. P. (ed), *Gen. ins.*, (150): i+1–87, 3 pls. Verteneuil & Desmet, Bruxelles.

WATERHOUSE, C., 1875. On the lamellicorn Coleoptera of Japan. *Trans. ent. Soc. London*, **1875**: 71–116.

Elytra, Tokyo, **18** (2): 220, November 15, 1990

Occurrence of *Trechiama alatus* (Coleoptera, Trechinae) on the Nan-hu Mountains in Northern Taiwan[1)]

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Trechiama (s. str.) *alatus* S. UÉNO (1979, Bull. natn. Sci. Mus., Tokyo, (A), **5**, p. 202, figs. 1–4), a trechine beetle originally described from a southern high mountain of Taiwan, was later reported from five localities in the northern and central parts of the island (UÉNO, 1990, Elytra, Tokyo, **18**, p. 20, fig. 1). The autumn expedition 1990 made by the National Science Museum, Tokyo, recorded one more locality in the northern part. The collecting data are as given below.

1 ♀, Mu-kan Ch'i opposite to Hsiang-ku Liao beyond the Nan-hu Ch'i Valley, 2,230 m in altitude, on the Nan-hu Mountains, in Ho-p'ing Hsiang of T'ai-chung Hsien, northern Taiwan, 3–XI–1990, Y. NISHIKAWA leg. (NSMT).

As in the T'ai-p'ing Shan and Hsiao-hsüeh Shan populations, this single specimen, which was dug out from rather a wet colluvium at the side of a stream, is short-winged, suggesting that most of the northern populations are on the way of losing hind wings.

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Elytra, Tokyo, 18 (2): 221–225, November 15, 1990

Studies on the Buprestidae (Coleoptera) of Taiwan

I. A New Genus and Species of the Tribe Coraebini

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Abstract A new buprestid beetle, *Metatoxoscelus kurosawai* gen. et sp. nov. is described from Taiwan (Formosa). It belongs to the tribe Coraebini and is closely related to *Toxoscelus* H. DEYROLLE, 1864, from Borneo and *Neotoxoscelus* W. FISHER, 1921, from the Philippines.

In the mid summer of 1985, I had an opportunity to collect five specimens of a buprestid beetle at Sungkang (2,500 m alt.) on the central mountains in central Taiwan. It was tentatively placed in the genus *Toxoscelus*, but a careful examination has revealed that it belongs to a new genus closely related to the genera *Toxoscelus* and *Neotoxoscelus*. In this paper, I am going to describe this new genus and species under the name of *Metatoxoscelus kurosawai*.

I wish to express my sincere thanks to Dr. Yoshihiko KUROSAWA, former head of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo, for his constant guidance throughout this study, and also to Dr. Shun-Ichi UÉNO, chief curator of entomology at the same museum, for his kindness in critically reading the original manuscript and offering invaluable suggestions.

Genus ***Metatoxoscelus*** nov.

Facies of *Toxoscelus*. Body small, slender and deplanate above.

Head distinctly narrower than the base of pronotum, longitudinally grooved on vertex to just above the centre of frons; frons gibbose on each side of median groove; clypeal suture absent; clypeus narrowed by antennal cavities and separated from front of head by a deep transverse groove above antennal cavities; antennal cavity large and transverse; eyes small and feebly convergent below; antennae short, compact and eleven-segmented, with apical seven segments serrate, sensory pores concentrated on the terminal sockets of serrate segments.

Pronotum transverse; apex and base about equal in width; sides arcuately rounded; marginal carinae entire; lateral carinae distant from lateral margins; disc uneven and not convex.

Scutellum regularly triangular. Elytra widest just behind the middle; sides sinuate to the widest part where they are arcuately rounded, then obliquely and arcuate-

ly narrowed to apices which are separately rounded; side margins very finely denticulate near apices; disc deplanate.

Prosternum even on the disc with frontal lobe produced; anterior margin of frontal lobe broadly and arcuately emarginate, with a groove between frontal lobe and disc. Mesosternum divided; each lateral branch short and rounded before middle coxa. Metasternum longitudinally grooved at the middle.

Pygidium strongly and longitudinally carinate at middle and pointed at the middle of apex.

Legs short; middle coxae a little more widely separated than anterior ones; posterior coxae concave behind, with lateral margins strongly divergent posteriorly and visible from above on both sides of elytra; femora moderately flattened; tibiae straight, ciliate on outer margins in posterior ones; tarsi slightly shorter than a half of tibiae; claws longer than the fourth segment of tarsi.

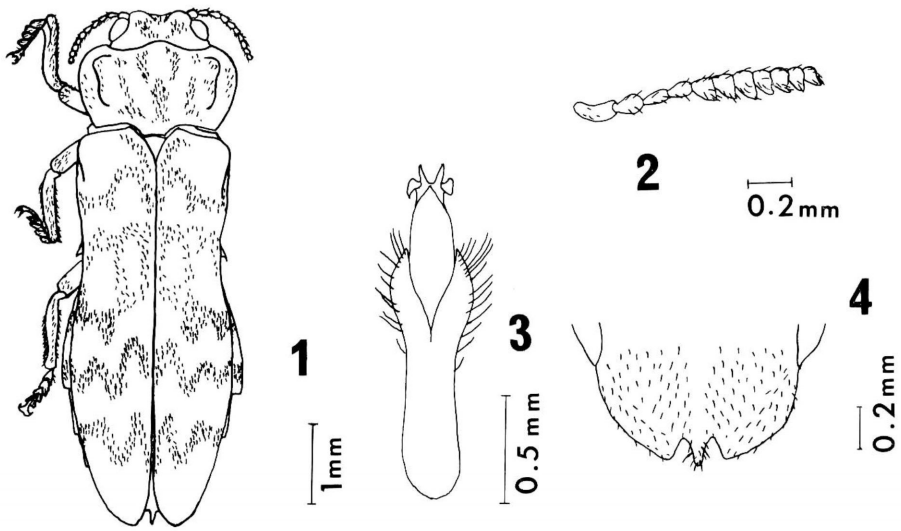
Type species: *Metatoxoscelus kurosawai* sp. nov.

Etymology. The generic name is derived from the similarity of the type species to the genus *Toxoscelus* H. DEYROLLE, 1864.

Remarks. This new genus is allied to the genus *Toxoscelus* H. DEYROLLE, 1864, and *Neotoxoscelus* W. FISHER, 1921, but can be distinguished from them by the diagnoses given in the following table.

Table 1. Differences between the genera concerned.

Genera	*Metatoxoscelus*	*Toxoscelus*	*Neotoxoscelus*
Eyes	feebly convergent below	feebly convergent below	obviously convergent below
Pronotum	disc uneven	disc uneven	disc even
	some shallow depressions on disc	some depressions on disc	no depression on disc
	lateral carina present	lateral carina present	lateral carina feeble
Coxae	posterior coxae with lateral margins strongly divergent posteriad	posterior coxae with lateral margins feebly divergent posteriad	posterior coxae with flat lateral margins and not divergent posteriad
Femora	anterior, middle and posterior femora not toothed	anterior and middle femora toothed on the inner side, but posterior femur not toothed	anterior, middle and posterior femora not toothed
Tibiae	straight in anterior, middle and posterior legs	curved in anterior and middle legs and forming spaces against femora when folded, but straight in posterior leg	straight in anterior, middle and posterior legs



Figs. 1–4. *Metatoxoscelus kurosawai* sp. nov. —— 1, Holotype ♀, dorsal view; 2, right antenna, frontal view; 3, male genitalia, dorsal view; 4, pygidium in female, dorsal view.

Metatoxoscelus kurosawai sp. nov.

(Figs. 1–4)

Dorsal side of body blackish, with violaceous tinge at elytral humeri and cupreous tinge at the lateral sides of pronotum; ventral side and legs concolorous, though more brightly tinged than the dorsal; abdomen with faint violaceous tinge.

Head transverse, strongly gibbose between eyes on each side of median groove, each gibbosity irregularly and somewhat concentrically rugose on the surface; frons transversely rugoso-punctate, with the anterior margin carinate; clypeus 2.5 times as long as wide, with a deep longitudinal impression, and microscopically transversely rugose; antennal cavities with internal margins elevated but open laterally and posteriorly; eyes with internal margins arcuate; surface mostly ornamented with short recumbent silver-whitish hairs which are sparsely arranged on vertex, middle and posterior parts of frons and clypeus, but partially with blackish recumbent hairs between the white-haired parts; antennae with first segment obconical, second globular, third and fourth fusiform and about equal in length, fifth to apical segments serrate, each wider than long.

Pronotum about 1.7 times as wide as long and widest at apical third; sides strongly rounded to apical third, weakly so to basal third, then obliquely convergent to posterior angles, and very finely crenulate in basal third; anterior angles obtusely produced in dorsal view, acute and abased; anterior margin bisinuate with median lobe broadly and arcuately produced; posterior angles obtuse and angulate; posterior margin strongly bisinuate with median lobe rather roundly emarginate in front of scutellum; marginal

carina entire, sharply defined, sinuate in basal fourth; lateral carina distant from marginal carina, ear-shaped and strongly elevated, extending from just behind anterior margin to basal fourth; disc uneven, concave between lateral and marginal carinae on each side, with two depressions on each side, large and shallow, which are transversely arranged in basal third, and also with a very shallow longitudinal depression at the middle just behind anterior median lobe; surface densely rugoso-imbricate and finely punctate among rugae, and sparsely covered with short, semirecumbent silver-whitish hairs which are arranged into seven inconspicuous stripes, one along the median longitudinal depression and three on each side of central disc, the area between the hair-stripes being sparsely clothed with blackish and recumbent hairs, the area between lateral and marginal carinae very sparsely clothed with silver-whitish hairs.

Scutellum with each side slightly concave, surface strigose and finely concentrically rugoso-punctate.

Elytra about 2.3 times as long as wide and about 4.1 times as long as pronotum; humeral angles obtuse; basal lobe angulately produced; disc deplanate, broadly and obsoletely depressed at base; sutural margins carinate near apices; surface densely rugoso-punctate with rugae transversely arranged in basal half and ornamented with short semirecumbent silver-whitish hairs which are arranged on each elytron as follows: a semicircular band apically open at basal fifth near suture; a longitudinally elliptical band at basal third near suture; a transverse band at middle near lateral margin; a zigzag band just behind middle; a transverse band just behind apical fourth; areas between these hair-markings clothed with inconspicuous blackish recumbent hairs; proximal abdominal segments more or less expanded laterally and visible from above.

Prosternum punctate on the disc except for the median part and prosternal process, which are rugoso-punctate; frontal lobe with the anterior margin obtusely produced on each side and with an arcuate groove along anterior margin separating frontal lobe from the disc; prosternal process even, gradually narrowed between anterior coxae (male) or parallel-sided (female), then somewhat angulate just behind anterior coxae, and attenuate to rather acute apex.

Abdomen as blackish as dorsum; apex of last ventral segment arcuately rounded with one groove along apical margin which is carinate (male), with one deep groove forming two parallel rims along apical margin, the marginal rim being adorned with 17 or 18 denticles which are irregular in size and the inner rim reflexed anteriorly (female).

Pygidium deeply emarginate at the tip and with a narrow projection in the emargination, whose apex reaches the supposed line connecting the apico-lateral margins.

Upper lateral sides of abdominal segments exposed from elytra and covered with silver-whitish hairs on extension of elytral silver-whitish bands.

Legs short and stout; each femur with internal ridge feebly excavated near tibial joint; tibiae straight with outer magins feebly curved, posterior tibia densely ciliated with blackish brown brush-like setae on outer margin; tarsi with four proximal seg-

ments about equal in length to one another; claw segment 1.7 times as long as the fourth tarsal segment.

Length: 5.4–6.4 mm (mean 6.0 mm) (♀), 5.3 mm (♂). Width: 1.9–2.1 mm (mean 2.0 mm) (♀), 1.6 mm (♂).

Holotype: ♀, allotype: ♂, paratypes: 2 ♀♀, Sungkang (2,500 m alt.), Nantou Hsien, Taiwan, 29–VII–1985, T. HATTORI leg. The holotype and allotype are deposited in the National Science Museum (Nat. Hist.), Tokyo.

Host plants. Unknown. The type specimens were obtained on the leaves of a *Quercus* tree standing at the edge of a forest just below the top of a hill.

要　　約

服部宇春: 台湾産タマムシ類の研究. I. ナカボソタマムシ族の1新属新種. —— 台湾中央部の松崗からナカボソタマムシ族の1新属新種を記載し, *Metatoxoscelus kurosawai* という新名を与えた. この新属は, *Toxoscelus* および *Neotoxoscelus* に近縁であるが, 複眼や前胸背板の形態, 肢の基節, 腿節および脛節の構造などの差異によって区別できる.

References

KUROSAWA, Y., 1950. Notes on the synonymy of several Japanese buprestid-beetles of the genera *Cryptodactylus* and *Toxoscelus*. *Ent. Rev. Japan*, **1**: 27–30

—— 1977. A revison of the buprestid beetles of the genera *Toxoscelus* and *Cryptodactylus* in Japan and its adjacent regions. *Bull. natn. Sci. Mus., Tokyo*, (A), **3**: 169–186.

FISHER, W. S., 1921. New Coleoptera from the Philippine Islands. Family Buprestidae, Tribe Agrilini. *Philipp. J. Sci.*, **4**: 352–421.

DEYROLLE, H., 1864. Buprestides de la Malaisie. *Annls. Soc. ent. Belg.*, **8**: 127–130.

Elytra, Tokyo, **18** (2): 226, November 15, 1990

New Buprestid Taxa from Tropical Asia (1)

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Chrysochroa fulminans nishiyamai Y. KUROSAWA, subsp. nov.

Body above entirely cupreo-purpureous to cupreo-violaceous, with the apices of elytra more or less tinged with steel-blue, which becomes stronger towards apices or sometimes extends almost all over the surface. Vertex and occiput usually cyaneous, but sometimes they are aeneous. Body beneath and legs often tinged with green or golden. Elytral striae of punctures coarse and strong with the costae weak but distinct. Elytral apices sharply pointed.

Length: 29.0–35.0 mm; width: 7.8–10.2 mm.

Holotype (♂), allotype (♀), and paratypes: 7 ♂♂ 28 ♀♀, Simuk Island of the Batu Islands, off the western coast of Sumatra, i~vii–1989, native collector lgt.

Such a wonderful colour pattern as shown by this race never appears in the other races of *C. fulminans* (FABRICIUS, 1787), whose range covers all over the Sundaland. Simuk Island is situated at the northernmost of the Batu island group of the Mentawai Islands, Indonesia.

Chrysochroa fulminans nagaii Y. KUROSAWA, subsp. nov.

Entirely blackish, with a slight greenish or violaceous tinge, and each elytral apex tinged with bronzy. Body beneath with legs blackish with a cyaneous or greenish tinge, and apical three ventral segments of abdomen sometimes tinged with dark brown. Elytral striae of punctures sparser and weaker than those of the preceding race, and the costae indistinct.

Length: 29.2–34.3 mm; width: 8.8–10.9 mm.

Holotype (♂), allotype (♀), and a paratype: 2 ♂♂ 1 ♀, Tarempa Island of the Anambas Islands, Indonesia (about 250 km northeast of Singapore), 17–vii–1985, H. DETANI lgt.

The present race having a similar colour pattern to *C. fulminans vethiana* OBENBERGER, 1926 (=*C. fulminans* F. var. *nigra* VETH, 1913), from Babi Island of the Simeulue Islands, off the northwestern coast of Sumatra, differs from the latter race in the sparser and weaker elytral striae of punctures and the indistinct elytral costae.

The new subspecific names given in this paper are dedicated to Messrs. Yasusuke NISHIYAMA and Shinji NAGAI, both in Tokyo and the friends of the author.

References

VETH, H. J., 1913. Fauna simalurensis. Coleoptera, Buprestidae. *Notes Leyden Mus.*, **35**: 241–242.

OBENBERGER, J., 1926. Buprestidae 1. *In* JUNK, W., & S. SCHENKLING (eds.), *Coleopterorum Catalogus*, pars 84 (pp. 1–212). W. Junk, Berlin.

Elytra, Tokyo, **18** (2): 227–230, November 15, 1990

Tenebrionidae of East Asia

(VII) Two Misolampine Genera from Northwest Thailand

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Abstract Two misolampine genera, *Promorphostenophanes* KASZAB, 1960, and *Hexarhopalus* FAIRMAIRE, 1891 (Tenebrionidae), are recorded for the first time from Northwest Thailand. Of these, the former is described under the name of *P. koyamai* sp. nov., and the latter is identified with *H. sculpticollis* FAIRMAIRE, 1891, originally described from Chang Yang, China.

In late August, 1989, Mr. Hanmei HIRASAWA, one of the best colleagues of mine, brought me a beautiful unknown misolampine species collected in Northwest Thailand. Two months later, Mr. Manit YIMYAEM, who has assisted my field survey in the same district, obtained a few more specimens of the same species. Besides, I collected another unknown species by traps also in Northwest Thailand.

At that time, I considered both of them to be new to science, but Dr. Ottó MERKL, Természettudomànyi Múzeum, Budapest, kindly suggested that the latter might be a named species. After a careful re-examination, I have concluded that the former is new to science, but the latter belongs, though some minor differences are recognized, to FAIRMAIRE's species, which is first recorded from Thailand.

I wish to express my deep gratitude to the above colleagues and cooperators, and also to Dr. S.-I. UÉNO, National Science Museum (Nat. Hist.), Tokyo, for his constant guidance to my study. Special thanks are due to Mr. Kaoru SAKAI, Tokyo, to whom I gave trouble in taking the photograph inserted in this paper.

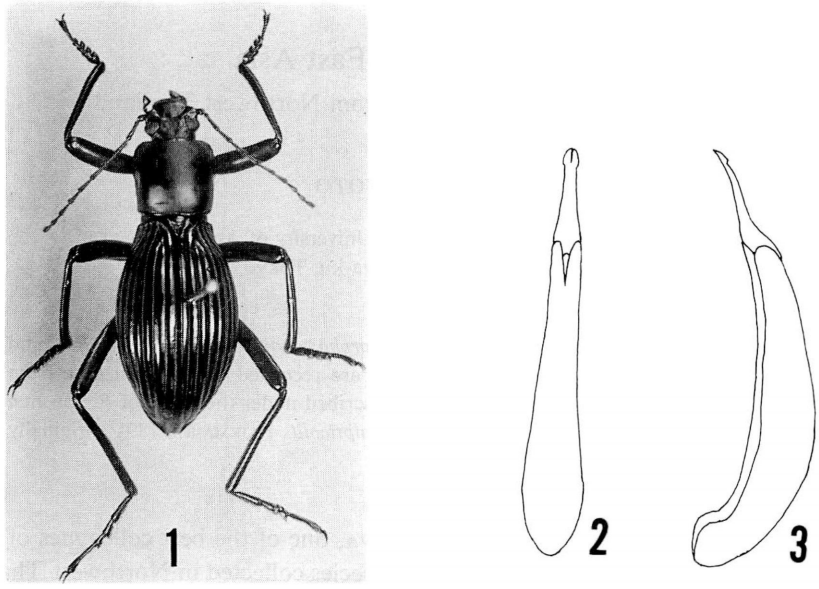
The holotype to be designated herein will be preserved in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Promorphostenophanes koyamai sp. nov.

(Figs. 1–3)

Piceous, with antennae, mouth parts, legs, etc., more or less lighter in colour; fore body above sericeously shining, elytra strongly, metallically shining with feeble coppery tinge. Elongate and strongly convex above; distinctly constricted between pronotum and elytra.

Head rather transverse elliptic, feebly convex above though gently flattened in middle, micro-shagreened and finely punctate; clypeus wide, flattened basally, gently narrowed towards apex, which is bent downwards and feebly sinuous in middle, with



Figs. 1–3. *Promorphostenophanes koyamai* sp. nov. —— 1, ♂, holotype; 2, male genitalia (dorsal view); 3, same (lateral view).

fronto-clypeal sulcus widely arcuate; genae subrectangular with corners rounded, depressed posteriorly before eyes; eyes transverse, gently, obliquely inlaid in head, roundly produced laterad in dorsal view, distance between them about twice width of eye diameter. Mentum semicircular, alutaceous, strongly raised antero-medially, sparsely pubescent apically; gula triangular, impressed along lateral borders anteriorly; terminal segment of maxillary palpus securiform, with outer side longer than apex. Antennae slightly thickened towards apices, reaching basal 1/4 of elytra, ratio of the length of each segment from basal to apical: 1.0, 0.28, 1.6, 1.45, 1.4, 1.4, 1.35, 1.3, 1.28, 1.2, 1.3.

Pronotum trapezoidal, about 1.1 times as wide as long, widest at apical 1/3, gradually narrowed towards base and roundly so towards apex; apical margin nearly straight, finely rimmed; base very slightly arcuate posteriad, bordered and rather noticeably rimmed; sides rather steeply declined to lateral margins, which are finely rimmed and gently sinuous, visible from above in anterior 3/5; front angles rounded and feebly produced forwards; hind angles subrectangular though almost vertical; disc convex above, micro-shagreened and finely punctate, with spot-like impression on each side. Scutellum wide, finely punctate, feebly raised along base.

Elytra about 1.9 times as long as wide, 3.2 times length and 1.5 times width of pronotum, widest at a little before the middle; dorsum strongly convex above, thickest at apical 1/3; disc distinctly grooved; intervals fairly distinctly convex above, more or less aciculate and finely punctate along each lateral portion; sides arcuate laterad, clearly bordered by 9th groove, steeply declined to lateral margins, which envelop

the hind body so solid that they are invisible from above; epipleura finely rimmed along outer margins; apices gently produced posteriad and slightly dehiscent.

Prosternum medium-sized and rather coriaceous, strongly raised between coxae and shallowly grooved medially in anterior half, apical margin widely arcuate; prosternal process bluntly produced posteriad, depressed and wrinkled; mesosternum very short, coriaceous, triangularly excavated; metasternum short, rather alutaceous, with a somewhat Y-shaped depression in middle. Abdomen rather large, 2 basal sternites and basal portion of 3rd shallowly wrinkled, remainders almost smooth though microscopically punctate, anal sternite finely rimmed along outer margins, without any peculiarities at apex.

Legs long but rather solid; pro- and mesotibiae feebly elongate, weakly thickened towards each apex, gouged and haired in apical half of each inner side, with apex shortly though rather distinctly bent in- or downwards; pro- and mesotarsi rather distinctly dilated towards each apex, ratio of the length of pro-, meso- and metatarsomeres from basal to apical: 0.68, 0.47, 0.4, 0.4, 1.63; 0.8, 0.63, 0.42, 1.76; 1.96, 0.97, 0.67, 2.3. Genitalia distinctly elongate, fairly strongly curved in lateral view, with apex spatulate.

Body length: 23–27 mm.

Holotype. ♂, Near Fang, Chiang Mai Prov., Northwest Thailand, 1,730 m alt., 10～16–VI–1987, N. KOYAMA leg. Paratypes. 1 ex., Fang, Chiang Mai Prov., 24–VIII–1989, native collector leg.; 2 exs., Doi Mon Ang Ket, Somoeng, Chiang Mai Prov., 3–X–1989, Manit Y. leg.; 3 exs., Doi Saket, Chiang Mai Prov., 22–IX–1989, native collector leg.; 1 ex., same locality, 5–X–1989, M. ITOH leg.

Notes. This new species resembles *Promorphostenophanes atavus* KASZAB, 1960, from Yunnan, but can be distinguished from the latter by the body more slender and more distinctly constricted between fore and hind bodies, the elytral intervals more strongly convex, the apices of elytra more distinctly dehiscent, the pro- and mesotibiae more elongate and more distinctly curved, with apical half of each inner side gouged and haired, and the pro- and mesotarsi more distinctly dilated towards each apex.

Hexarhopalus sculpticollis FAIRMAIRE, 1891

Hexarhopalus sculpticollis FAIRMAIRE, 1891, Comp.-rend. Soc. ent. Belg., **1891**, p. XIX.

Distribution. China; Northwest Thailand (new record).

Specimens examined. 6 exs. (Chiang Mai Prov.: Ang Khang, Doi Suthep/Pui).

要　　約

益本仁雄: 北西タイ産ヒサゴゴミムシダマシ族の 2 属について.—— 北西タイから，ヒサゴゴミムシダマシ族 (Misolampini) の *Promorphostenophanes* 属と *Hexarhopalus* 属を新たに記録した．そのうち，前者は雲南より記載された *P. atavus* KASZAB に近縁の新種で，*P. koyamai* MASUMOTO と

命名した．後者は，中国から知られている *H. sculpticollis* FAIRMAIRE である．

References

KASZAB, Z., 1941. Die indomalayischen Misolampinen (Coleopt., Tenebr.). *Annls. Mus. nat. hung.*, **34**: 1–44, 1 pl.

——— 1960. Neue orientalische Misolampinen (Coleoptera, Tenebrionidae). *Annls. hist.-nat. Mus. nat. hung.*, **52**: 265–294.

Elytra, Tokyo, **18** (2): 230, November 15, 1990

A New Record of the Taiwanese Opisthiine *Paropisthius masuzoi* (Coleoptere, Carabidae)[1)]

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Paropisthius masuzoi KASAHARA (1989, Elytra, Tokyo, **17**, p. 114, figs. 1–3) was described from three localities in the northern part and one locality in the southern part of the Taiwanese high mountains. Through the autumn expedition made in 1990, a new locality of this interesting carabid beetle was found by Mr. Kun Fu SHIH in the central part of the island. The collecting data are as given below.

1 ♀, Kuan-kao on the Yü-shan Mountains, 2,550 m in altitude, in Hsin-i Hsiang of Nan-t'ou Hsien, central Taiwan, 26–X–1990, K. F. SHIH leg. (NSMT).

Like the original material, the specimen recorded above was found from beneath a stone lying in a very wet spot at the side of a narrow stream which cascaded down a steep slope in a coniferous forest.

1) This study is supported by the Grant-in-aid No. 01041099 for Field Research of the Monbusho International Scientific Research Program, Japan.

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Female Reproductive Organs of Cerambycid Beetles from Japan and the Neighbouring Areas

I. Philini through Atimiini

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Abstract Female reproductive organs are examined on 22 species of smaller groups of cerambycid beetles from Japan and the neighbouring areas. From the results obtained, in combination with other characteristics of adults and larvae, it is concluded that the following classification of families and subfamilies may be reasonable: Vesperidae (including Philini), Disteniidae, Cerambycidae — Parandrinae, Prioninae (including Anacolini), Apatophysinae, and Spondylinae (including Asemini and Atimiini).

Dealing with the female genitalia of lepturine cerambycid beetles mainly from Japan, I laid special emphasis on the taxonomic importance of these organs in determining their phylogenetic relationship (SAITO, 1989). Since then, I have followed up the same line of researches, and now I am going to present the results of my studies on the female reproductive organs of other groups of cerambycid beetles.

In the first part of this series of papers, I will take up the following smaller groups: Philini, Vesperini, Disteniini, Parandrini, Prionini, Anacolini, Apatophysini, Spondylini, Asemini and Atimiini. With the exception of the Prioninae in a strict sense, all these groups have been subject to argument as to their systematic status and phylogenetic relationship. Some of them have been regarded as independent families or subfamilies, while others were treated as tribes or even synonymized. Different opinions about their classification will be delineated in the discussion following descriptions of representative species, and I will put forth my own opinion on the subject based mainly upon the study of their female reproductive organs.

Needless to say, my opinion to be given in this paper is not conclusive; there still remain many problems that should be clarified or confirmed. For instance, larval characters are still unknown about philines including *Mantitheus*, which show a very close similarity to *Vesperus* so far as concerned with the female genitalia. Besides, my study is limited mainly to Japanese forms because of difficulty in obtaining adequate material of critical foreign species. However, I have taken into consideration as many available data on non-genitalic characters as possible, and am confident that my conclusion is not far afield.

The method and terminology adopted in this study are the same as those explained

in my previous paper (cf. SAITO, 1989, pp. 67–69).

This study could never have been completed were it not for kind support of many colleagues and friends of mine. First of all, I have to thank Dr. Shun-Ichi UÉNO, chief curator of entomology at the National Science Museum (Nat. Hist.), Tokyo, who not only supervised and encouraged my study but helped me in every possible way. But for his leading and support, my study might not have reached the present achievement. Hearty thanks should be expressed to the following persons, who helped me either in obtaining rare specimens of critical species or in consulting with rare literature: Professors Katsuo KANEHISA, Katsura MORIMOTO, Yoshiaki NISHIKAWA, Masataka SATÔ, Drs. Michitaka CHÛJÔ, Nobuo OHBAYASHI, Messrs. Hideo AKIYAMA, Sadanari HISAMATSU, Hiroshi MAKIHARA, Tatsuya NIISATO, Masahiro SAKAI, Tohru SHIMOMURA and Masatoshi TAKAKUWA.

Results

Family Vesperidae

Tribe Philini

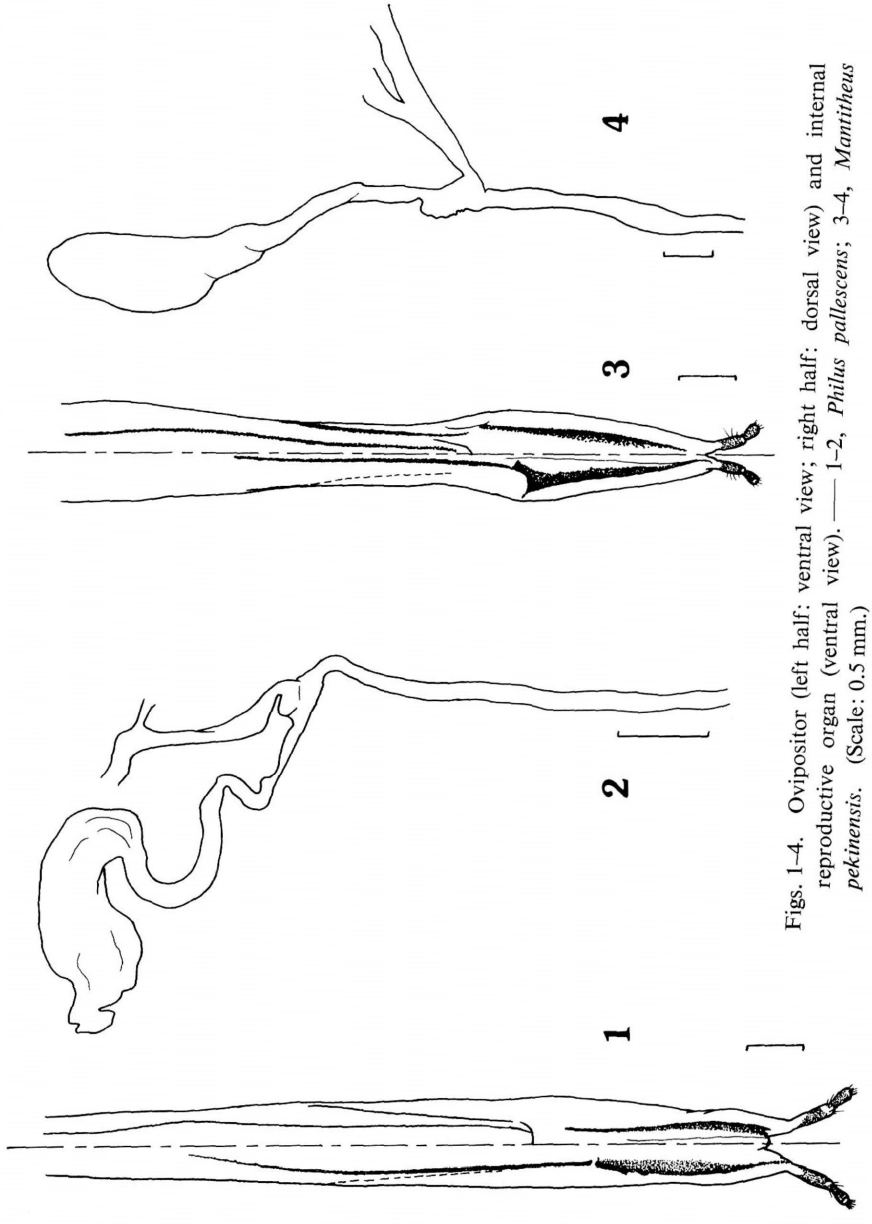
Philus pallescens BATES, 1866

(Figs. 1–2)

Collecting data of the material used. Horisha (=Pu-li), Taiwan, V–1942, collector unknown; Chiayi, Taiwan, 27–V–1976, collector unknown.

Paraproct long, each baculum thick though thin at the anterior part; valvifer indistinct; coxite slightly narrowed at middle, its baculi very thick and slightly sinuate; coxite lobes long and very narrow, sclerotized except for basal and apical portions, with tactile hairs at the apices; stylus moderate in size, articulated to the tip of each coxite lobe, sclerotized except for apex, and with tactile hairs; dorsal baculi very short, very thick, and thickened posteriorly; proctiger extremely long, and a little shorter than paraproct, with two pair of thin baculi, the inner one of which are very long, a little longer than paraproct baculi, and slightly sinuate, and the outer one a half as long as the inner; vagina very long and narrow, bent near the base, which is somewhat swollen; vaginal plates absent; bursa copulatrix absent; spermatheca not forming a sclerotized capsule, but present as a large membraneous pouch; spermathecal duct not clearly distinguished from spermatheca, thick, widely curved three times, and entering into the swollen part of vagina.

Notes. As described above, the female reproductive organs of *Philus pallescens* are very peculiar in that the proctiger is extremely long and bears two pair of baculi, that the vagina is swollen at the base and lacks the bursa copulatrix, and that the spermatheca does not become differentiated and remains membraneous, though it forms a large pouch with rather a stiff duct. Such a combination of diagnostic features has



Figs. 1–4. Ovipositor (left half: ventral view; right half: dorsal view) and internal reproductive organ (ventral view). —— 1–2, *Philus pallescens*; 3–4, *Mantitheus pekinensis*. (Scale: 0.5 mm.)

not been known in any other cerambycids so far as I am aware, and seems to suggest isolatedness as well as primitiveness of the species.

Mantitheus pekinensis FAIRMAIRE, 1889

(Figs. 3–4)

Collecting data of the material used. S. Shan-si, N. China, 1–VIII–1941, K. SHIRAHATA leg.

Paraproct long, its baculi thick, rather short, and almost straight; valvifer indistinct; coxite narrowed posteriorly, each baculum broadened both inwardly and laterally at the base, though tapered towards apex; coxite lobes very narrow, sclerotized except for basal and apical portions, with tactile hairs at the apices; stylus moderate in size, sclerotized except for apex, and with tactile hairs; dorsal baculi very short and thick, thickened in apical third; proctiger extremely long, with two pairs of thick baculi, the inner one a little shorter than paraproct, and slightly sinuate, and the outer one a half as long as the inner; vagina long and narrow, somewhat swollen at base; both vaginal plates and bursa copulatrix absent; spermatheca not forming a sclerotized capsule, but existing as a large membraneous pouch; spermathecal duct not clearly distinguished from membraneous spermatheca, thick, almost straight, and entering into the swollen part of vagina.

Tribe Vesperini

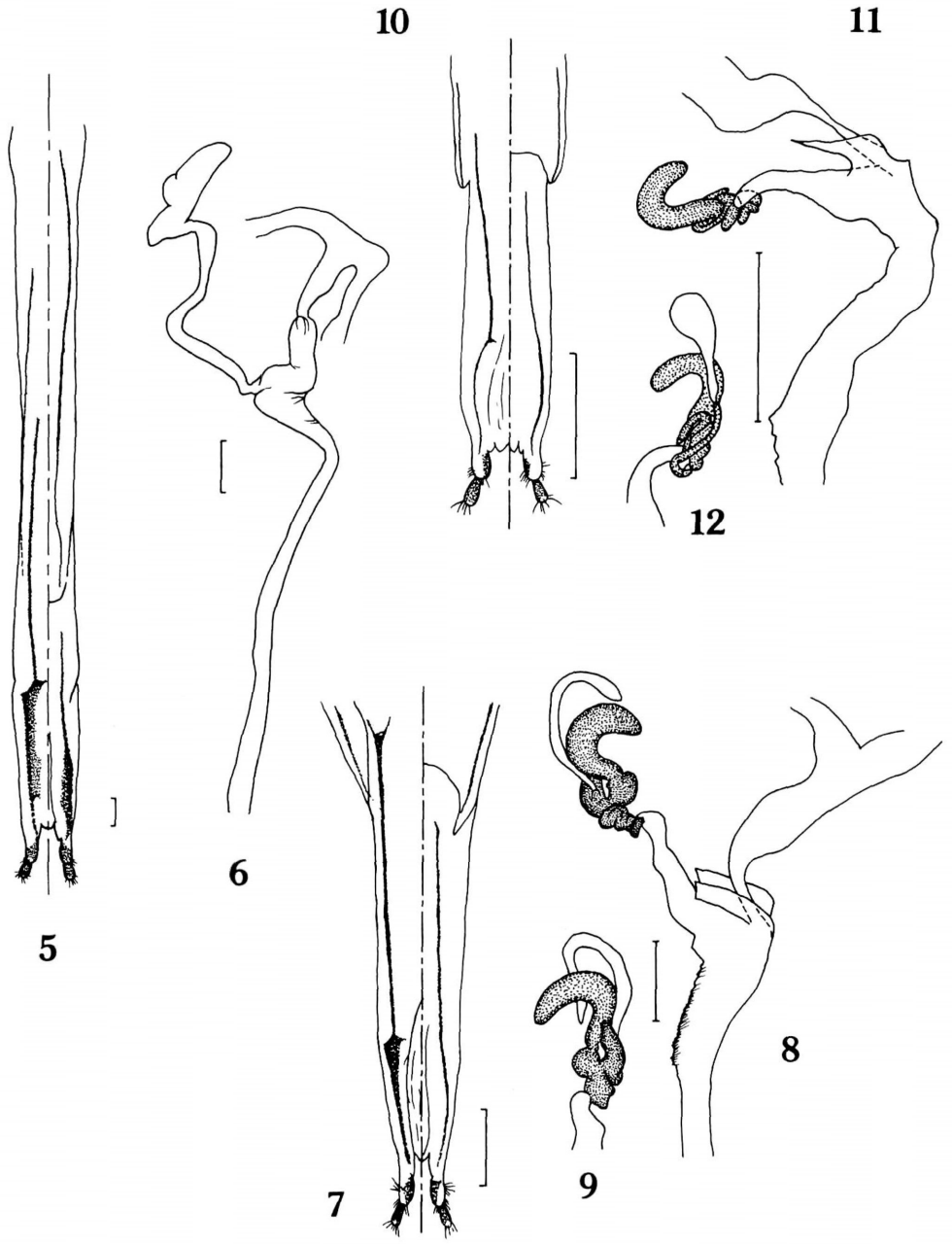
Vesperus strepens (FABRICIUS, 1792)

(Figs. 5–6)

Collecting data of the material used. San Rema, Italia, F. MULER leg.; Venelles, Bouches du Rhone, France, VIII–1982, J. DUTRU leg.

Paraproct rather long, its baculi thick and almost straight; valvifer indistinct; each coxite baculum very thick but thinned in apical fourth; coxite lobes sclerotized except for basal and apical parts, with tactile hairs; stylus moderate in size, articulated to the tip of each coxite lobe, and bearing tactile hairs; dorsal baculi very short, thickened towards posterior parts but thinned at apices; proctiger extremely long, with two pair of baculi, the inner one about one and half times as long as paraproct baculi, and slightly sinuate, the outer one three-fourths as long as the inner; vagina long and narrow, bent near base, its basal part obviously swollen and constricted at the part connected with common oviduct; vaginal plates absent; bursa copulatrix absent; spermatheca not forming a sclerotized capsule, but existing as a curved membraneous pouch; spermathecal duct not clearly distinguished from spermatheca, entering into the swollen part of vagina.

Notes. *Vesperus strepens* has the female reproductive organs basically very similar to those of *Philus*. In fact, it is almost impossible to find any important difference



Figs. 5–12. Ovipositor (left half: ventral view; right half: dorsal view) and internal reproductive organ (ventral view). —— 5–6, *Vesperus strepens*; 7–9, *Distenia gracilis* – separated spermatheca is shown in Fig. 9; 10–12, *Tengius ohkuboi* – separated spermatheca is shown in Fig. 12. (Scale: 0.5 mm.)

between the two, though the membraneous spermatheca of the former is smaller than that of the latter and is of different configuration. This led me to conclude that the two genera belong to the same group, as will be discussed in the next chapter.

Family Disteniidae

Tribe Disteniini

Distenia gracilis (BLESSIG, 1872)

(Figs. 7–9)

Collecting data of the material used. Tobira Spa, Nagano Pref., 21 ~ 26–VII–1971, H. KOBAYASHI leg.

Paraproct moderate in size, its baculi very thick, straight and somewhat bifurcate at the base; valvifer indistinct; coxite with rough surface, each baculum very thick at base and narrowed towards apex; coxite lobes sclerotized at each inner part, with tactile hairs; stylus articulated to the tip of each coxite lobe, sclerotized except for apex and bearing tactile hairs; dorsal baculi slightly sinuate and longer than paraproct baculi; proctiger baculi long and almost straight; vagina rather broad at basal part, and with many fine wrinkles behind bursa copulatrix; vaginal plates oblong, truncated at each apex; vagina rather broad at basal part, and with many fine wrinkles behind bursa copulatrix; bursa copulatrix tubular; spermatheca large, heavily sclerotized and of very intricate structure, its main part narrow, strongly bent at middle and basally with a protrusion, basal part irregularly twisted and with rather broad protrusion to which attaches the gland at the middle part, and directly connected with the apex of bursa copulatrix; spermathecal duct absent.

Notes. This species is very peculiar in the intricate structure of the spermatheca, which directly joins the bursa copulatrix. Absence of the spermathecal duct has not been known in the other groups of cerambycid beetles, and as will be shown for the genus *Tengius*, may be regarded as being characteristic of the disteniines.

Tengius ohkuboi MATSUSHITA, 1938

(Figs. 10–12)

Collecting data of the material used. Komenono, Ehime Pref., 15–VI–1980, Y. KUSUNOKI leg.

Paraproct rather short with almost straight baculi; valvifer indistinct; coxite baculi thin and sinuate; coxite lobes rather broad, sclerotized at each inner part, with tactile hairs; stylus articulated to the tip of each coxite lobe, sclerotized except for apex and bearing tactile hairs; dorsal baculi slightly sinuate and longer than paraproct baculi; proctiger baculi very long and thin; vagina curved near base; vaginal plates wide at bases, and narrowed towards apices which are acute; bursa copulatrix tubular, somewhat broad at basal part but narrowed towards apex; spermatheca heavily scle-

rotized and of very intricate structure, its apical part narrow and C-shaped, basal part very narrow and strongly twirled several times, with two narrow protrusions, the gland being attached to the apex of one of the protrusions, and directly connected with the apex of bursa copulatrix; spermathecal duct absent.

Notes. Though considerably differing from *Distenia* in external morphology, *Tengius* has the female reproductive organs basically identical with those of the latter. This seems to serve as a sound proof for the isolated status of the group.

Family Cerambycidae

Subfamily Parandrinae

Parandra (Parandra) formosana MIWA et MITONO, 1939

(Figs. 13–14)

Collecting data of the material used. Bansho, Taiwan, VIII, T. KANO leg.

Paraproct rather long, gently narrowed towards apical portion, not perfectly tubular, and distinctly separated into sternite and tergite at its anterior part, the former well sclerotized and forming a plate which is warped dorsally at the lateral parts; paraproct buculi long, thick and straight, extending throughout; valvifer indistinct; coxite, without baculi, very short and heavily sclerotized at the ventral part; coxite lobes also heavily sclerotized, not clearly separated from coxite, rather rapidly narrowed towards apices, and with tactile hairs in a shallow lateral depression lying at about apical third of each lobe; stylus small, very short, transverse, heavily sclerotized, and articulated to the dorsal side of coxite lobe, with the tip divided into two convexities and devoid of tactile hairs; dorsal baculi clear in apical part, though disappearing in anterior part; neither proctiger nor intersegmental membrane, so that the vagina and vaginal plates are wholly embraced by paraproct; vagina very short; vaginal plates oval and stiff; bursa copulatrix ovoid, narrowed basally to form a short bursal duct; spermatheca with many fine wrinkles in narrow basal part, abruptly bent behind the narrow portion, with two small convexities lying transversely at the inner side of the middle part, and slightly curved at the apical part, with the gland opening near the base; spermathecal duct thin, short, slightly sinuate, and entering into the base of bursa copulatrix.

Notes. Judging from the female reproductive organs of this species, *Parandra* seems to be most primitive in all the cerambycids in a strict sense, because the paraproct, which is heavily sclerotized, is not perfectly tubular, being separated into clearly defined sternite and tergite in the anterior part, and completely embraces the vagina and its plates, and the styli are articulated to the dorsal side of the coxite lobes. These features are not found in any other cerambycids that I have examined.

Subfamily Prioninae

The female reproductive organs of the representative Japanese species of this sub-

family were studied by KUBOKI (1980), who described and illustrated those of six species. Though his terminology is to some extent different from mine, his accounts accord well with the results of my own study, and I do not think it necessary to repeat. Only the problem is in his observation of the female genitalia of *Megopis* (*Aegosoma*) *sinica*, which is not very accurate and needs a re-examination. In the following lines, I will give descriptions and illustrations of those of this species in comparison with those of *M.* (*Spinimegopis*) *formosana ishigakiana*.

Tribe Prionini

Megopis (*Spinimegopis*) *formosana ishigakiana* YOSHINAGA et NAKAYAMA, 1972

(Figs. 15–16)

Collecting data of the material used. Bannadake, Ishigakijima Is., Okinawa Pref., 14–V–1973, T. NAKANE leg.

Paraproct moderate in size, and with rough surface, its baculi very thick, almost straight; valvifer indistinct; coxite with rough surface, each coxite baculum very wide at base, tapered towards apex, and briefly extending anteriad as a narrow baculum; each coxite lobe short and very thick, sclerotized in apical half, with a bundle of fine tactile hairs on the ventral face, and with very short tactile hairs at the apex; stylus articulated to the lateral face of coxite lobe, sclerotized except for the apex which bears tactile hairs; dorsal baculi fairly short and almost straight; proctiger baculi very short, thick and abruptly bent at apices; vagina short and broad, bent just behind base; vaginal plates narrow and sinuate; bursa copulatrix forming a large pouch, with many wrinkles on the surface; spermatheca bent at apical third, somewhat broadened in basal half, with narrow gland on the lateral face; spermathecal duct rectangularly bent near base, and entering into bursa copulatrix near its base.

Notes. In the other species of this subgenus, *Megopis* (*Spinimegopis*) *malasiaca* HAYASHI, 1976, from Malaysia, the female reproductive organs are similar in general features to those of this species, with the exception of longer coxite lobes and smooth surface of bursa copulatrix without wrinkles.

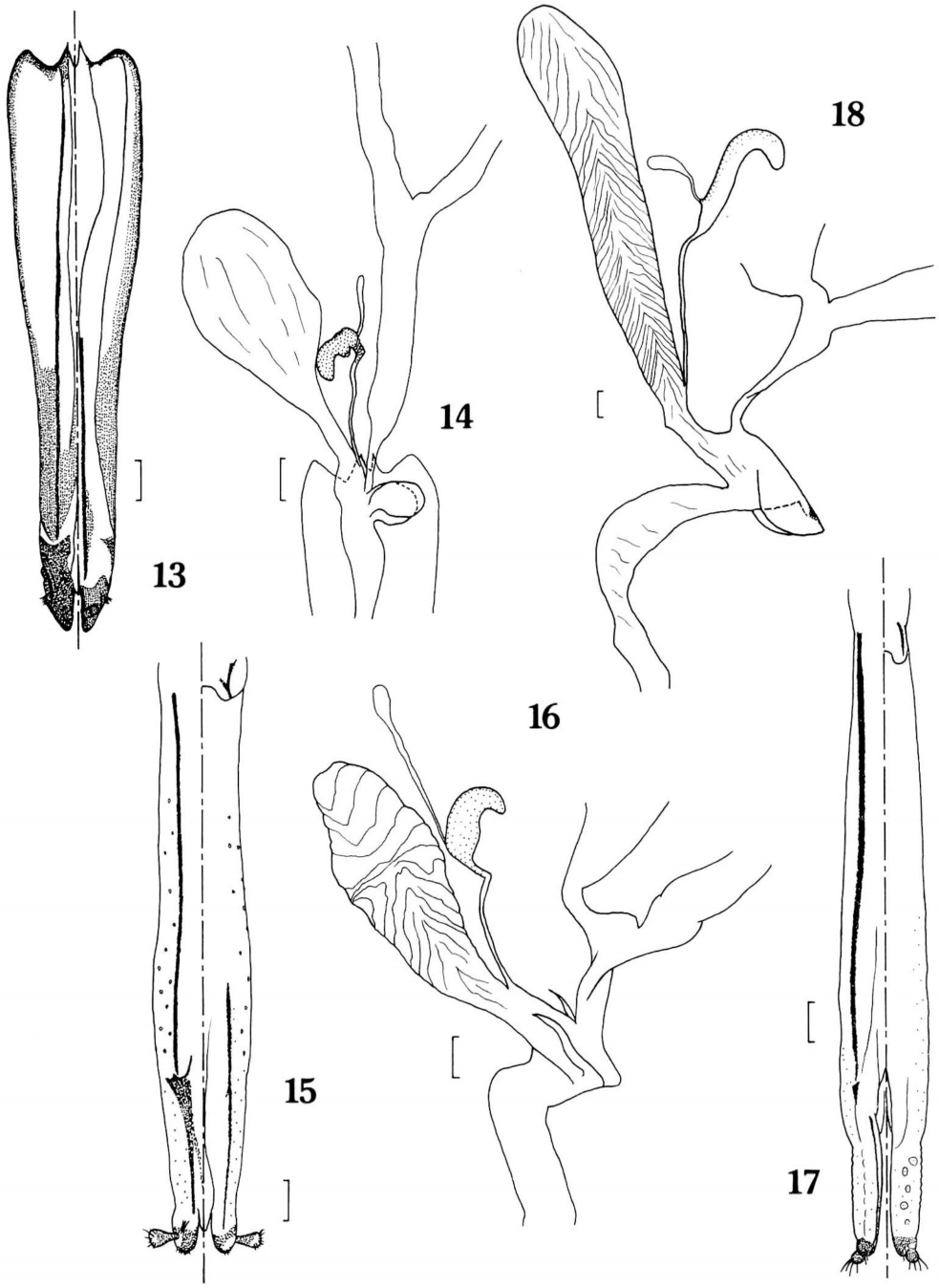
Aegosoma sinicum sinicum WHITE, 1853

(Figs. 17–18)

KUBOKI, 1980, New Entomol., Ueda, **29**, p. 71, fig. 3.

Collecting data of the material used. Komoro-shi, Nagano Pref., VII–1968, Y. NAGASHIMA leg.

Paraproct rather long, its baculi very thick and almost straight; valvifer indistinct; coxite extremely short, with a pair of very short baculi; coxite lobes very long, broad, rough on the surface, and slightly constricted before sclerotized apices, with thin baculi



Figs. 13–18. Ovipositor (left half: ventral view; right half: dorsal view) and internal reproductive organ (ventral view). —— 13–14, *Parandra* (*Parandra*) *formosana*; 15–16, *Megopis* (*Spinimegopis*) *formosana ishigakiana*; 17–18, *Aegosoma sinicum sinicum*. (Scale: 0.5 mm.)

along the internal sides; stylus small and subglobular, articulated to the apico-lateral face of the dorsal side of each coxite lobe, sclerotized except for apex, and with long tactile hairs; dorsal baculi absent; proctiger baculi thin, very short and almost straight; vagina broad and curved; vaginal plates stiff, semicircular, fused to each other along the anterior margins, and with a pair of small sclerotized patches; bursa copulatrix very long and broad, with many fine wrinkles on the surface; spermatheca long and narrow, bent at apical third, poorly sclerotized except for the outer surface, and with the gland on the lateral face of basal part; spermathecal duct thin, curved near the capsule, and entering into the basal part of bursa copulatrix.

Notes. Though the peculiarity of the female genital organs of this species was already pointed out by KUBOKI (*loc. cit.*), his description and drawing are not sufficient for illustrating it. I therefore give here a more detailed description and drawings. They are peculiar because the paraproct lacks dorsal baculi, that the coxite is extremely short, and the coxite lobes are very long, bear baculi, and surmounted with small styli at the dorso-lateral faces just before the apices. These modifications seem to have been formed in relation to the extreme elongation of the 8th abdominal segment, which takes the role of ovipositing. As was already shown, *Megopis formosana ishigakiana* does not show any of these peculiarities of the female genitalia. The differences between them cannot be considered merely specific, and I herewith revive the generic status of *Aegosoma* though it has usually been regarded by recent specialists as a subgenus of *Megopis*.

Subfamily Apatophysinae

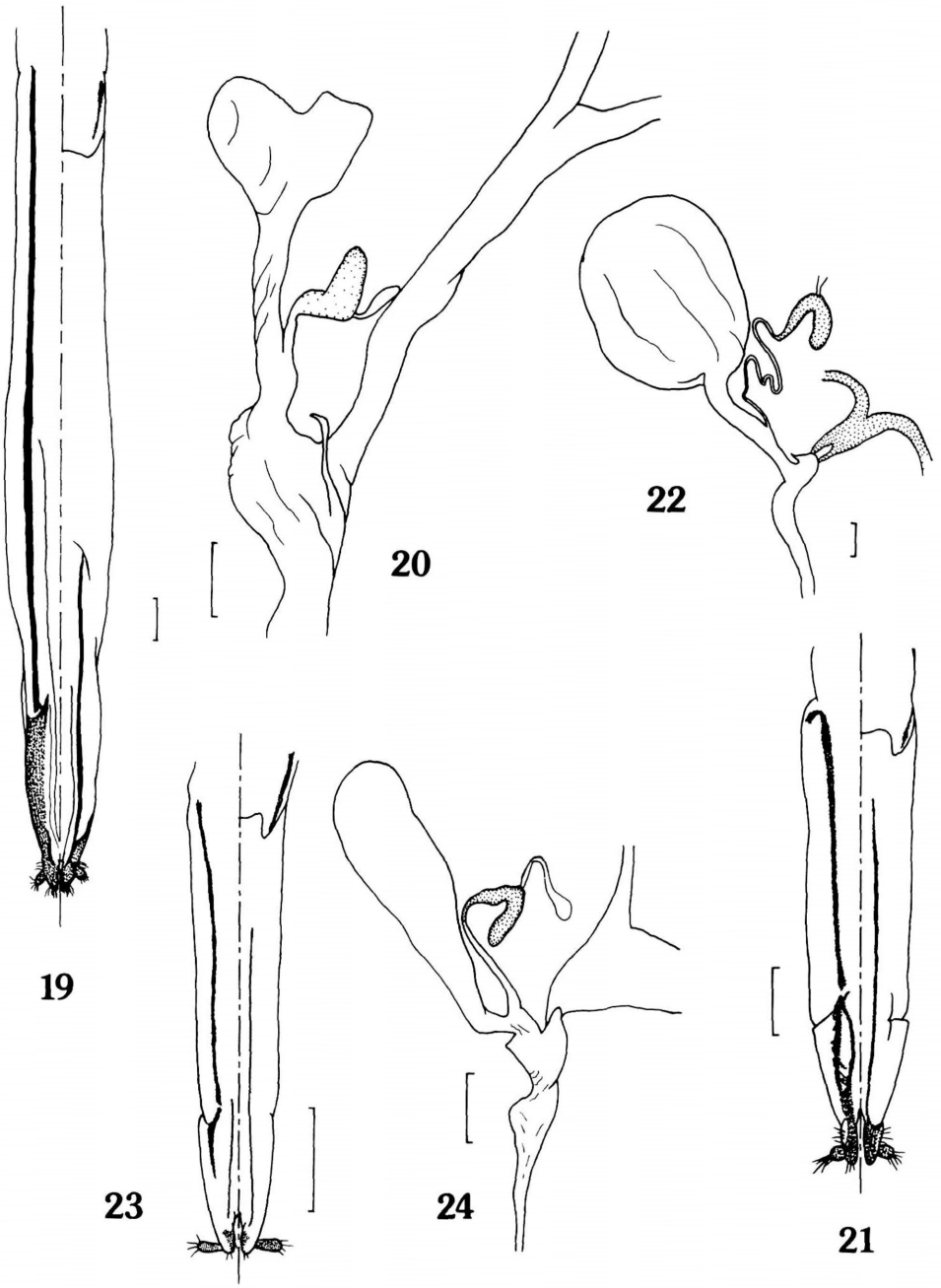
Apatophysis barbara LUCAS, 1858

(Figs. 19–20)

Collecting data of the material used. Mraier, MARTIN leg.

Paraproct very long, each baculum very thick and almost straight; valvifer indistinct; coxite somewhat narrowed towards the apical portion, its baculi very thick and extending almost all through the ventral side of coxite; each coxite lobe well sclerotized, with tactile hairs on the lateral face of basal and apical portions; stylus small, dorso-laterally articulated to the middle part of coxite lobe, and bearing tactile hairs at the apex; dorsal baculi thick, straight, and about a half as long as paraproct baculi; proctiger baculi very short, almost straight; vagina broad at base; vaginal plates very narrow and sinuate; bursa copulatrix broad in apical half and tubular in basal half; spermatheca broad, poorly sclerotized, lightly bent at middle, and with the gland at the lateral side of its middle part; spermathecal duct short, very thick, and entering into the basal part of bursa copulatrix.

Notes. This species closely resembles the prionines in the following features of the ovipositor: coxite and coxite lobes heavily sclerotized; styli articulated to coxite lobes dorso-laterally; both dorsal and proctiger baculi very short. It is most probable



Figs. 19–24. Ovipositor (left half: ventral view; right half: dorsal view) and internal reproductive organ (ventral view). —— 19–20, *Apatophysis barbara*; 21–22, *Spondylis buprestoides*; 23–24, *Tetropium castaneum*. (Scale: 0.5 mm.)

that the true affinity of *Apatophysis* is towards the Prioninae, rather than towards the Lepturinae or Cerambycinae.

Subfamily Spondylinae

Tribe Spondylini

Spondylis buprestoides (LINNÉ, 1758)

(Figs. 21–22)

Collecting data of the material used. Shimonome D.I., Ishioka-shi, Ibaraki Pref., 18–VII–1981, M. KUBOTA leg.

Paraproct moderate in size, each baculum very thick, almost straight but curved at base and extending laterad; valvifer indistinct; coxite clearly separated from paraproct, rapidly narrowed towards coxite lobes, its baculi being thick and longitudinally twofold in basal halves; coxite lobes rather heavily sclerotized except for laterobasal parts which bear tactile hairs, and narrowed towards apices which also bear tactile hairs; stylus very short and articulated to the lateral face of each coxite lobe, being almost globular in form, and bearing long tactile hairs; dorsal baculum thick, almost straight, and slightly longer than paraproct baculi; proctiger baculi very short; vagina simple, short and narrow; vaginal plates broad at bases, and narrowed towards acute apices; bursa copulatrix very large and widely swollen in apical half, the other half forming a narrow bursal duct; spermatheca narrow and strongly bent at middle; spermathecal duct very thin, curved many times, and entering into bursal duct; lateral and common oviducts unusually stiff.

Notes. *Spondylis buprestoides* is peculiar in having the coxite clearly separated from the paraproct, very small subglobular stylus articulated to the lateral face of each coxite lobe, and unusually stiff oviduct. So far as concerned with the female reproductive organs, it resembles members of the prionines rather than those of the asemines. This problem will be taken up again in the Discussion to be given on later pages.

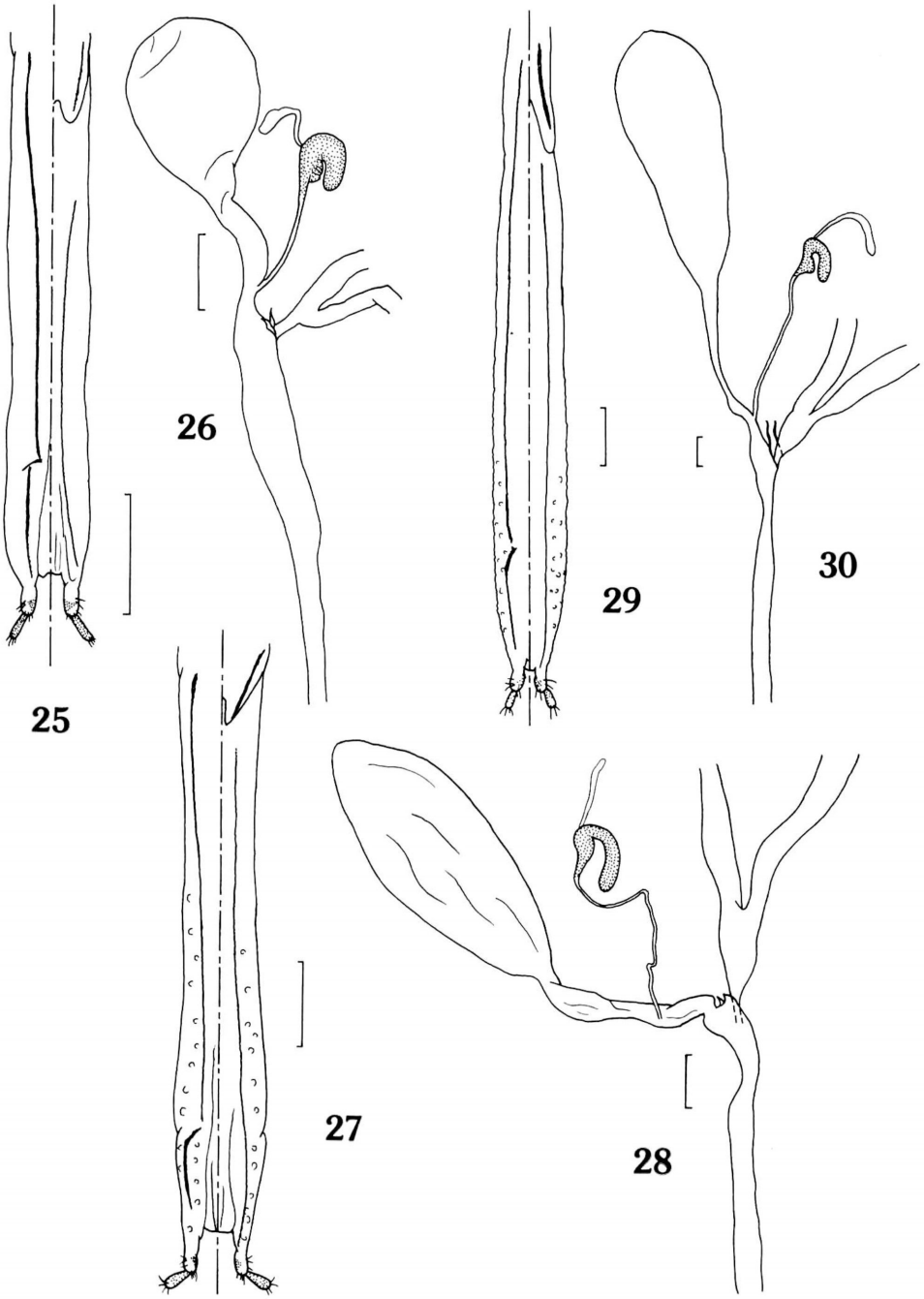
Tribe Asemini

Tetropium castaneum (LINNÉ, 1758)

(Figs. 23–24)

Collecting data of the material used. Tomuraushi, Hokkaido, 5–VII–1968, S. OKAJIMA leg.

Paraproct of moderate size, its baculi thick and almost straight; valvifer distinct, with thick baculi, which are bent inwards at basal third, and not continuous to coxite baculi, the latter being thin and almost straight; coxite lobes short, obtusely pointed at apices, sclerotized at each inner part, and with tactile hairs; stylus moderate in size, abaxially articulated to the lateral face of coxite lobe, and bearing tactile hairs at the



Figs. 25–30. Ovipositor (left half: ventral view; right half: dorsal view) and internal reproductive organ (ventral view). —— 25–26, *Nothorhina punctata*; 27–28, *Asemum amurense*; 29–30, *Arhopalus coreanus*. (Scale: 0.5 mm.)

apex; dorsal baculi almost the same in length as paraproct baculi; proctiger baculi thick and straight; vagina constricted near base; vaginal plates very broad at bases, narrowed towards rounded apices; bursa copulatrix long, tubular, dilated towards apex; spermatheca narrow, strongly bent at middle, lightly swollen near middle, and narrowed towards base, with the gland at about middle; spermathecal duct rather thick, straight, and entering into the base of bursa copulatrix.

Notes. This species is characterized by having distinct valvifer and the styli abaxially articulated to the lateral faces of the coxite lobes. It is, however, otherwise similar to other asemines.

Nothorhina punctata (FABRICIUS, 1798)

(Figs. 25–26)

Collecting data of the material used. Tama-bochi, Fuchû-shi, Tokyo Met., 6–IX–1979, T. NIISATO leg.

Paraproct rather long, with almost straight baculi; valvifer indistinct; coxite baculi almost straight, and weakly sclerotized; each coxite lobe rather narrow, weakly sclerotized at the inner part, and bearing tactile hairs; stylus long and very narrow, only slightly dilated apicad, weakly sclerotized except for apex, and with tactile hairs; dorsal baculi slightly shorter than paraproct baculi; proctiger baculi almost straight; vagina long, tapered posteriorly; vaginal plates short, very narrow and sinuate; bursa copulatrix tubular in basal half but forming a large pouch in apical half, and narrowed near the middle; spermatheca rather broad, strongly bent at middle, and inwardly constricted at base, with the gland before the middle; spermathecal duct narrow, straight, and entering into the base of bursa copulatrix.

Notes. Among the Japanese species of asemine cerambycids, this species is peculiar in that the styli are unusually narrow.

Asemum amurense KRAATZ, 1879

(Figs. 27–28)

Collecting data of the material used. Ochiai, Yamanashi Pref., 29–VI–1977, K. SASAKI leg.

Paraproct very long with rough surface, its baculi thin and very slightly sinuate; valvifer indistinct; coxite with rough surface, each baculum rather thick and moderately curved at the anterior part; coxite lobes lightly sclerotized at each inner part, with tactile hairs; stylus rather long, sclerotized except for the apex which bears tactile hairs; dorsal baculi thin, very long, obviously longer than paraproct baculi, and slightly sinuate; proctiger baculi almost straight; vagina lightly arcuate near the base; vaginal plates very broad at bases and abruptly narrowed towards acute apices; bursa copulatrix very large, ovoid in apical two-thirds, with rather long bursal duct; spermatheca narrow, rather rapidly dilated from near the base, and abruptly bent at middle; spermathe-

cal duct very thin, sinuate and then twisted, entering into the basal third of bursal duct.

Arhopalus coreanus (SHARP, 1905)

(Figs. 29–30)

Collecting data of the material used. Anegasaki, Miyako-shi, Iwate Pref., 1～2–VIII–1981, A. TAKASU leg.

Paraproct very long with rough surface at the posterior part, its baculi thin and almost straight; valvifer indistinct; coxite with rough surface, its baculi lightly curved; each coxite lobe moderate in size, slightly sclerotized at the inner part, and with tactile hairs; stylus slightly sclerotized only at base, and bearing tactile hairs; dorsal baculi thin, slightly longer than paraproct baculi, and almost straight; proctiger baculi straight; vagina straight though constricted behind base; vaginal plates very thin, filamentous, and sinuate; bursa copulatrix very large, elongated ovoid, with bursal duct which occupies basal third; spermatheca narrow, strongly bent at middle, with an inner protrusion before the base; spermathecal duct very thin, slightly sinuate, and entering into the basal part of bursa copulatrix.

Megasemum quadricostulatum KRAATZ, 1879

(Figs. 31–32)

Collecting data of the material used. Arashiyama, Asahikawa-shi, Hokkaido, 29–VII–1981, T. MATSUMOTO leg.; Pippu, Hokkaido, 29–VII–1978, T. MATSUMOTO leg.

Paraproct extremely long, with the surface rough at the posterior part; paraproct baculi almost straight, rather thick, and becoming thicker anteriorly; valvifer distinct, its baculi not continuous to coxite ones, extending obliquely to the external sides of the latter; coxite baculi also oblique, straight, and subparallel to valvifer baculi, each internally branching off a short spur behind middle; coxite lobes moderate in size, slightly sclerotized at each inner part, with tactile hairs; stylus slightly sclerotized except for apex, with tactile hairs; dorsal baculi extremely long, slightly longer than paraproct baculi, thin and slightly sinuate; proctiger baculi straight; vagina narrow and curved at the anterior part; vaginal plates narrow, externally convex behind middle, and blunt at the tips; bursa copulatrix very long, tubular in proximal two-thirds, and swollen in apical third, with two minute pouches at the apex; spermatheca narrow, strongly bent at middle, slightly broadened inwards at base; spermathecal duct narrow, coiled twice, and entering into the basal part of bursa copulatrix.

Notes. Among the Asemini, *Megasemum* and *Cephalallus* are peculiar in having distinctly formed valvifer, whose baculi are divergent posteriad and run obliquely to the external sides of the coxite baculi. The same peculiarity is also found in *Tetropium*, but in this genus, the styli are articulated to the external faces of the coxite lobes as was already described, a feature which does not exist in *Megasemum* nor in *Cephalallus*.

Cephalallus unicolor GAHAN, 1906

(Figs. 33–34)

Collecting data of the material used. Yuwan, Uken-son, Amami-Oshima Is., Kagoshima Pref., 12～14–X–1988, A. SAITO leg.; Taken, Uken-son, Amami-Oshima Is., Kagoshima Pref., 12–X–1988, Y. NISHIKAWA leg.

Paraproct long, with thin straight baculi; valvifer distinct, each baculum discontinuous to coxite one, running to the external side of the latter; coxite baculi subequal in length to valvifer baculi and feebly divergent posteriad; coxite lobes hardly sclerotized, and bearing tactile hairs; stylus also hardly sclerotized, with tactile hairs; dorsal baculi long and thin, longer than paraproct baculi; proctiger baculi straight; vagina gradually narrowed towards apex; vaginal plates filamentous and sinuate; bursa copulatrix very large and long, its basal half being narrow but the remaining part forming an elongated ovoid pouch; spermatheca narrow, strongly bent at middle, slightly constricted at the apical fourth, and slightly convex inwards in basal half; spermathecal duct narrow, coiled once just behind the base of spermatheca, and entering into the basal part of bursa copulatrix.

Tribe Atimiini

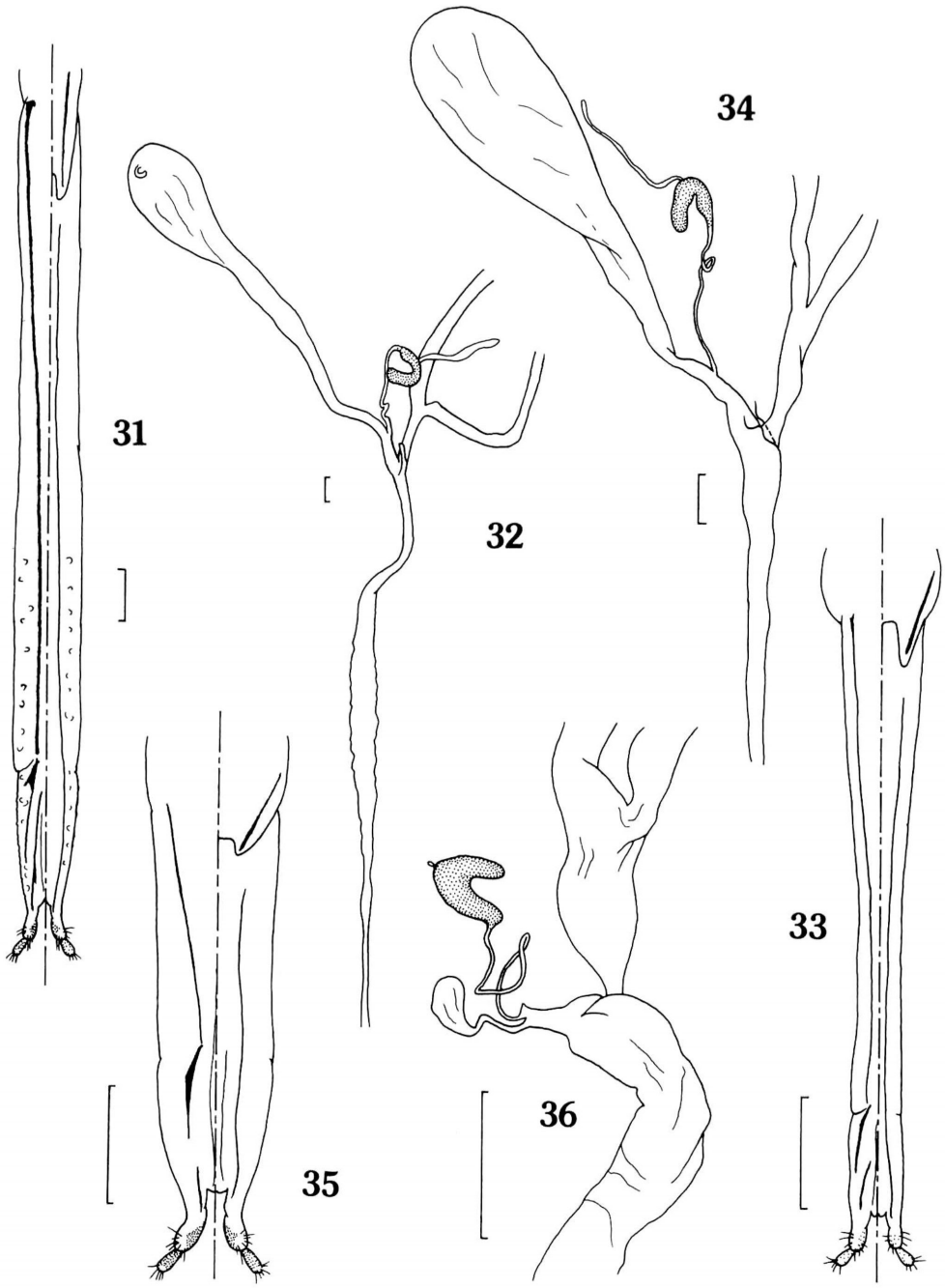
Atimia okayamensis HAYASHI, 1972

(Figs. 35–36)

Collecting data of the material used. Takamatsu, Okayama Pref., 24–IV–1976, T. WAKEJIMA leg.

Paraproct broad and very short, its baculi straight; valvifer distinct, with its baculi rather thick though weakly sclerotized, and distant from very short coxite baculi; coxite lobes moderate in size, sclerotized at each inner part, and with tactile hairs; stylus narrow and rather long, sclerotized except for the apex, and bearing tactile hairs; dorsal baculi thin and very slightly sinuate, much longer than paraproct baculi; proctiger baculi straight; vagina bent near the base; vaginal plates very broad at bases and rapidly narrowed towards acute apices; bursa copulatrix very small, fairly broad in basal third, very narrow at middle, and somewhat swollen in apical third; spermatheca clearly distinguished from the duct as a capsule, not gradually continuing to the latter, strongly bent and broadest at the middle part, and strongly constricted at the base; spermathecal duct very thin, curved and entering into the apical end of the broad basal third of bursa copulatrix.

Notes. This species is characterized by the very short paraproct, distinct valvifer whose baculi are evidently distant from very short coxite baculi, clearly defined spermatheca with complete basal part, and small bursa copulatrix. For these reasons, the tribe Atimiini can be separated from the Asemini, and may be regarded as a link between the Spondylinae and Lepturinae.



Figs. 31–36. Ovipositor (left half: ventral view; right half: dorsal view) and internal reproductive organ (ventral view). —— 31–32, *Megasemum quadricostulatum*; 33–34, *Cephalallus unicolor*; 35–36, *Atimia okayamensis*. (Scale: 0.5 mm.)

Discussion

As was mentioned in the introduction, systematic status and relationship of most groups dealt with in this paper have been repeatedly discussed from various angles, and yet, consensus of specialists' opinions has not been gained for many of them. It cannot be said that even nomenclatorial problems have been clarified satisfactorily. It is for this reason that rather lengthy explanations seem needed for illustrating an outline of historical taxonomic changes before giving the results of my own studies on respective groups.

Philines and Vesperines

The beetles belonging to the Philini and Vesperini are very peculiar in facies; many of them are fully winged and not unlike lepturines, but females of certain species are apterous and almost look like crickets at first sight. They are very similar to each other not only in general appearance but also in many basic features including absence of the labial peduncle and the mesonotal stridulatory file, poor development of the lacinia, and presence of plurisetose empodium on the claw segment. They are, however, different in several seemingly critical characters that include cephalic conformation, presence or absence of distinct lateral margins on prothorax, and wing venation. Very strange larvae with many peculiarities are known for several *Vesperus*, which led ŠVÁCHA to conclude that the vesperines do not belong even to the cerambycoid complex. Unfortunately, larvae have not been known for any philines, which may prove very important for determining the true relationship between the two tribes.

It was THOMSON (1860, pp. 284, 297) who first recognized the isolated status of *Philus*. He erected the Philitae as a division of the Groupe Prionitae Verae of the Tribu Prionitae. LACORDAIRE (1869 a, pp. 157, 159) also regarded *Philus* as a prionine, but instead of recognizing its own group in the subfamily, he placed it in his Groupe Monodesmides.

The arrangement proposed by THOMSON and LACORDAIRE was accepted by many later workers. For instance, GAHAN (1906, pp. 4, 54) regarded it as a group (=tribe) of the Prioninae, though he commented that the Philini "occupy a somewhat exceptional position among the Prioninae and appear to be primitive in relation to the other members of the subfamily." He also noted that the members of the Philini "are closely related to *Mantitheus*, FAIRM., a genus that inhabits Northern China, and are related also, but less closely, to the Mediterranean genus *Vesperus*, LATR., which some authors class with the Lepturinae." GRESSITT (1951, pp. 9, 29–31) followed GAHAN's classification and placed the tribe Philini at the end of the Prioninae, but in his later work collaborated with RONDON (1970, pp. 5, 12, 22), he treated it as an independent subfamily and placed it between the Prioninae and the Aseminae. LINSLEY (1962, p. 11) also was "inclined to consider the tribe as prionine, but as partly bridging the gap between the Prioninae and Lepturinae."

On the other hand, BOPPE (1921, pp. 13, 15, 25) regarded the Philini as a tribe of the Lepturinae and considered it to be an intermediary between the monodesmine

prionines and the lepturines. A similar view was adopted by TAMANUKI (1939, p. 54), who treated the Philini as an isolated tribe in the Lepturinae.

Finally, CROWSON (1955, pp. 141, 148) regarded the philines as belonging to an independent subfamily of the Cerambycidae. He noted that "there is some reason to regard them as on the whole the most primitive groups of the family." ŠVÁCHA in ŠVÁCHA and DANILEVSKY (1987, p. 12) also considered the philines to be an independent subfamily, and emphasized probable importance of their larval characters, which he surmised "may well lead to great taxonomic changes." It can be said that most recent authors abandoned the idea to place the Philini in the Lepturinae and regarded it as one of the most primitive groups of the cerambycid complex.

Next to be considered is the problem concerning the Vesperini, which was first recognized by MULSANT (1839, p. 214) under the name of the Vespéraires as a Branche of his Famille Rhagiens of the Groupe Dérécéphalides (MULSANT's concept of Tribus and Familles is reverse to our present usage of families and tribes). He placed two Branches, Vespéraires and Rhagiaires, in the Rhagiens, and together with the Famille Lepturiens, put it in one of the three Groupes of the Tribu des Longicornes (=Family Cerambycidae). THOMSON (1860, p. 159) did not accept MULSANT's opinion, and placed *Vesperus* in his Division Stenocoritae in the Sous-groupe Pseudolepturitae of the Groupe Lepturitae Verae, whereas LACORDAIRE (1869 b, pp. 233, 236) placed *Vesperus* in the Tribu Vespérides, and put it, together with the Tribu Apatophysides, in the Cohorte II (Cérambycides Vrais Souterrains) of the subfamily Cérambycides.

Later authors almost invariably regarded *Vesperus* as an aberrant member of the Lepturinae, with the exception of GAHAN (1906, p. 55) who considered it to be related to the Philini. AURIVILLIUS (1912, pp. 157–159) placed it in the Lepturini together with *Mantitheus*, though he (pp. 156–157) regarded the Philini as an independent tribe of the Cerambycinae. BOPPE (1921, pp. 13, 15, 28) classified the Vesperini as a tribe of the Lepturinae, and put it next to the Philini. PLANET (1924, pp. 37, 38) also regarded the Vespéraires (=Vesperini) as a section of the Tribu Lepturiens (=Lepturinae) but considered it to be a much isolated group. CROWSON (1955, p. 148) provisionally included *Vesperus* in the Lepturinae, noting that the Lepturinae have "possible connections to the Philini (via forms like *Vesperus* and *Mantitheus*)." He also pointed out the peculiar aspects of *Vesperus*, which distinguish it from the typical lepturines.

In 1987, a drastic taxonomic change was proposed by ŠVÁCHA in ŠVÁCHA and DANILEVSKY (pp. 11, 17–24), who not only regarded the Vesperidae as an independent family but noted that it "lacks any Cerambycid specializations, differing in principal characters from all other present families, and should be no longer treated in the Cerambycoid complex."

ŠVÁCHA's opinion was based mainly upon larval peculiarities of *Vesperus*, but agrees well with the result of my examination of the female reproductive organs of *V. strepens*. As was described in the previous chapter, the female genitalia of this species lack the vaginal plates, the bursa copulatrix and the sclerotized spermatheca,

the last one of which remains membraneous though fairly stiff. This must be a primitive condition not found in any other groups of cerambycid beetles. This alone can be regarded as a feature of familial importance, though I cannot dare to say that *Vesperus* does not belong to the cerambycid complex simply on the basis of this peculiarity.

So far as I am aware, the only other group that possesses the same type of female genitalia is the Philini, of which *Philus pallescens* and *Mantitheus pekinensis* were available for my study. Their reproductive organs are basically identical with those of *Vesperus*, and the very close similarity cannot be explained simply by convergence or other causes. They must be regarded as a positive proof that the Philini and Vesperini are sister groups derived from a common ancestry. I am therefore going to unite the two into a single family, the Vesperidae.

Here arises the problem of three major differences, which have usually been considered diagnostic for distinguishing the Vesperini from the Philini. One of them, the presence or absence of prothoracic lateral margins, which has been used in placing the Philini in the Prioninae and the Vesperini in the Lepturinae, does not seem so important to me, since the elevated margins are not perfect even in the former and probable vestiges of them, though extremely brief, can be observed in the latter. The difference in cephalic conformation, constricted at the neck in the latter but not so constructed in the former, does not seem decisive, either, since exceptions have been known among the true lepturines. Thus, only the clear difference now recognized between the Philini and the Vesperini is in the wing venation, which is of the lepturine type in the latter but characterized by the presence of a large anal cell in the former. Mainly for this reason, I provisionally retain the two tribes, Philini and Vesperini, in the family Vesperidae, though even the wing venation is otherwise similar to each other.

Disteniines

The disteniines form a small group of lepturine-like beetles mainly characterized by the following combination of imaginal and larval features: in the adult, scalpriform mandibles, clypeus oblique to frons, metendosternite not hylecoetoid, and wings lacking a spur in the radio-medial cross-vein; in the larva, complete absence of gular bridge, which makes the submentum directly articulating with prothoracic praesternum, and very broad metatentorial bridge forming a large part of cranial ventral wall.

THOMSON (1860, pp. 134, 181) is the first author who recognized a supra-generic taxon for *Distenia* and others. He erected the Distenitae as a Groupe of his Sous-tribu Cerambycitae Verae, and noted that "ces insectes sont très-remarquables par leurs antennes insérées en avant des yeux, ce qui les distingue de tous les autres groupes de Cérambycites vrais, et offrent une certaine analogie avec les Lepturites." LACORDAIRE (1869 b, p. 225) followed THOMSON, but separated it, together with the Hystérarthrides, from all the other Cérambycides, considering that the division to which they belong was much isolated.

Most later authors regarded the disteniines as an independent subfamily, and sought its affinity to the Lepturinae. GAHAN (1906, pp. 2, 58) considered it to be

closely related to the Lepturinae, but noted that "the differences between them are at the same time strong." BOPPE (1921, p. 2) treated it as a subfamily related to the Prioninae, with the comment that the wing venation is of the lepturine type. It was regarded by TAMANUKI (1939, p. 1) as the closest relative of the Lepturinae, and was placed by GRESSITT (1951, pp. 8, 43) between the Aseminae and Lepturinae. PLAVILSTSHIKOV (1936, pp. 103, 104, 479, 492) classified the members of the Cerambycinae into three major groups, Disteniites, Lepturites and Cerambycites. On the other hand, CROWSON (1955, pp. 141, 148) noted that the Disteniinae is a "clearly defined and natural" subfamily, but that "its affinities are by no means evident."

At the beginning of his classic work on the Cerambycidae of North America, LINSLEY (1961, pp. 59–68; 1962, p. 1) excluded the disteniines from the Cerambycidae and regarded them as to form an independent family. This view was based upon the combination of characteristics summarized at the head of this section, and was supported by GRESSITT and RONDON (1970, pp. 5–11), who divided the family into two tribes Cyrtonopini and Disteniini, and by ŠVÁCHA in ŠVÁCHA and DANILEVSKY (1987, pp. 11–12, 33–38), who laid much emphasis upon the larval peculiarities, especially upon the absence of gula. However, LINSLEY's opinion has not been approved by Japanese specialists, all of whom retained the Disteniinae in the Cerambycidae (*e.g.*, KOJIMA & HAYASHI, 1969, pp. XIX–XX, 6; HAYASHI, 1979, p. 1, 1984, pp. 1–2; KUSAMA & TAKAKUWA, 1984, pp. 151–152), nor by CHEREPANOV (1979, p. 60).

My study of the female reproductive organs of the two Japanese species, *Distenia gracilis* and *Tengius ohkuboi*, has shown that they are unique in the conformation of the spermathecae. The spermatheca itself is highly differentiated and is of extremely complicated structure. Besides, it directly joins the apex of the bursa copulatrix, and the duct which usually connects the two organs disappears completely. Such a peculiarity as this has never been known in all the other groups of cerambycid beetles, and seems to bear importance of higher taxonomic category. Adding these genitalic features to the external characteristics, I have concluded that the Disteniidae should be regarded as an independent family, which does not bear any direct relationship to the Lepturinae or any other subfamilies of the Cerambycidae.

Parandrines

Parandra LATREILLE, 1804, was originally placed in the famille des Cucujides, but was later transferred to the Longicornes. Though it was still separated in an independent family by THOMSON (1860, p. VIII) and others, all the authors after LACORDAIRE (1869 a, pp. 20, 21) regarded it as a close ralative of the prionines. LACORDAIRE (*loc. cit.*) placed it in the Tribu des Parandrides, which he classified in the Prionides Aberrants of the Sous-famille des Prionides. The same view was adopted by LAMEERE (1919, p. 13), PLAVILSTSHIKOV (1936, p. 51) and GRESSITT (1951, p. 9), all of whom regarded it as a tribe of the Prioninae.

On the other hand, GAHAN (1906, p. 13) noted that the Parandrides "will have to be excluded" from the Prioninae and "may be regarded as a distinct subfamily."

CROWSON (1955, pp. 139, 145–147) recognized the Parandrinae as a subfamily, but made the following comment: "It seems more probable to me that *Parandra* is a true Prionid which has been modified at a fairly early stage to spend most of its imaginal life under bark." LINSLEY (1961, pp. 61–70; 1962, pp. 1–3) considered it to be a subfamily related to the Prioninae and the most primitive extant cerambycid, and his view was supported by GRESSITT and RONDON (1970, p. 11) and recent Japanese authors (*e.g.*, KOJIMA & HAYASHI, 1969, pp. XIX, 2; HAYASHI, 1979, p. 2, 1984, pp. 1, 2; KUSAMA & TAKAKUWA, 1984, p. 131). ŠVÁCHA in ŠVÁCHA and DANILEVSKY (1987, pp. 14, 72–82) also treated parandrines as a subfamily but pointed out that it is probably included in the Prioninae and that it is not the most primitive cerambycid.

In short, close relationship between the parandrines and prionines has been recognized by all the recent specialists of cerambycid beetles. What brought about the difference of opinion about the taxonomic rank of the former is the unique external morphology of adult *Parandra*, which is not only *Passandra*-like in general appearance but also characterized by the slender pentamerous tarsi without pubescent ventral pad and the absence of a closed cell in the anal sector of the wing.

Unfortunately, I have been unable to examine the female reproductive organs of any Japanese specimens of the two species of *Parandra*, which are exceedingly rare and difficult to obtain. However, I have dissected a Taiwanese specimen of *P. formosana*, one of the two species recorded from the Ryukyus, and found that its genitalia are similar to those of North American *P. brunnea* (FABRICIUS) described and illustrated by KUBOKI (1980, p. 17, fig. 1).[1] Main differences in the descriptions between KUBOKI's and mine seem to be attributable to poor observation of the former author, and the female genitalia of *Parandra* may be uniform so far as concerned with their basic structure.

What is most surprising about the *Parandra* genitalia is the conformation of the ovipositor, which possesses clearly separated sternite and tergite of the paraproct, and though unusually stiff, embraces the vagina and its plates with their anterior parts. Also, the styli are very small and of unique conformation, and are articulated to the dorsal side of the coxite lobes. These unique features clearly distinguish *Parandra* from the Prioninae and other subfamilies, and I feel it better to recognize the subfamily Parandrinae than to include *Parandra* in the subfamily Prioninae. Contrary to ŠVÁCHA's opinion (1987, p. 14), *Parandra* seems to me to be the most primitive type of cerambycid beetles, though my view is mainly based upon the characteristics different from those used by LINSLEY (1961, pp. 61–70) in forming his opinion.

Prionines proper

Though very diverse in general appearance of the adults, the prionines proper have usually been regarded as a well-defined phyletic group. This was supported by the structure of the female reproductive organs, that is, the styli articulated to the lateral faces of heavily sclerotized coxite lobes, short dorsal baculi, weakly sclerotized

1) KUBOKI misspelled the name as *Parandra "brunnae"*.

spermathecae, and so on. They are basically similar to one another except for *Aegosoma* (cf. KUBOKI, 1980, pp. 70–74, figs. 2–7).

The female genitalia of *Aegosoma sinicum* are peculiar in that the paraproct lacks the dorsal baculi, that the coxite is very short and with very long lobes, each of which bears a baculum, and that the styli are very small and articulated to the dorso-lateral faces of the coxite lobes. However, all these striking modifications seem to have taken place in relation to the unusual modification of the 8th abdominal segment, which becomes exceedingly elongated and functions as an ovipositor. In *Megopis* (*Spinimegopis*) *formosana ishigakiana*, which is obviously related to *A. sinicum* even though generically separated, the female genitalia do not show any of such modifications and the 8th abdominal segment is not modified to form an elongate tube, which seems to me to be a positive proof that the striking modification of the female genitalia found in *Aegosoma* is merely apomorphic. Besides, other genitalic features are essentially common between *Megopis* (*Spinimegopis*) and *Aegosoma*, which indicates that the latter is an aberrant offshoot of the typical prionine stock.

The female reproductive organs of *Psephactus remiger* are characterized by the small bursa copulatrix without bursal duct and the small and relatively simple spermatheca. I cannot say that these features are truly characteristic of the tribe Anacolini to which belongs the species under consideration, since the tribe is represented in Japan by only two species of *Psephactus*, and since no other anacolines, mostly tropical, were available for this study. For the time being, therefore, I prefer to regard them as the peculiarities of the Anacolini, leaving the final conclusion for future investigations.

As was noted at the beginning of this section, adults of the prionines proper are diverse in general appearance. They are usually large, beautiful, and often ornamented with spines and other accessories. No doubt because of this reason, they have attracted attention of collectors since old times and have been classified into many tribes and subtribes. Already at about the middle of the 19th century, THOMSON (1861, pp. 284–328) classified his Prionitae Verae into 12 Divisions (including the Philitae, etc.), and LACORDAIRE (1869 a, pp. 35–192) split his Prionides Vrais into 39 Groupes of 3 Cohortes (including *Philus*, etc.). LAMEERE's (1919) classification of the Prioninae comprises 7 Groupes (including the Parandrini) which are split up into 29 Sous-groupes.

Unfortunately, I am not in a position to discuss about the tribal classification of the subfamily. East Asia lies at the northern periphery of the distributional range of the prionines, which are essentially tropical. Only 13 prionine species belonging to 8 genera occur in the Japanese Islands, and the number and diversity do not increase much if the neighbouring areas are taken into account. It seems to me, however, that many of the tribes currently adopted are over-splitting and not equivalent to the tribes in the other subfamilies. In fact, many of them have been recognized solely on apomorphic characters, which are not reliable in classifying higher taxa. In my opinion, the eight prionine genera occurring in Japan had better be classified into only two tribes, Prionini and Anacolini, so far as judged from the comparative study of the

female reproductive organs. This view is, however, provisional, since more extensive investigations are necessary for drawing a satisfactory conclusion as regards the systematic status of the other "tribes" recognized in current classification.

ŠVÁCHA in ŠVÁCHA and DANILEVSKY (1987, pp. 12–13) considered that the Prioninae including the Parandrini is sharply different from all the other subfamilies of the Cerambycidae, mainly because of the characteristic ventral structure of the head capsule and the flat type of the main sensillum on the second antennal segment in the larvae. I agree with his opinion from the study of the female reproductive organs, though *Spondylis* and *Apatophysis* show certain affinity to the prionines in this respect. This problem will be taken up in the following sections.

Apatophysines

Like the vesperines, the apatophysines were usually regarded as an aberrant group of the Lepturinae. THOMSON (1860, p. 368) placed *Apatophysis* in his Division Stenocoritae of the Lepturitae Verae. LACORDAIRE (1869 b, pp. 233, 234) erected the Tribu Apatophysides for *Apatophysis* and two other genera, and placed it, together with the Vespérides, in the Cohorte II (Cérambycides Vrais Souterrains) of the subfamily Cérambycides. AURIVILLIUS (1912, p. 160) placed it at the side of *Vesperus* and *Mantitheus* in the Lepturini, and GAHAN (1906, pp. 68–71) regarded it as a lepturine. PLAVILSTSHIKOV (1936, pp. 108, 109) classed *Apatophysis* in the Xylosteini of the Gruppa Lepturites of the Cerambycinae, and the same view was held by GRESSITT (1951, pp. 48–50), though the latter author regarded it as a subgenus of *Centrodera* J. LECONTE. In his later work with RONDON (1970, p. 26), GRESSITT raised it to a full genus though still classifying it in the Xylosteini.

Recently, DANILEVSKY (1979, p. 827) gave a subfamilial status to the Apatophysini LACORDAIRE, 1869, and based upon his study on the female, pupa and larva, showed that it is not related to the Lepturinae but has an affinity to the Cerambycinae. This opinion was supported by ŠVÁCHA in ŠVÁCHA and DANILEVSKY (1987, p. 14), also on the basis of larval morphology.

I have been unable to examine any species of *Apatophysis* occurring in East Asia, but have dissected a female of *A. barbara* from North Africa. The result obtained clearly shows that it is widely different from the lepturines, but contrary to DANILEVSKY's opinion, it bears a close affinity to the prionines. Though the paraproct is unusually long for a prionine, both the dorsal and proctiger baculi are very short, the coxite with its lobes is heavily sclerotized, and the styli are articulated to the dorso-lateral faces of the coxite lobes, all characteristic of the prionines. In view of the combination of non-genitalic features of adults and larvae pointed out by DANILEVSKY and ŠVÁCHA, I am convinced that the Apatophysinae can be accepted as a good subfamily, but my opinion based upon the female reproductive organs is that the subfamily is related to the Prioninae and remote from the Cerambycinae.

Spondylines

Because of the aberrant external morphology of the adults, the spondylines were always regarded, in old times, as an isolated group of the Cerambycidae. For instance, MULSANT (1839, pp. 16, 17) treated the Spondyliens as one of the three familles (=tribes) of his Groupe des Procéphalides. THOMSON (1860, pp. 131, 261) regarded his Spondylitae as one of the three major groups of the Tribu Cerambycitae, and noted that "les Spondylites font manifestement le passage des Cérambycites vrais aux Prionites." The same view was adopted by LACORDAIRE (1869 a, pp. 194, 197) though under the tribal name Spondylides.

However, most authors in this century placed the spondylines at the side of the asemines, either as a tribe or as a subfamily. PLAVILSTSHIKOV (1940, pp. 2, 5, 614, 616) regarded them as a tribe in his Gruppa Cerambycites of the subfamily Cerambycinae. GRESSITT (1951, pp. 31–32) regarded them as a tribe of the Aseminae, and the same view was held by CROWSON (1955, p. 149) and CHEREPANOV (1979, pp. 410–411). LINSLEY (1961, pp. 61–70; 1962, pp. 1, 62–63) raised it to a subfamily related to the Aseminae and Lepturinae, but commented that it "agrees in its more primitive characters with the Parandrinae, and to a lesser extent with the Prioninae." GRESSITT and RONDON (1970, pp. 11, 24) followed LINSLEY's arrangement, placing the Spondylinae between the Philinae and Aseminae, and this classification has been adopted by most Japanese authors.

Recently, ŠVÁCHA in ŠVÁCHA and DANILEVSKY (1987, pp. 15, 133) made a drastic change in the current classification, synonymizing the Spondylinae with the Asemini of the Aseminae mainly on the basis of larval morphology. Later, he (1988, p. 123) changed the subfamilial name to the Spondylinae, because the name Spondylinae SERVILLE, 1832, has priority over the Aseminae THOMSON, 1860. According to his opinion, therefore, the Asemini became a junior synonym of the Spondylini.

ŠVÁCHA's opinion seems very important for the study of cerambycid phylogeny. Very close larval similarity between the spondylines and asemines seems to be an infallible indication that the two groups have been derived from a common ancestry. However, the unique external morphology of adult *Spondylis* should not be underestimated in determining its systematic position. Above all, the slender pentamerous tarsi without pubescent ventral pads and the presence of a broad terminal lamella of the protibiae distinguish *Spondylis* from all the asemines.

My study of the female reproductive organs of *Spondylis buprestoides* also showed that they are considerably different from those of the other asemines. As was already pointed out, the coxite is clearly separated from the paraproct, the styli are very small and articulated to the lateral faces of the coxite lobes, and the oviduct is unusually stiff, all suggesting its affinity to the Prioninae rather than to the Aseminae in a strict sense. In my opinion, *Spondylis* should be placed in its own group, Spondylini, which had better be regarded as a tribe of the Spondylinae (=Aseminae) in view of the irrefutable evidence produced by the comparative study of larval morphology.

Asemines

The asemines were invariably placed in the subfamily Cerambycinae before the World War II, though usually separated from the others in their own group. MULSANT (1839, pp. 61–70) classified *Asemum*, *Criocephalus* and two others into the Branche Hespérophanaires of the Famille Cérambycins in his Groupe des Procéphalides. THOMSON (1860, pp. 139, 259) gave the name Asemitae to the group and put it in his Sous-tribu Cerambycitae Verae, and the same view was adopted by LACORDAIRE (1869 a, pp. 203, 205) though he used the name Asémides. GAHAN (1906, pp. 91, 94) regarded the Asemini as a group (=tribe) of the Cerambycinae. Even PLAVILSTSHIKOV (1940, pp. 3, 9, 614) regarded the Asemini as a tribe in his Gruppa Cerambycites of the subfamily Cerambycinae.

Most recent authors regarded the asemines as an independent subfamily closely related to the Lepturinae (*e.g.*, LINSLEY, 1939, p. 64, 1962, p. 67). However, ŠVÁCHA in ŠVÁCHA and DANILEVSKY (1987, p. 15) pointed out that "some Aseminae might be closer to the Lamiinae, or the Cerambycine stock, than to any Lepturinae." He then (p. 133) stated that "the genera *Nothorina*, *Tetropium*, *Spondylis*, *Asemum*, *Megasemum* and *Arhopalus* comprise a well-defined tribe Asemini" so far as concerned with the larval morphology. My examination of the female reproductive organs has also shown that these genera, with the obvious exception of *Spondylis*, form a homogeneous group, even though some aberrancies are found in *Tetropium*, *Megasemum* and *Cephalallus*, all of which have distinct valvifer. Besides, the styli are abaxially articulated to the lateral faces of the coxite lobes in *Tetropium*, and the valvifer baculi extend obliquely to the external sides of the coxite ones in the latter two. These modifications seem to be related to their ovipositing habits and to have been developed secondarily.

So far as concerned with the female reproductive organs, it is difficult to determine to which of the Lepturinae and Cerambycinae the asemines are more closely related. Relatively simple and similarly formed spermathecae in the Asemini seem to indicate primitiveness of the tribe, which may have given rise to other groups. This does not necessarily mean that the asemines are directly ancestral to the lepturines and are rather remote from the cerambycines.

Atimiines

The genus *Atimia* comprises a small number of small cerambycids with densely pubescent body. It was placed by THOMSON (1861, p. 373) between *Gracilia* and *Obrium* in the Division Ibidionitae of his Groupe des Cerambycitae Verae, and by LACORDAIRE (1869 b, p. 144) in the Groupe Smodicides of the Sous-famille Cérambycides. The Smodicides is the Groupe XL in LACORDAIRE's system, while the Asémides is the Groupe I, and they are placed in different sections of the Cohorte I (Cérambycides Vrais Sylvains).

Recent authors, however, invariably recognized the tribe Atimiini for *Atimia* and *Paratimia*, and placed it in the subfamily Aseminae. This arrangement was first proposed by LINSLEY (1939, pp. 63–65), who carefully examined the external char-

acters of both adults and larvae, and associated the tribe Atimiini with the Asemini. On the other hand, CROWSON (1955, p. 149) suggested that the existence of some indication of prothoracic side-borders in the Atimiini could be a possible indication of its affinities to the Philini.

My examination of the female reproductive organs of *Atimia okayamensis* proved that LINSLEY's opinion was perfectly correct. They are basically identical with those of the members of the Asemini, but are peculiar in the very short paraproct, the discontinuation of the valvifer and coxite baculi, the latter of which are very short, and so on. On the other hand, similarly formed female genitalia are found in certain lepturines (cf. SAITO, 1989), which may indicate that the atimiines have relationship with the lepturines. For the time being, the atimiines should be regarded as a tribe of the Spondylinae related to the Asemini, and as a link between the Spondylinae and Lepturinae. Their resemblance to the philines, if any, is superficial and does not show true relationship between the two.

Conclusion

From the discussions given in the foregoing chapter, it is concluded that the following families, subfamilies and tribes had better be recognized for the smaller groups of East Asian cerambycid beetles dealt with in this part of my studies. This conclusion was drawn mainly from the comparative study of the female reproductive organs, but non-genitalic diagnostic characters of adults and larvae were also scrutinized and taken into consideration.

1. Family Vesperidae
   Tribes Vesperini and Philini
2. Family Disteniidae
   Tribe Disteniini
3. Family Cerambycidae
   a. Subfamily Parandrinae
   b. Subfamily Prioninae
      Tribes Prionini (provisional) and Anacolini
   c. Subfamily Apatophysinae
   d. Subfamily Spondylinae
      Tribes Spondylini, Asemini and Atimiini

要　約

斉藤明子：日本および近隣地域に産するカミキリムシ類の雌生殖器. I. カンショカミキリからケブカマルクビカミキリまで. ―― 日本とその近隣地域に分布するカミキリムシ類のうち，ハナカミキリ亜科，カミキリムシ亜科およびフトカミキリ亜科以外の各群に含まれる属の代表的な種を選んで，雌生殖器を精査した．その結果を，成虫の外部形態や幼虫の研究に基づく従来の分類方式と比較検討して，それらの類縁関係や分類学的地位に関する見解をまとめた．

台湾などに分布するカンショカミキリ (*Philus*) と，中国北部産の *Mantitheus* とでは，産卵管の担肛節 (proctiger) がひじょうに長くて2対の棒状片 (baculi) をそなえ，膣の基部が膨れているが交尾嚢 (bursa copulatrix) はなく，また，受精嚢 (spermatheca) が膜質のままで特定の分化を示さない．これらの顕著な特徴は，ヨーロッパ南部に分布するムカシカミキリ (*Vesperus*) と共通であって，外部形態にみられるいくつかの相違点を考慮にいれても，両者が同一の系列に属することはまず間違いない．それで，これらを独立のムカシカミキリ科 (Vesperidae) としてカミキリムシ科から分離し，そのなかにムカシカミキリ族とカンショカミキリ族とを認めた．

ホソカミキリ類は，成虫，幼虫ともに頭部の構造が特異であり，成虫の後胸部や翅脈にもほかのカミキリムシ類には見られない特性があるので，従来からしばしば独立の科と認められてきた．雌生殖器の構造からみても，受精嚢がきわめて複雑に分化し，しかも受精嚢管を介さずに直接，交尾嚢に接続するという特異性が，ほかのカミキリムシ類の場合とまったく異なっているので，ホソカミキリ科として分離した．

成虫の特異な形態から，一般にカミキリムシ科のうちの独立の亜科と認められているニセクワガタカミキリ類は，雌生殖器の構造からみても，その原始性と独立性が支持される．肛側片 (paraproct) の背板と腹板とが明瞭に区別され，尾状体 (styli) が縮小して横位になり，陰端節 (coxite lobe) の背面に位置する．また，産卵管全体のいちじるしい硬化や，関節間膜がなく膣が産卵管のなかに包みこまれていることなど，特異性がいちじるしい．

狭義のノコギリカミキリ類は，従来から同質な亜科のひとつだと考えられてきたが，雌生殖器の形態からもこれが裏づけられた．多くの族や亜族に分割されているが，表面的な相違に基づいて細分されすぎた傾向があり，雌生殖器からみるかぎりは，ノコギリカミキリ族とコバネカミキリ族とのふたつぐらいにまとめたほうがよさそうに思われる．ただし，邦産種の数が少ないので，この問題の解決は将来の研究にゆだねた．なお，トゲウスバカミキリ類とウスバカミキリ類とは，第8腹節の構造や雌生殖器の形態からみて，明らかに別属であろうと考えられる．

Apatophysis は，外観がムカシカミキリ科の甲虫に似たカミキリムシで，中央アジアを中心にして中国東部まで分布している．以前はハナカミキリ亜科のムカシハナカミキリ族におかれていたが，最近，独立の亜科と認められ，カミキリムシ亜科に類縁の近いものと考えられるようになった．しかし，雌生殖器の構造はノコギリカミキリ亜科のものと基本的に同じであって，両者の類縁関係が近いことは確実である．

クロカミキリ類も独立の亜科におく意見が少なくないが，幼虫の形態からみると，疑いもなくマルクビカミキリ類と同じ群に含められるべきものである．しかし，雌生殖器の構造は，陰基節 (coxite) が肛側片から明瞭に区分され，尾状体がひじょうに小さくて陰端節の外側面に関節し，輸卵管 (oviduct) が異例の硬化をするなど，ノコギリカミキリ亜科のものに似ている点が多い．いっぽう，狭義のマルクビカミキリ類はよくまとまった同質的な一群で，一部に産卵習性に応じた適応ではないかと思われる特殊化が認められるものの，全体としてひとつの族だと考えてよい．ケブカマルクビカミキリも同じ系列に属するが，肛側片がひじょうに短いうえ，担弁節 (valvifer) の棒状片が陰基節のものから広く離れている．以上の事実に基づいて，これらをクロカミキリ亜科にまとめ，そのなかに，クロカミキリ族，マルクビカミキリ族およびケブカマルクビカミキリ族の3族を認めた．なお，この亜科は，ハナカミキリ亜科に類縁の近いものだとする意見が多いが，雌生殖器の構造からみるかぎりは，比較的，祖先的な一群だろうとは考えられるものの，ハナカミキリ亜科とカミキリムシ亜科とのどちらにより近い類縁関係をもつかはわからない．

References

AURIVILLIUS, C., 1912. Cerambycidae: Cerambycinae. *In* JUNK, W., & S. SCHENKLING (eds.), *Coleopterorum Catalogus*, pars 39 (pp. 1–574). W. Junk, Berlin.

BOPPE, P., 1921. Coleoptera Longicornia Fam. Cerambycidæ Subfam. Disteniinæ – Lepturinæ. *In* WYTSMAN, P. (ed.), *Genera Insectorum*, (178): i+1–121, 8 pls. Desmet-Verteneuil, Bruxelles.

CHEREPANOV, A. I., 1979. Usachi severnoĭ Azii (Prioninae, Disteniinae, Lepturinae, Aseminae). 472 pp. Nauka, Novosibirsk. (In Russian.)

CROWSON, R. A., 1955. The Natural Classification of the Families of Coleoptera. viii+187 pp. Nathaniel Lloyd, London.

DANILEVSKY, M. L., 1979. Descriptions of the female, pupa and larva of *Apatophysis pavlovskii* PLAV. and discussion of systematic position of the genus *Apatophysis* CHEVR. (Coleoptera, Cerambycidae). *Ent. Obozr.*, **58**: 821–828. (In Russian, with English title.)

GAHAN, C. J., 1906. Coleoptera. – Vol. I. (Cerambycidæ). *In*: *The Fauna of British India, including Ceylon and Burma*. xviii+329 pp. Taylor & Francis, London.

GRESSITT, J. L., 1951. Longicorn beetles of China. *In* LEPESME, P. (ed.), *Longicornia*, **2**: i–ii+1–667, 22 pls. Paul Lechevalier, Paris.

——— & J. A. RONDON, 1970. Cerambycids of Laos (Disteniidae, Prioninae, Philinae, Aseminae, Lepturinae, Cerambycinae). *Pacif. Ins. Mon.*, **24**: 1–314.

HAYASHI, M., 1979. Family Cerambycidae (Disteniinae, Parandrinae, Prioninae, Spondylinae, Aseminae). *Check-list Coleopt. Japan, Tokyo*, (16): 1–6.

——— 1984. Cerambycidae. *In* HAYASHI, M., K. MORIMOTO & S. KIMOTO (eds.), *The Coleoptera of Japan in Color*, **4**: 1–146 (incl. 28 col. pls.). Hoikusha, Osaka. (In Japanese, with English title.)

KOJIMA, K., & M. HAYASHI, 1969. Longicorn beetles. *Insects' Life in Japan*, **1**: i–ii+I–XXIV+1–295, 56 col. pls. Hoikusha, Osaka. (In Japanese, with English title.)

KUBOKI, M., 1980. Notes on the female genitalia in some Parandrinae and Prioninae (Coleoptera: Cerambycidae). *New Entomol., Ueda*, **29**: 69–75. (In Japanese, with English summary.)

KUSAMA, K., & M. TAKAKUWA, 1984. Parandrinae, Prioninae, Spondylinae, Aseminae, Disteniinae. *In* JPN. SOC. COLEOPTEROL. (ed.), *The Longicorn-Beetles of Japan in Color*, 33–37 [pls. 1–5], 131–152. Kodansha, Tokyo. (In Japanese.)

LACORDAIRE, T., 1869 a. Les Familles des Tricténotomides et des Longicornes. *Histoire Naturelle des Insectes. Genera des Coléoptères ou exposé méthodique et critique de tous les genres proposés jusqu'ici dans cet ordre d'insectes*, **8**: i–iii+1–552. Roret, Paris.

——— 1869 b. Famille des Longicornes (suite). *Ibid.*, **9**(1): i–iii+1–409.

LAMEERE, A., 1919. Coleoptera Longicornia Fam. Cerambycidæ Subfam. Prioninæ. *In* WYTSMAN, P. (ed.), *Genera Insectorum*, (172): i+1–189, 8 pls. Desmet-Verteneuil, Bruxelles.

LINSLEY, E. G., 1939. The longicorn tribe Atimiini (Coleoptera, Cerambycidae). *Bull. S. Calif. Acad. Sci.*, **38**: 63–80.

——— 1961. The Cerambycidae of North America. Part I. Introduction. *Univ. Calif. Publ. Ent.*, **18**: i–iii+1–135 (incl. pls. 1–35).

——— 1962. Ditto. Part II. Taxonomy and classification of the Parandrinae, Prioninae, Spondylinae, and Aseminae. *Ibid.*, **19**: i–v+1–103, pl. 1.

MAMAEV, B. M., & M. L. DANILEVSKY, 1973. New data on systematic status of the subfamily Aseminae (Coleoptera, Cerambycidae) with reference to the morphology of larvae. *Zool. Zh.*, **52**: 1257–1261. (In Russian, with English summary.)

MULSANT, M. E., 1839. Longicornes. *Histoire Naturelle des Coléoptères de France*, **1**: i–xii+1–304, 3 pls. Maison, Paris.

OHBAYASHI, K., 1964. Systematic notes and descriptions of new forms in Cerambycidae from Japan. *Fragm. coleopt., Kyoto*, (2)/(3) [for 1963]: 7–12.

PLANET, L.-M., 1924. Histoire naturelle des Longicornes de France. *Encycl. ent.*, (A), **2**: 1–386. Paul Lechevalier, Paris.

PLAVILSTSHIKOV, N. N., 1936. Cerambycidae (P. 1). *Fauna SSSR* (N. S. 7), *Insectes Coléoptères*, **21**: i+I–XI+1–612. (In Russian, with German key.)

——— 1940. Cerambycidae (P. 2). *Ibid.* (N. S. 22), *Ins. Coléopt.*, **22**: I–XIV+1–784. (In Russian, with German key.)

SAITO, A., 1989. Female reproductive organs of lepturine cerambycid beetles from Japan, with reference to their taxonomic significance (Parts 1–2). *Elytra, Tokyo*, **17**: 65–86, 201–233.

ŠVÁCHA, P., & M. L. DANILEVSKY, 1987. Cerambycoid larvae of Europe and Soviet Union (Coleoptera, Cerambycoidea). Part I. *Acta univ. carol.*, (Biol.), **30** [for 1986]: 1–176.

——— & ——— 1988. Ditto. Part II. *Ibid.*, **31** [for 1987]: 121–284.

TAMANUKI, K., 1939. Family Cerambycidae. 1. Disteniinae·Lepturinae. Class Insecta Coleopteroidea – Coleoptera. *In* OKADA, Y., T. UCHIDA & T. ESAKI (eds.), *Fauna Nipponica*, **10** (8–14): i+1–5+1–126. Sanseido, Tokyo. (In Japanese.)

THOMSON, M. J., 1860–'61. Essai d'une classification de la Famille des Cérambycides et matériaux pour servir à une monographie de cette famille. XVI+396 pp., 3 pls. Soc. ent. France, Paris.

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First Record of the Anthribid Genus *Misthosima* (Coleoptera) from Japan, with Descriptions of Two New Species

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Abstract Two new species of the genus *Misthosima*, *M. brevitarsis* and *M. shoi*, are described from Japan. The genus is recorded for the first time from Japan.

Members of the genus *Misthosima* are distributed from southeastern China to the Philippines, Borneo, New Guinea and Queensland. None of its representatives have been known from Japan up to the present.

In the spring of 1987, Mr. Masayuki MINAMI who was then a student of the Laboratory of Entomology, Tokyo University of Agriculture, went to the Ryukyu Islands for collecting beetles. On that occasion he collected some anthribids, and entrusted them to me for study. They contained a species belonging to the genus *Misthosima* PASCOE, 1859, which had not been recorded from Japan.

Another species of the same genus was recently submitted to me for taxonomic examination by Mr. Sho TAKAHASHI of Kyoto Prefecture, who had been studying the coleopteran fauna of Kyoto and Nara Prefectures for a long time. After a careful examination, it became apparent that both the species had not been described theretofore. They will be named in the present paper.

Before going further, I wish to express my sincere gratitude to the late Professor S. SAWADA and Professor Y. WATANABE of the Laboratory of Entomology, Tokyo University of Agriculture, and Professor K. MORIMOTO of the Entomological Laboratory, Kyushu University, Fukuoka, for their constant guidance and encouragement. I am much indebted to Dr. S.-I. UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his kind reading the original manuscript of the present paper. Deep gratitude is also due to Messrs. M. MINAMI and S. TAKAHASHI for their kindness in providing me with the specimens used in this study, and to Mr. A. YOSHITANI for his assistance in preparing drawings.

Misthosima brevitarsis SENOH, sp. nov.

[Japanese name: Amami-mame-higenagazoumushi]

(Fig. 1)

Length: 2.2–2.9 mm (from apical margin of pronotum to apices of elytra).

Male. Body oval, about 2.1 times as long as wide excluding head, shining.

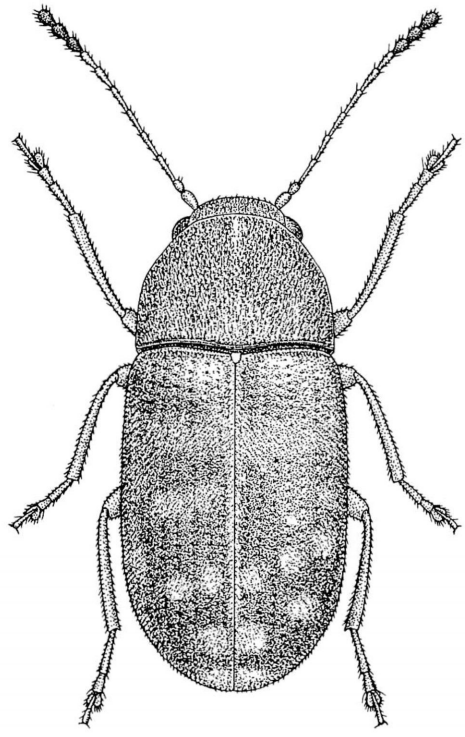

Fig. 1. *Misthosima brevitarsis* SENOH, sp. nov., from Amami-oshima Is.

Colour reddish brown to brown, eyes, last three segments of antennae, apical margin of rostrum, mandibles, pronotal carina and basal margin of elytra black. Pubescence relatively sparse, gray and whitish; gray and whitish hairs on elytra forming small tessellated patches.

Head almost invisible from above, shining, sparsely pubescent; eyes relatively small, hemispherical, well convex above, and distinctly separated from each other; rostrum transverse, almost straight in apical margin; the shortest distance between eyes about 1.75 times as wide as the shortest distance between antennal scrobes. Antennae relatively long and somewhat compressed, extending beyond the basal margin of pronotum, basal two segments ovate, club asymmetrical, 8th about 2.0 times as long as wide, 9th triangular, apically dilated, about 1.7 times as long as wide, 10th also triangular, apically dilated, about 1.4 times as long as wide, 11th spatulate, 1.6 times as long as wide, proportions in length from 1st to 11th about 6.0: 5.0: 6.0: 5.0: 5.0: 4.5: 4.0: 4.5: 5.0: 5.0: 5.0.

Pronotum trapezoidal and convex above, about 1.47 times as wide as long, widest at base, weakly convergent anteriorly in basal half, then gradually narrowed anteriorly; surface coarse like that of head; basal transverse carina broadly rounded

at the middle, wholly touching the base of elytra, and connected with each lateral carina at an obtuse angle, the latter declivous, extending to basal third of side margin; carinula absent. Scutellum subtriangular, densely covered with fine hairs. Elytra oblong, about 1.5 times as long as wide, parallel-sided in basal two-thirds, then narrowed posteriorly; basal margin emarginate at the middle; strial punctures becoming smaller and shallower from base towards apex, their diameter distinctly smaller than the width of an interval which is flattened. Pygidium tongue-shaped, strongly inclined forwards, about 1.1 times as long as wide, lateral margins gradually convergent towards rounded apices; surface sparsely covered with hairs; disc somewhat convex above in subapical part.

Prosternum coarse, densely covered with punctures which are larger and deeper than those of pronotum; mesosternal process triangular; metasternum similarly coarse to prosternum except for the middle part which is covered with fine punctures. Sternites coarse, but the punctures are weaker than on metasternum, sparsely covered with fine hairs except for both lateral sides which are sparsely covered with distinct hairs; viewed from side, venter arcuate from 1st to 5th visible sternites, 5th the shortest. Legs relatively short and thick; anterior femur shorter than the median which is shorter than the posterior; anterior tibia shorter than the median which is a little shorter than the posterior; all tarsi thick, the median shorter than the posterior which is shorter than the anterior.

Female. Pygidium subtriangular, strongly inclined backwards, nearly as long as wide. Viewed from side, 1st to 4th visible sternites conjointly almost horizontal, the terminal one somewhat slanting and the longest.

Type series. Holotype: ♂, observatory on a hillside, Mt. Yuwan-dake, Amami-oshima Is., Kagoshima Pref., Japan, 8～9–IV–1987, M. MINAMI leg. Paratypes: 2 ♀♀, same data as for the holotype. The type series is deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Distribution. Japan (Amami-oshima Is.).

Remarks. In general appearance, this species resembles *M. virilis* JORDAN, 1928, described from Tonkin and *M. mutabilis* WOLFRUM, 1948, described from Fukien, but can be distinguished from them mainly by the short tarsi and the configuration of antennae.

Misthosima shoi SENOH, sp. nov.

[Japanese name: Nara-mame-higenagazoumushi]

(Fig. 2)

Length: 2.2 mm (from apical margin of pronotum to apices of elytra).

Male. Body oval, about 2.0 times as long as wide excluding head, shining. Colour brown to black except below the gray haired patches on elytra which are reddish. Pubescence relatively dense, gray and black; gray and black hairs on elytra forming small tessellated patches.

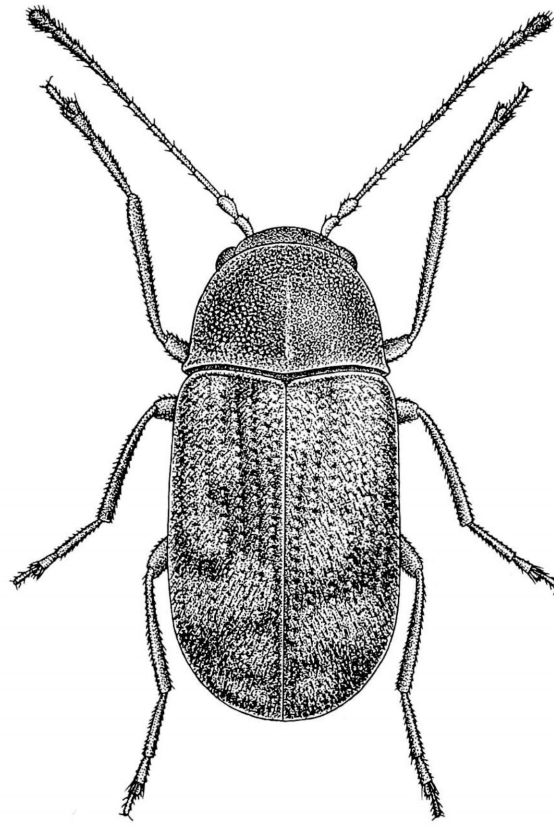

Fig. 2. *Misthosima shoi* SENOH, sp. nov., from Nara Park, Nara Prefecture.

Head almost invisible from above, densely and reticulately punctate, shining; eyes relatively small, hemispherical, well convex above, and distinctly separated from each other; rostrum transverse, almost straight in apical margin; the shortest distance between eyes about 1.6 times as wide as the shortest distance between antennal scrobes. Antennae long and somewhat compressed, extending beyond the middle of elytral side margins, basal two segments ovate, club nearly symmetrical, slender, setose, 9th about 3.0 times as long as wide, 10th and 11th oblong, 11th 2.0 times as long as wide, proportions in length from 1st to 11th about 6.0: 4.2: 6.2: 5.8: 5.8: 5.8: 6.0: 6.0: 5.0: 4.5: 5.8.

Pronotum trapezoidal and convex above, about 1.6 times as wide as long, widest at base, strongly convergent anteriad in basal tenth, then gradually narrowed anteriorly; surface coarse, covered with deep punctures; basal transverse carina weakly trisinuate, wholly touching the base of elytra, and connected with each lateral carina at a right angle, the latter declivous, extending to basal fourth of side margin; carinula absent. Scutellum small. Elytra oblong, about 1.48 times as long as wide, widest

behind the middle; basal margin weakly emarginate at the middle; strial punctures relatively large, deep, their diameter a little larger than the width of an interval. Pygidium subtriangular, vertical, nearly as long as wide, lateral margins gradually convergent towards rounded apex; surface sparsely covered with fine hairs; disc somewhat convex above.

Prosternum coarse, densely covered with punctures which are similar to those of pronotum; mesosternal process truncated; metasternum covered with punctures which are sparser than those of prosternum. Sternites covered with fine punctures; viewed from side, 5th visible sternite somewhat slanting. Legs relatively long and thin; anterior, median and posterior femora subequal in length to one another; anterior tibia nearly as long as the median which is a little longer than the posterior; anterior tarsus obviously longer than the posterior which is a little longer than the median.

Female. Unknown.

Holotype ♂, Nara Park, Nara Pref., Japan, 19–VI–1988, S. TAKAHASHI leg. The holotype is deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Distribution. Japan (central Honshu).

Remarks. This species can be discriminated from the known species of *Misthosima* by the following characteristics: pronotum strongly convergent anteriorly in basal tenth and distinctly punctate, elytra widest behind the middle, colour brown to black except below the gray haired patches on elytra which are reddish, and so on. The specific name is given in honour of Mr. Sho TAKAHASHI who offered the valuable specimen for my study.

要　約

妹尾俊男：日本から初めて記録されるマメヒゲナガゾウムシ属 *Misthosima* の 2 新種. —— 日本から未記録だったマメヒゲナガゾウムシ属 *Misthosima* に含まれる 2 新種を記載した. 1 種は，奄美大島から採集されたもので，アマミマメヒゲナガゾウムシ *Misthosima brevitarsis* SENOH と命名した. 本種は，Tonkin から記載された *M. virilis* JORDAN, 1928 や Fukien から記載された *M. mutabilis* WOLFRUM, 1948 に一見よく似ているが，付節は短く，触角の各節の相対的長さの差異などの形態的特徴により，容易に識別することができる. もう 1 種は，奈良公園で採集された種で，ナラマメヒゲナガゾウムシ *Misthosima shoi* SENOH と命名した. 本種は，上翅中央よりやや後方でもっとも幅広になる，上翅毛斑下の地色は赤色である，などの標徴により，他の同属の種から容易に識別することができる.

References

JORDAN, K., 1928. Further records of Anthribidae from French Indo-China, with the addition of the descriptions of two new species from other countries. *Novit. zool.*, **34**: 77–94.

—— 1929. Fauna Buruana. Coleoptera, Fam. Anthribidae. *Treubia*, **7**: 331–340.

JORDAN, K., 1931. Anthribidae collected by F. C. DRESCHER on the Island of Java. *Novit. zool.*, **36**: 288–302.
——— 1932. Further records of Anthribidae from Java. *Ibid.*, **38**: 301–304.
——— 1937. Some Old-World Anthribidae. *Ibid.*, **40**: 199–207.
——— 1938. On some Old-World Anthribidae. *Ibid.*, **41**: 140–147.
MORIMOTO, K., 1972. A key to the genera of Oriental Anthribidae (Coleoptera). *Bull. Gov. For. Expt. Stn.*, (246): 35–54, 17 pls.
PASCOE, F. P., 1859. On some new Anthribidae. *Annls. Mag. nat. Hist.*, (3), **4**: 431–439.
WOLFRUM, P., 1929. Anthribidae. *In* JUNK, W., & S. SCHENKLING (eds.), *Coleopterorum Catalogus*, pars 102 (pp. 3–145). W. Junk, Berlin.
——— 1934. Neue Anthribiden von den Philippinen, Sandakan (Nord-Borneo) und Singapore. *Ent. Blätt.*, **30**: 2–19.
——— 1948. Neue Anthribidae aus China. *Ibid.*, **41/44**: 133–148.
——— 1953. Anthribidae. *In* HINCKS, W. D. (ed.), *Coleopterorum Catalogus Supplementa*, pars 102 (pp. 3–63). W. Junk, 's-Gravenhage.

Elytra, Tokyo, **18** (2): 266, November 15, 1990

A New Record of *Tropidobasis* (Coleoptera, Anthribidae) from Thailand

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Tropidobasis discophora JORDAN, 1923, was described from Sarawak, Borneo, and east Sumatra, based on 3♂♂, 1♀, collected by J. B. CORPORAAL. It is a peculiar species in having a large dark brown round patch on the pronotum, and a whitish ring around the patch. In 1980, I made a long collecting trip to Southeast Asia and obtained two specimens of this species at Chiang Dao, northern Thailand. I am going to record this species as being new to the fauna of Thailand.

2 exs., Chiang Dao, Chiang Mai Prov., North Thailand, 25-V-1980, T. SENOH leg.

Distribution. Thailand, Sumatra, Borneo.

Reference

JORDAN, K., 1923. New eastern Anthribidae. *Novit. zool.*, **30**: 167–185.

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A New *Eugigas* (Coleoptera, Anthribidae) from Sulawesi, Indonesia

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Abstract A new species of the anthribid genus *Eugigas* is described from central Sulawesi under the name of *E. morimotoi*, which resembles *E. goliathus* J. THOMSON, also from Indonesia.

The genus *Eugigas* THOMSON belongs to the tribe Mecocerini of the subfamily Anthribinae. Two species of the genus have hitherto been known; one is *E. goliathus* THOMSON distributed from the Malay Peninsula to Sumatra, Java and Borneo, and the other is *E. schoenherri* THOMSON distributed over New Guinea, Aru and the Bismarck Archipelago. Recently, I had an opportunity to examine some specimens of an anthribid of this genus collected in central Sulawesi, through the courtesy of the Atlas Company of Ôita Prefecture and Mr. Kaoru SAKAI of Tokyo. After a careful examination, it has become clear that the anthribid differs from both *E. goliathus* and *schoenherri* in the elytral markings, the shape of pronotum and pygidium, and the configuration of antennae. It must be a new species, and will be described in the present paper.

Before going further, I wish to express my sincere gratitude to Professor Y. WATANABE of the Laboratory of Entomology, Tokyo University of Agriculture, and Professor K. MORIMOTO of the Entomological Laboratory, Kyushu University, for their constant guidance and encouragement. I am much indebted to Dr. S.-I. UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his kind reading the original manuscript of the present paper, and to Mr. K. SAKAI for his kindness in providing me with the valuable specimens.

Eugigas morimotoi SENOH, sp. nov.

[Japanese name: Sulawesi-tenaga-oo-higenagazoumushi]

(Fig. 1)

Length: 27–41 mm (from apical margin of rostrum to apices of elytra).

Male. Body large, about 3.1 times as long as wide, including rostrum. Colour entirely black. Pubescence dense, whitish and blackish brown; blackish brown hairs of elytra forming a wide transverse band before the middle, and four longitudinally oblong patches at the basal part of elytra. Blackish hairs of abdominal sternites forming a distinct relatively large triangular patch on each side of 1st visible sternite,

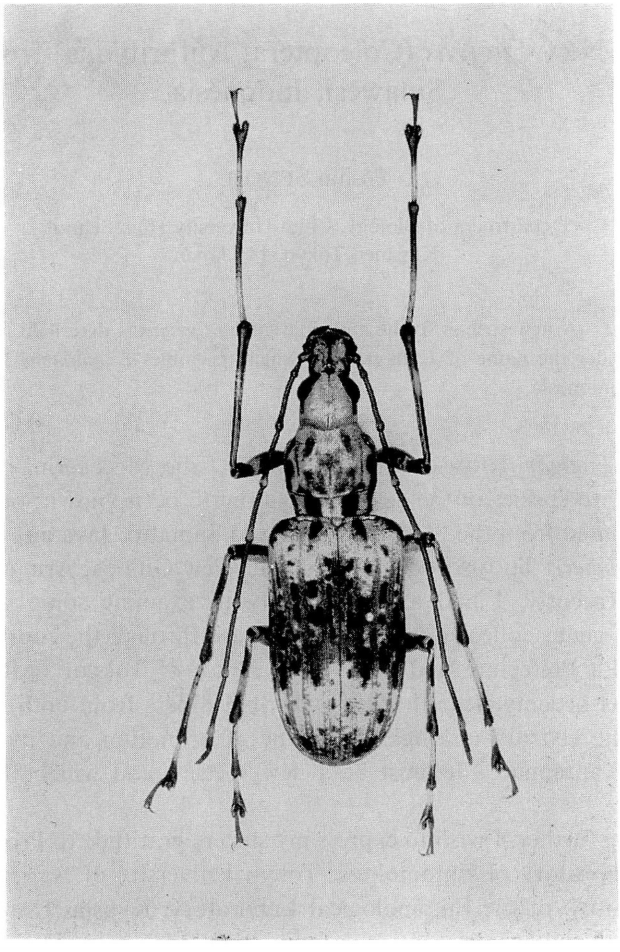

Fig. 1. *Eugigas morimotoi* SENOH, sp. nov., ♂, from central Sulawesi.

two oblong distinct ones on each side of 2nd to 4th sternites, and an oblong one on each side of 5th sternite.

Head thick, extending forwards, parallel-sided in occipital part, and with a semi-circular deep fossa in front of the interocular part; eyes moderately large, well convex above, expanded latero-posteriorly and moderately approximate to each other; rostrum thick, gradually widened in apical two-thirds, widest at the bases of mandibles, and reflexed above antennal cavities; maximum width of rostrum about 3.3 times as wide as the shortest distance between eyes. Antennae moderately long, just reaching the apices of elytra, scape thick, a little shorter than pedicel in size, proportions in length from 2nd to 11th about 13: 42: 43: 43: 50: 54: 49: 15: 12: 17, apical three segments compressed.

Pronotum somewhat barrel-shaped, convex above, about 1.0 times as long as wide,

widest at basal two-thirds; anterior margin shallowly emarginate; dorsal transverse carina broadly rounded, briefly interrupted at the middle, and roundly connected with each lateral carina, the latter horizontally extending to the subapical part of side margin; carinula distinct. Scutellum relatively large and rounded. Elytra oblong and thick, about 1.8 times as long as wide, parallel-sided in basal three-fifths, then narrowed posteriorly, basal margin almost straight; strial puncture absent. Pygidium subtrapezoidal, vertical, about 1.45 times as wide as long, lateral margins gradually convergent towards broadly rounded apex, basal part with a V-shaped carina at the middle and a deep round depression on each side.

Prosternum relatively densely covered with fine wrinkles, prosternal process thin; mesosternal process relatively thin, rounded between middle coxae, flat, oblique; 1st to 5th visible sternites, viewed from side, weakly arcuate conjointly, 4th the shortest. Legs long and thin; anterior femur a little longer than the median which is distinctly longer than the posterior; anterior tibia distinctly longer than the median which is distinctly longer than the posterior; anterior tarsus remarkably longer than the median which is distinctly longer than the posterior.

Female. Antennae short, not reaching the basal margin of elytra. All legs shorter than in male.

Type series. Holotype: ♂, Puncak, Palopo, central Sulawesi, Indonesia, II–1989. Paratypes: 1 ♂, 2 ♀♀, same data as for the holotype; 2 ♀♀, same locality as for the holotype, IX–1989. The type series is deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Distribution. Indonesia (C. Sulawesi).

Notes. In general appearance, this species resembles *Eugigas goliathus* J. THOMSON, 1857, known from Perak, Sumatra, Java, Borneo and Nias, but can be distinguished from the latter by the following characteristics: pubescence whitish and blackish brown, the blackish brown hairs of elytra forming a wide transverse band before the middle, and four oblong patches at the basal parts of elytra; antennae moderately long, just reaching the apices of elytra; pygidium with a deep round depression on each side, and so on. The present species is dedicated to Professor Katsura MORIMOTO of the Entomological Laboratory, Kyushu University, who is an excellent specialist of curculionoid beetles.

要　　約

妹尾俊男：スラウェシから発見されたテナガオオヒゲナガゾウムシ属の1新種.——スラウェシ島中部から得られたテナガオオヒゲナガゾウムシ属 *Eugigas* に属するヒゲナガゾウムシの1新種を，*Eugigas morimotoi* SENOH (和名新称：スラウェシテナガオオヒゲナガゾウムシ) と命名し，記載した．この種は *E. goliathus* THOMSON に似ているが，体表の微毛がつくる斑紋や，触角の長さ，尾節板などの差異によって区別できる．

References

JORDAN, K., 1913. The Oriental Anthribidae of the VAN DE POLL Collection. *Novit. zool.*, **20**: 257–277.

——— 1913. The Anthribidae in the Indian Museum. *Rec. Ind. Mus.*, **9**: 203–216.

——— 1928. Anthribidae from the Malay Peninsula. *Novit. zool.*, **34**: 95–104.

SENOH, T., 1985. Anthribid beetles of Southeast Asia, II. *Chô Chô, Fukuoka*, **8**(9): 27–30. (In Japanese.)

THOMSON, J., 1857. Archives entomologiques ou recueil contenant des illustrations d'Insectes nouveaux ou rares, Paris, **1**: 1–514.

Elytra, Tokyo, **18** (2): 270, November 15, 1990

ヤマトモリヒラタゴミムシ岡山県の記録

笠原須磨生・山地　治

KASAHARA, S., & O. YAMAJI: A New Record of *Colpodes yamatonis* (Carabidae) from Okayama Prefecture, West Japan

ヤマトモリヒラタゴミムシ *Colpodes* (*Oncostylus*) *yamatonis* (HABU) は，紀伊半島の奈良，和歌山と，東海の愛知各県に次いで，四国の高知県からも記録されたが，* 最近，筆者らは，岡山県北東部の兵庫県との境にある後山で得られた本種の標本をみることができたので報告する．今後，近畿地方から中国地方の東部にかけて，さらに追加記録されることと思う．貴重な標本を提供された渡辺昭彦氏にお礼申し上げる．

2♂♂，1♀，岡山県東粟倉村後山，3-VI-1984，渡辺昭彦採集．

本種は，近縁のホソモリヒラタゴミムシ *C.* (*O.*) *speculator* HAROLD に似ているが，通常は前胸背板の形態により容易に識別できる．しかし，ときにやや紛らわしい個体もみられるので，同定は交尾器を調べたほうがよいだろう．

* 笠原須磨生・伊東善之，1989，Elytra, Tokyo, **17**: 152.

Elytra, Tokyo, **18** (2): 271–274, November 15, 1990

Rhabdom Pattern in the Eye of *Acorynus latirostris* (Anthribidae)

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Abstract Rhabdom pattern in the compound eye of *Acorynus latirostris* of the family Anthribidae is investigated by using electron microscopic technique. The rhadbom is of open type, and the peripheral rhabdomeres of six cells encircle the two central rhabdomeres. The peripheral rhabdomeres are small and separated from the neighboring ones.

The compound eyes of beetles widely vary in their configuration among various groups, and various types are also seen according to difference in activities. The fine structure of beetle eyes has been reported by many authors. However, detailed structure of the eyes of the Anthribidae has not been examined by electron microscope. In this paper, pattern of the rhabdom of an ommatidium in *Acorynus latirostris* (SHARP, 1891) which is considered completely diurnally active species is reported. It has large compound eyes. A full description of the ultrastructure of compound eyes in the species will be given in other papers.

The anthribid used for this observation was collected at Shiobara, Tochigi Prefecture. The eye was embedded in Poly/Bed 812 following conventional preparation methods. Ultra-thin sections were double stained with uranyl acetate and lead citrate, and were examined with a JEM-100 CX electron microscope.

An ommatidium of *Acorynus latirostris* eye contains eight retinular cells (Fig. 1). Each of them develops a rhabdomere, composed of tubular protrusions of the cell membrane (microvilli). All rhabdomeres together are called the rhabdom. In insects, rhabdom can be divided into closed- and open-types. In the latter case, central rhabdomeres of two retinular cells are separated from peripheral ones by larger or smaller distances. In *Acorynus latirostris*, the two central retinular cells are surrounded by six peripheral ones (Fig. 1). The peripheral rhabdomeres are small and separated from neighboring ones and attenuate toward the basement membrane. They encircle the central rhabdomeres, each oval in form, and its major and minor axes are ap-

proximately 1.3–2.2 and 0.8–1.2 μm, respectively. However, two central retinular cells have apparently formed one rhabdomere (Figs. 1 & 2). The microvilli of the central rhabdomeres converge in one central cell (R2) and diverge in other cell (R1), so that the orientation of the microvilli shows three subregions in transverse section (Fig. 2).

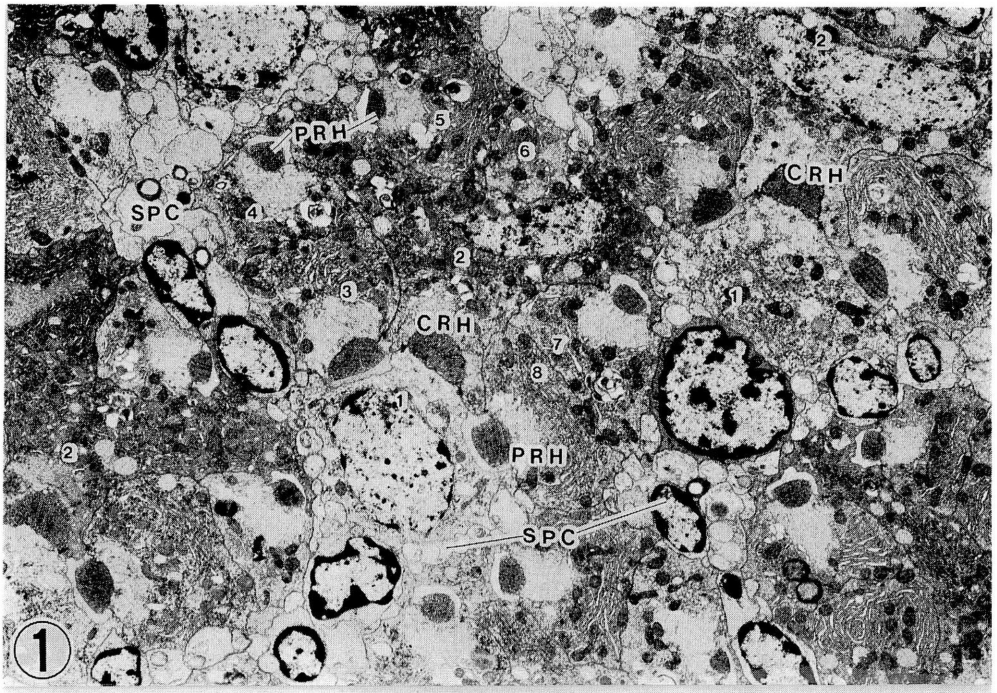
This rhabdom type is often termed "insula-pattern" (*e.g.*, SCHMITT *et al.*, 1982). Such an arrangement of rhabdomeres has been reported in Chrysomelidae, Cerambycidae and Bruchidae in the Coleoptera (TOMINAGA & KABUTA, 1975; GOKAN & HOSOBUCHI, 1979; SCHMITT *et al.*, 1982). In diurnally active species of longicorn beetles, especially in the groups active under the bright sunshine, the peripheral rhabdomeres are small and separated from the neighboring ones. On the contrary, they are large in nocturnally active species (GOKAN & HOSOBUCHI, 1979). As the result of the present study, it can be concluded that the rhabdom of *Acorynus latirostris* clearly belongs to the former group.

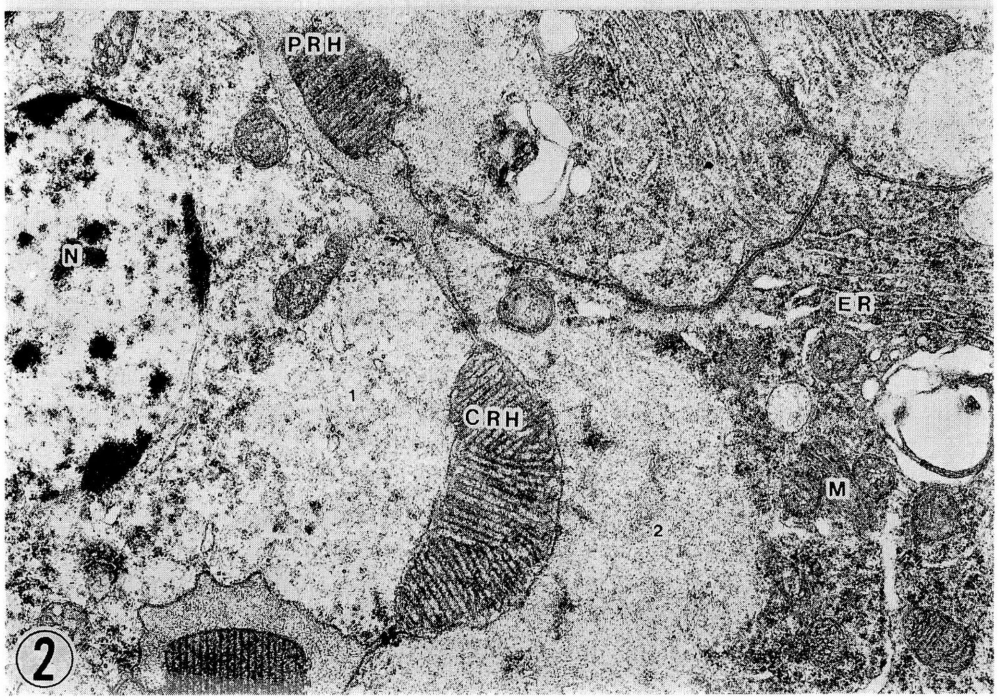
The authors wish to express their hearty thanks to Professors Nobuo GOKAN and Yasuaki WATANABE of the Laboratory of Entomology, Tokyo University of Agriculture, and Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for their constant guidance and for reading through the manuscript.

要　約

長島孝行・妹尾俊男：チャマダラヒゲナガゾウムシのラブドムの構造.—— 昆虫類の複眼におけるラブドム（感桿）の構造が，活動性や系統を反映させていることを示唆している報告は多く知られている．著者らは今回，ヒゲナガゾウムシ科のチャマダラヒゲナガゾウムシのラブドムのパターンについて，電子顕微鏡を用いた観察を行なった．本種は，典型的な昼行性のヒゲナガゾウムシであることが，経験的に知られている．ラブドムは分散型で，2つの視細胞からなる中央ラブドメアー（感桿分体）と，その周りの6個からなる周辺ラブドメアーで構成されている．本種ではその周辺ラブドメアーが小さく，それぞれが離れているという特徴をもち，ハムシ科，カミキリムシ科，マメゾウムシ科のいくつかのものに知られているラブドムによく似ている．同時にこれらの特徴は，カミキリムシ科においては典型的な昼行性のものにみられ，本種も同様であることを構造的にも表しているものと考えられる．

Figs. 1–2. —— 1. Low magnification electron micrograph of several ommatidia of *Acorynus latirostris* in transverse section, showing an ommatidium composed of eight retinular cells and peripheral rhabdomeres isolated from one another. CRH, Central rhabdomere; PRH, peripheral rhabdomere; SPC, secondary pigment cell. ×3,440. —— 2. Electron micrograph of an ommatidium of the same species in transverse section, showing central rhabdomeres (CRH) of cells R1 and R2. ER, Endoplasmic reticulum; M, mitochondria; N, nucleus of retinular cell; PRH, peripheral rhabdomere. ×15,680.


PRH
SPC
CRH
CRH
PRH
SPC
1


PRH
N
ER
CRH
M
2

References

GOKAN, N., & K. HOSOBUCHI, 1979. Fine structure of the compound eyes of longicorn beetles (Coleoptera: Cerambycidae). *Appl. Ent. Zool.*, **14**: 12–27.

SCHMITT, M., U. MISCHKE & E. WACHMANN, 1982. Phylogenetic and functional implications of the rhabdom patterns in the eyes of Chrysomeloidea (Coleoptera). *Zool. Scr.*, **11**: 31–44.

TOMINAGA, Y., & H. KABUTA, 1973. Fine structure of the compound eye of ladybug beetle *Harmonia axyrides*. *Fukuoka Univ. Sci. Rept.*, **2**: 87–99.

Elytra, Tokyo, **18** (2): 274, November 15, 1990

ハナバチヤドリキスイのカムフラージュ

西 川 正 明

Masaaki NISHIKAWA: Cryptic Colour and Posture of *Antherophagus nigricornis* (Cryptophagidae)

筆者は今年，北海道でハナバチヤドリキスイ *Antherophagus nigricornis* (FABRICIUS) を採集したが，その際，若干の知見を得たので報告する．データは次のとおり．

4♂♂4♀♀，北海道渡島支庁七飯町鳴川林道，29-VII-1990.

本種は，マルハナバチ類の巣に寄生するとされているが，上記の8頭はともに日向のエゾニュウの花上から採集された．日蔭のものや，ほかの花からは発見できなかった．エゾニュウは複合散形花序を呈するが，本種は下向きに，その1本の茎に静止し，体の後半は，ほかの花との間隙にあった．発見されたもののすべてが，この姿勢をとっていた．

ところで，図鑑に示されている本種の標本写真は，生時の色彩を表現していない．生時の体色は，記憶によれば，黄白色で上翅の中央よりやや下方に淡赤色にみえる部分がある（この部分は斑紋ではなく，先方が暗色の後翅が透けてみえることによるようである）が，死後には全体が黄褐色に変色する．

さて，花上の本種の姿勢と色彩は，黄白色のエゾニュウの花に散見される，一部淡赤色の蕊とまぎらわしいという効果を与えた．

HATCH (1961, The Beetles of the Pacific Northwest, part 3, p. 209) によれば，成虫はときに，飛行中のマルハナバチの肢にすがりついているという．当日は，もちろんほかのハチもいたが，マルハナバチの1種も多く訪花していた．採集されたハナバチヤドリキスイは，花上で寄主の訪花を待ちうけていたものと思われる．そうだとすれば，このカムフラージュは，寄主から存在を隠し，花上で乗り移り，そして巣に運ばれる機会をより多くする役に立っているのだろう．

Elytra, Tokyo, **18** (2): 275–276, November 15, 1990

Taiwanese Anthribids (Coleoptera, Anthribidae) Collected by Dr. K. BABA

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Recently, some Taiwanese anthribid beetles were submitted to me for taxonomic study by Dr. Kintaro BABA, who had been studying the insect fauna of Taiwan. They were mostly collected by himself in 1986 at the southern part of Taiwan. The results of my examination of this collection will be given in this short report.

I wish to express my deep gratitude to Dr. Kintaro BABA, who always provided with anthribid specimens for my study.

Subfamily Choraginae

Araecerus fasciculatus (DE GEER, 1775)

1 ex., Yu-shih, Nan-tou Hsien, 4–VII–1986; 2 exs., Liu-kuei, 29–III–1986; 1 ex., Tao-nah, near Mao-lin, 30–V–1986; 1 ex., Tai-yuan Shan, near Liu-kuei, 1–VI–1986; 1 ex., Chae-shian, Kao-hsiung Hsien, 9–XI–1986.

Subfamily Anthribinae

Ozotomerus amamianus MORIMOTO, 1978

1 ex., Sia-yung-ping, San-min-tsieng, Tao-en County, 4–VI–1986; 1 ex., Yu-boku-li, San-kyo-tin, Tai-pei County, 5–VI–1986; 3 exs., Tsai-tieh-ku, near Liu-kuei, 2–VI–1986; 1 ex., Thu-yun Shan, near Liu-kuei, 23–VII–1986.

This species is newly recorded from Taiwan.

Exillis japonicola NAKANE, 1963

2 exs., Tao-nah, near Mao-lin, 30–V–1986; 1 ex., Tai-yuan Shan, near Liu-kuei, 1–VI–1986.

Xylinada japonica (SHARP, 1891)

2 exs., Chu-yun Shan, near Liu-kuei, 10–V–1986; 1 ex., Tun-chih, near Liu-kuei, 2–VI–1986; 1 ex., Shi-nan Shan, Kao-hsiung Hsien, 22–VI–1986.

Basitropis nitidicutis JEKEL, 1855

1 ex., Liu-kuei, 29–III–1986; 2 exs., Sha-ping, near Liu-kuei, 6–VI–1986.

Litocerus communis communis JORDAN, 1912

1 ex., Shyk Shan, near Liu-kuei, 17–VI–1986; 1 ex., Sha-ping, near Liu-kuei, 25–VII–1986; 1 ex., Chae-shian, Kao-hsiung Hsien, 9–XI–1986.

Cedus diversus JORDAN, 1911

3 exs., Sha-ping, near Liu-kuei, 25–VII–1986.

Nerthomma aplota JORDAN, 1912
1 ex., Tao-nah, near Mao-lin, 30-V-1986.
Habrissus formosanus JORDAN, 1912
1 ex., Sha-ping, near Liu-kuei, 19-VI-1986.
Autotropis sp.
2 exs., Tai-yuan Shan, near Liu-kuei, 1～10-VI-1986.
Phloeobius sp.
1 ex., Liu-kuei, 30-III-1986.
Nessiara sp.
1 ex., Sha-ping, near Liu-kuei, 19-VI-1986.
Gen. sp.
1 ex., Sia-yung-ping, San-min-tsieng, Tao-en County, 4-VI-1986.

References

FRIESER, R., 1981. Revision von drei paläarktischen Anthribidenarten (Coleoptera, Anthribidae). *Nachr. Bayer. Ent., München*, **30** (3): 53-55.

JORDAN, K., 1912. Formosan Anthribidae collected by H. SAUTER. *Novit. zool.*, **19**: 137-145.

MIWA, Y., 1931. A systematic catalogue of Formosan Coleoptera. *Dept. Agr. Gov. Res. Inst. Formosa, Rept.*, (55): 1-359.

——— & M. CHÛJÔ, 1939. Anthribidae. *Catalogus Coleopterorum Japonicorum*, pars 7 (pp. 1-12). Noda-Shobo, Taihoku.

MORIMOTO, K., 1978-'81. The family Anthribidae of Japan (Coleoptera). Parts 1-4. *Esakia, Fukuoka*, (12): 17-47; (14): 1-23; (15): 11-47; (17): 53-107.

SHIBATA, T., 1978-'84. Reports of Anthribidae from Taiwan, I-VI. *Ent. Rev. Japan, Osaka*, **31**: 23-28; **32**: 93-99; **33**: 97-107; **34**: 21-28; **37**: 25-30; **39**: 33-34.

Elytra, Tokyo, **18** (2): 277–279, November 15, 1990

ヨツボシミズギワコメツキの形態について

大　平　仁　夫

Notes on the Morphological Structure of *Fleutiauxellus yotsuboshi* (Coleoptera, Elateridae) from Japan

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Abstract *Fleutiauxellus yotsuboshi* (KISHII, 1976) was originally described from the Kizu river-side in Kyoto Prefecture, Honshu, based on the female holotype. General structure of this species examined by SEM-images (Fig. 1) is described facilitating recognition of its systematic position in the Negastriinae from Japan.

ヨツボシミズギワコメツキ *Fleutiauxellus yotsuboshi* (KISHII, 1976) は，京都府井手町の木津川河原で採集された雌個体の正基準標本に基づき，KISHII (1976) が新種として記載（原記載時の属名は *Migiwa*）した種で，ほかに兵庫県伊丹市の猪名川で得られた雌個体も副基準標本に指定されている．その後，岸井 (1984) や渡辺 (1985) は，岡山県岡山市大原や苫田郡奥津でもこの種が得られたことを報告し，渡辺は「県内河川の中～下流部の河原に産する斑紋を有する本属の種は，大部分本種ではないかと考えられる」と述べている．ここでは，未知であった雄の形態などについて明らかにしておきたいと思う．

本文を草するにあたり，標本について支援をいただいた大阪市の有本久之氏と，倉敷市の渡辺昭彦氏に心からお礼を申し上げる．

成虫の形態

雄．体長は 3.5～4 mm．体は長卵形でやや扁平，黒色で光沢を有し，淡黄灰色毛を生ずる．触角の基部 3 節（第 3 節はやや暗褐色），上翅の 4 個の斑紋，肢（腿節はときにやや暗褐色）などは黄橙色，前胸背板上には倒伏状のやや長い毛を生ずるが，上翅は短毛を一様に生じ，長毛を混生しない．

前頭横隆線は顕著に縁取られ，前縁は弧状を呈する．触角は比較的短く，末端は前胸背板の後角よりわずかに短い (Fig. 1 A)，第 2 節は棍棒状で，第 3 節はやや倒円錐形状で第 2 節の約 1.3 倍の長さ，第 4 節から鋸歯状を呈し，第 4 節は第 3 節よりわずかに長い (Fig. 1 H–I)．

前胸背板は矩形状で，長さよりやや幅広く，両側は中央やや後方部でもっとも幅広い．後角は後外方へ突出し，背面には 1 隆起線を有する (Fig. 1 E)．背面の正中部にはやや幅広い平滑縦線 (Fig. 1 F の↑印) を有し，周辺の前半部では点刻の外側部がコブ状に隆起する (Fig. 1 F)．前胸腹板突起は，前肢基節腔のところで弱く内方へ湾曲，そこから後方へまっすぐに伸長，末端は細まってとがる (Fig.

1 C). 小盾板は比較的幅広く，末端部は湾曲して鈍くとがる (Fig. 1 B).

上翅の条線は明瞭に印刻されるが，間室部はやや扁平状，点刻を生じ，不規則な横しわ状を呈する．腰板の内方部は幅広く，外方へ漸次細まる (Fig. 1 D).

雄交尾器の腹面からみた末端部の外形は図示 (Fig. 1 G) したようで，中央突起は末端に向かって漸次細まり，末端は鈍くとがる．外突起は細長く，両側は平行状で，末端は細まって鋭くとがる．

雌．体長や上翅の黄斑，一般外形は雄の場合に類似する．触角はやや短く，第 3 節はより細長く，第 4 節からの鋸歯状もより弱い (Fig. 1 J). 産卵管の末端部 (一対ある片方を示す) の外形は図示 (Fig. 1 K) したとおりであるが，ここの主要形態は属間でもほぼ相同である．また，内部生殖器の交尾嚢 (bursa copulatrix) 内には 2 枚の角質状の板を有するが，その 1 枚の板の一部は図示 (Fig. 1 L) したとおりである．しかし，この板の形態には，個体による変異がみられる．

あ と が き

本種は，一般に河原の砂礫中に生息し，ときにミズギワコメツキ *Fleutiauxellus curatus* (Candèze, 1873) と混生している．成虫の発生期は 6 月上旬ごろで，7 月に入るとほとんど見出されなくなる．また，成虫は河原に生えている雑草の葉状にもいて，雑草につくアブラムシ類を捕食したり，その分泌物を舐食したりしている．

本種は，一般外形が九州地方に分布するヒゴミズギワコメツキ *Fleutiauxellus modestus* (Lewis, 1894) にきわめてよく似ているが，肩角部の黄斑は通常，上翅側片 (elytral epipleuron) まで拡大しないので識別できる．本種の上翅の黄斑には変異があって，翅端部のものはほとんど消失することがあるが，前後の黄斑が相互に連絡するほど発達した個体には接していない．本種の分布は，今のところ近畿地方から中国地方にわたっている．

引 用 文 献

Kishii, T., 1976. New Negastriinae with some notes. Some new forms of Elateridae in Japan (X). *Bull. Heian High School, Kyoto*, (20): 17–45.

——— 1984. 未記録および珍しいコメツキムシ若干について．月刊むし，(166): 21–23.

渡辺昭彦，1985. 岡山県のコメツキムシ追録 II. すずむし，(120): 5–6.

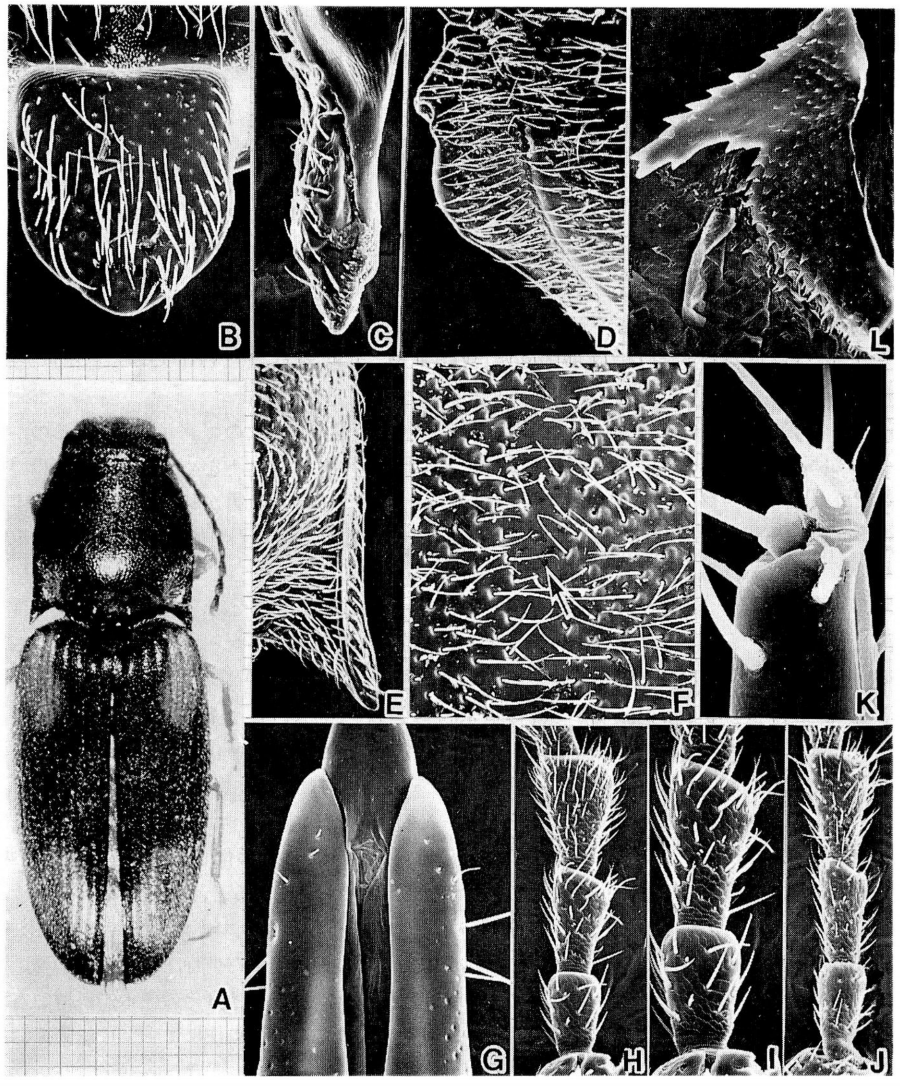


Fig. 1. *Fleutiauxellus yotsuboshi* (KISHII, 1976), male (except for J, K, and L which are of a famale), Kizu river-side in Kyoto Prefecture. A, Adult, dorsal aspect; B, scutellum; C, prosternal process, lateral aspect; D, basal plate; E, right posterior angle of pronotum; F, disc of pronotum (↑-portion is a median longitudinal line); G, posterior portion of aedeagus, ventral aspect; H, 2nd to 4th segments of antenna; I, 2nd and 3rd segments of antenna (enlargement of H); J, 2nd to 4th segments of antenna; K, apical portion of ovipositor (×3,000); L, sclerotized plate in bursa copulatrix.

Elytra, *Tokyo*, **18** (2): 280, November 15, 1990

神奈川県産シャープゲンゴロウモドキの標本を発見す

阿　部　光　典

Terutsune ABE: An Extant Specimen of *Dytiscus sharpi* (Dytiscidae) from Kanagawa Prefecture, Central Japan

結論を先に書く．データはつぎのとおりである．

シャープゲンゴロウモドキ *Dytiscus sharpi* WEHNCKE, 1♀, 横浜, 17-VIII-1935, 神田重夫採集, 国立科学博物館所蔵.

なんといっても，これはビッグ・ニュースである．神奈川県内に，このゲンゴロウがいるのかどうかについては，高桑 (1987) が報じているように，岡野 (1941) のリストをめぐって疑心暗鬼の状態が続いていた．岡野リストにこの種名は載っているが，データが一切，書かれていないし，標本も現存していない．「茅ケ崎か鵠沼あたりかな？」とか「いや箱根の芦の湖の可能性がある」などと推測が乱れ飛んでいた．

小生は 1990 年 1 月 17 日に，マルコガタノゲンゴロウの標本調査のため，科博の上野俊一博士を訪れた．資料室で，目的の調査も終わり，ボヤーッと箱の中を眺めていたら，片隅に並んでいるシャープゲンゴロウモドキが目にとまった．現在の小生にとって，シャープゲンゴロウモドキはそれほど心ときめくほどの虫でもないが，そのうちの 1 頭につけられていた，うす茶色に風化したラベルを見て心臓が止まるかと思うほどびっくりした．そこには，なんと "YOKOHAMA" と記されているではないか！　シーンと静まり返った資料室で，小生は「キャー」と叫びそうになった．

ラベルには S. KANDA と書いてあるが，どんな人だろうか？　別のラベルには「白畑孝太郎氏寄贈標本, 1980 年」と記されている．この 2 枚目のラベルは科博で印刷し，添付したものとのことである．

帰宅後，黒沢良彦博士にお電話し，お教えを乞うた．博士のお話によると，S. KANDA とは故神田重夫氏のことであり，井上 寛氏がご指導を受けられた先生であるとの由．また本学会会員でもある，横浜の岩瀬和夫氏に，この件につき伺ったところ，戦前，氏が神田先生（当時，横浜二中勤務）宅を訪れた際に標本箱のなかに 1 頭あったのを見た覚えがあるとのことで，多分その標本が科博に寄贈されたのだろうという．また採集地は，鶴見の三つ池（神田氏はこの近くに住んでいた）に間違いないとのことであった．

標本は♀で，上翅には深い溝がきれいに刻まれており，比較的大型の個体である．千葉県産の♀では溝の深い個体が少なく，その点からも貴重な標本である．「国宝指定」とまではいかないにしても，神奈川県の「県宝（?）」として指定されてしかるべき標本である．

最後になりましたが，このような重要な標本を発見する機会を与えてくださった上野俊一博士，ならびに，いろいろなご教示をいただいた黒沢良彦博士，さらには採集地の推定について情報をくださった岩瀬和夫氏に心からお礼申しあげます．

参　考　文　献

高桑正敏, 1987. 神奈川県産ゲンゴロウ類資料 (1). 神奈川自然誌資料, (8): 85-88.
岡野磨瑳郎, 1941. 神奈川県産甲蟲誌 (1). 蟲の世界, **4**: 130-133.

Elytra, Tokyo, **18** (2): 281–282, November 15, 1990

北日本におけるマルコガタノゲンゴロウの記録

阿　部　光　典

Terutsune ABE: Records of *Cybister lewisianus* (Dytiscidae) in Northeastern Honshu, Japan

Cybister は南方系の属で，日本には7種を産するが，そのなかでマルコガタノゲンゴロウ *Cybister* (*Gschwendtnerhydrus*) *lewisianus* SHARP はきわめてまれな種で，採集記録が非常に少ない．したがって，現存する標本数も多くはなく，おそらく 20 頭前後ではないかと思われる．

既知産地は本州，四国，九州であるが，四国の記録について小生は知らない．神谷 (1938) によると，本州では霞ケ浦と大阪，九州では福岡が産地としてあげられているが，その標本は現存していない．おそらく第2次大戦中，東京農大が被爆したときに焼失したものと思われる．

近年の記録としては，熊本県で松井英司氏が採集（3頭，1989 年）されているのが唯一のもので，東日本では絶滅に近い状態のようである．とくに関東地方では，戦後の記録がまったくない．

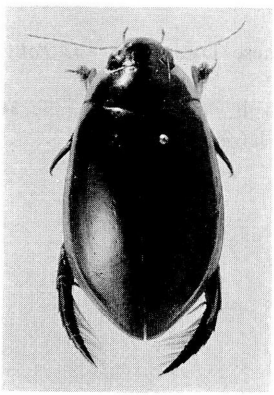
ところが，この南方系の種が，遠く飛び離れた北日本において，過去にいくつか採れている．たいへん貴重な記録なので，小生がこれまで知りえたかぎりをまとめておきたい．

1)　1♂，山形県鶴岡市大山町上池，6-IX-1950，白畑孝太郎氏採集，科博所蔵．

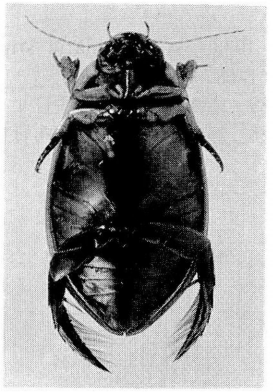
黒沢良彦博士よりかねがねうかがっていたが，上野俊一博士のご配慮により検することができた．また，山形市在住の木俣　繁氏からのご教示によれば，白畑氏は，この上池の北隣りにある下池でも採集，記録しており，その標本は故白畑氏のご自宅に保存されているものと思われる，とのことである．採集された個体数が複数であることは，黒沢博士からもうかがっている．

2)　1♂，宮城県石巻市牧山，24-VIII-1962，桜谷鎮雄氏採集，同氏所蔵．

黒沢博士から，「石巻でも採れているよ」という話をうかがってびっくり．早速，博士宅へお邪魔



(1)



(2)

Figs. 1–2. *Cybister* (*Gschwendtnerhydrus*) *lewisianus* SHARP from Natori New-town in Miyagi Prefecture; dorsal (1) and ventral (2) views.

して「石巻昆虫同好会会報，14 号，1988」を見せていただいた．そのなかの報文，「石巻地方の甲虫分布資料〔3〕」の執筆者である桜谷鎮雄氏へお手紙を差しあげたところ，折り返し標本を送って下さった．この個体は燈火に飛来したものである由．

3) 1♂，山形市田尻沼，19-IX-1968，高橋多蔵氏採集，名古屋女子大所蔵．

佐藤正孝教授に標本の調査をしていただき，知ることができた．高橋氏は山形市在住で鳥の研究家である，と黒沢博士よりご教示をいただいた．

4) 1♂，2♀♀，上山市小倉（小池沼），VIII-1970，高橋多蔵氏採集，山形県立博物館所蔵．

木俣氏に調査，確認をしていただいた．

5) 1♂，山形市滝の平，16-X-1970，白畑孝太郎氏採集，山形県立博物館所蔵．

これも木俣氏に調査していただいた．

6) 1♂，宮城県名取市名取ニュー・タウン，14-VI-1973，山谷幸次氏採集，山谷文仁氏所蔵．

幸次氏は文仁氏のご子息．タガメ採集の目的で街燈を見まわった際に拾ったとのことである．標本はお送りいただいて実検した（写真参照）．

この報文の執筆にあたっては，文中に記した諸氏のほかに，草刈広一，高桑正敏，疋田直之の諸氏からも情報をいただいた．また写真撮影は，築比地秀夫氏にお願いした．記してお礼を申しあげる．

Summary

Cybister lewisianus SHARP is one of the rarest species of dytiscid beetles in Honshu (mainland of Japan). In recent years, we cannot find it in spite of our earnest researches. In this brief report, I have tried to summarize old records in northeastern Honshu.

1) 1♂, Kami-ike Pond, Tsuruoka-shi, Yamagata, 6-IX-1950, K. SHIRAHATA leg.
2) 1♂, Mt. Makiyama, Ishinomaki-shi, Miyagi, 24-VIII-1962, S. SAKURAYA leg.
3) 1♂, Tajiri-numa Pond, Yamagata-shi, 19-IX-1968, TAKAHASHI leg.
4) 1♂, 2♀♀, Koike-numa Pond, Kaminoyama-shi, Yamagata, VIII-1970, T. TAKAHASHI leg.
5) 1♂, Takinodaira, Yamagata-shi, Yamagata, 16-X-1970, K. SHIRAHATA leg.
6) 1♂, Natori New-town, Natori-shi, Miyagi, 14-VI-1973, K. YAMAYA leg.

参 考 文 献

KAMIYA, K., 1938. A systematic study of the Japanese Dytiscidae. *J. Tokyo Nogyo Daigaku*, **5**: 1-68, 7 pls.

松井英司，1989．熊本県本渡市の注目すべきゲンゴロウ科甲虫．熊本昆虫同好会報，**34**(3): 28.

桜谷鎮雄，1988．石巻地方の甲虫分布資料 [3]．石巻昆虫同好会会報，(14): 6-13.

Elytra, Tokyo, **18** (2): 283–285, November 15, 1990

ヒメコメツキガタナガクチキの生態

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Observation on the Metamorphosis of *Synchroa melanotoides* LEWIS (Coleoptera, Synchroidae)

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Abstract　The larva of *Synchroa melanotoides* LEWIS (Synchroidae; formerly Melandryidae) was found out from under the bark of *Quercus serrata* stub, and was observed for about six months till the ecdysis into adult. It was suggested that this larva is carnivorous. This supports the idea that the species is not included in the family Melandryidae, which is considered either xylophagous or fungivorous.

はじめに

ヒラタナガクチキムシ科は，日本にはヒメコメツキガタナガクチキ *Synchroa melanotoides* LEWIS 1 種のみが知られ，北海道から九州へと広く分布している（佐々治，1985）．本種の幼虫の形態については，福田 (1959)，HAYASHI (1975)，および林 (1980) によって論じられたものがあり，生態については，成虫がフジ，クヌギに集まり (野村，1963)，幼虫がフジ，ナラカシ類などの樹皮下に生息する (HAYASHI, 1975; 林，1980) ことが報じられているが，食性については未知であった．筆者は，本種の幼虫の飼育により，本種の生態について若干の知見を得ることができたので，ここに報告し考察する．

飼育観察方法

1989 年 12 月 12 日，神奈川県厚木市鳶尾山を訪れた際，コナラの切り株の樹皮下（地上高 20 cm）より本種の幼虫を多数見いだし，これらを持ち帰って飼育を試みた．直径 90 mm，高さ 60 mm のガラスの透明なシャーレに，木屑や木片（クヌギの腐朽木より得たもの）を底から高さ 20 mm 程度に固く押し固め，さらに 40 mm 程度まで軽く押しつめたものに，これらの幼虫を入れて飼育を始めた．幼虫の成長や生活状態を知るために，ときどき掘り返して観察し，さらにシャーレの外からも観察した．

飼育観察記録

1989 年 12 月 13 日　10 頭の幼虫を飼育容器に入れ飼育を始めた．

1990 年 3 月 2 日　4 頭の生存を確認，一様に成長していた．これらすべての個体は，木片下に

潜み，体の周りに円盤状の空間（長さは体長より多少長く，幅は体幅の 2～3 倍程度，厚さは体のそれとほぼ同じ程度）をつくって静止していた．先に，餌になる可能性があるとして入れておいたカミキリムシ（体長 4 cm）の幼虫は，第 5～6 腹節が傷つき死亡していた．この傷は，本種のうちの 1 頭がつくった空間に接する位置にあった．

1990 年 3 月 24 日　3 頭の生存を確認，3 月 2 日と同じ状態で生活していた (Fig. 1)．死亡した 1 頭は，その状態から明らかに衰弱死か病死と考えられた．

1990 年 4 月 15 日　シャーレの底に蛹室を 1 個確認．

1990 年 4 月 21 日　蛹を確認 (Fig. 2)．掘り返してみるが残りの個体は発見されなかった．

1990 年 5 月 5 日　羽化 (Fig. 3)．

考　察

本種は，ナガクチキムシ科の一員であるように長く考えられてきたが，幼虫や成虫の形態により，異なった独立の科として区別された（佐々治，1985）．この観察記録から，本種が肉食性もしくは雑食性であることが示唆され，食菌性もしくは食材性と考えられるナガクチキムシ科にはやはり属さないことを裏づけることとなった．以下にその理由の 3 点を示す．

1)　本種の幼虫は，肉食性で樹皮下を生活場所とするコメツキムシやアカハネムシなどの幼虫と生活状態が似ている．体の周りに空間をつくることもそのひとつである．

2)　1990 年 3 月 2 日の観察記録で示したように，同居させたカミキリムシの幼虫が外傷を受けて死んでいるのが観察され，その傷の位置は本種の幼虫によってつくられた空間に接していた．

3)　今回の研究では，10 頭中の 9 頭が飼育に失敗したわけであるが，それらの死骸を 2～3 頭程度しか確認できず，共喰いをした可能性が考えられた．

以上のことから，本種の幼虫が肉食性をもつ可能性はかなり高い．

謝　辞

本稿を執筆するにあたりいろいろとご指導，情報提供を賜った岩田隆太郎，林　長閑の両氏に厚くお礼申し上げる次第である．

引 用 文 献

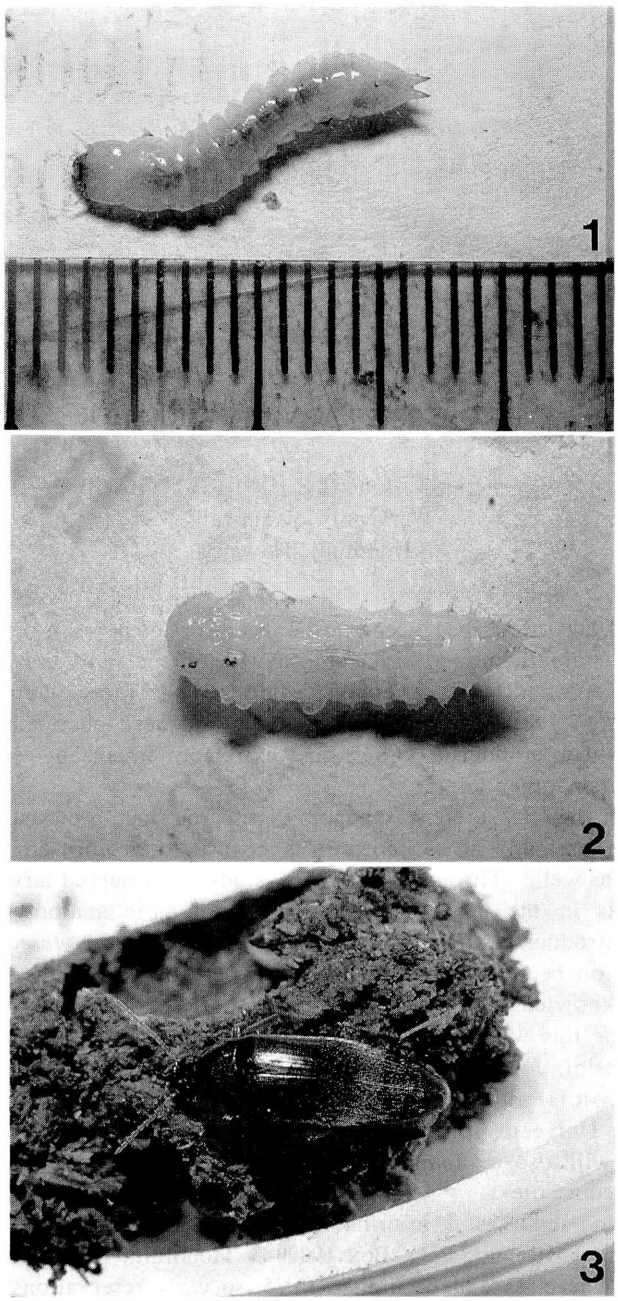
福田　彰，1959. ひめこめつきがたながくちき．日本幼虫図鑑，485. 北隆館，東京．

HAYASHI, N., 1975. On the larvae of Melandryidae (Coleoptera, Cucujoidea) and some related families occurring in Japan. *Kontyû, Tokyo*, **43**: 147–169.

林　長閑，1980. 枯木に生息するヒラタムシ上科（鞘翅目）の幼虫の同定手引き．日本私学教育研究所調査資料，(72): 95–147, pls. 1–53.

野村　鎮，1963. ナガクチキムシ科．原色昆虫大図鑑，**2**: 241–246, pls. 121–123. 北隆館，東京．

佐々治寛之，1985. ヒラタナガクチキムシ科．原色日本甲虫図鑑，358. 保育社，大阪．



Figs. 1–3. —— 1, 終齢幼虫; 2, 蛹; 3, 新成虫 (すべてほぼ等倍率, Fig. 1 の目盛は 1 mm).

お　知　ら　せ

下記のような講習の通知が来ています．参加をご希望の方は，最下段の宛名にお申し込み下さい．先着順に 25 名までだそうです．

BISHOP MUSEUM AND THE UNIVERSITY OF HAWAII

ANNOUNCE

COLEOPTERA LARVAE WORKSHOP

June 2–8, 1991
University of Hawaii
Honolulu, Hawaii

With over 350,000 described species, the beetles (Coleoptera) represent the most diverse group of animals known. Likewise, a wide diversity of life history strategies are displayed, among which the variety of feeding specializations of larvae are notable. Numerous species of beetle larvae consume living and dead plant material as well as stored grain and fiber products. Others are extremely important as natural enemies since they feed upon other insects.

As with most insects, present taxonomic research has been based largely upon adults. However, as many of us know, it is critical to acquire an understanding of the larval stages as well. Through "hands-on" study of preserved larvae, demonstrated collecting methods in the field, lecture overviews of basic anatomy and life history strategies, and introducing students to Volume 2 of *Immature Insects* (including the extensive section on beetle larvae), we intend to greatly widen the participants' understanding and knowledge of Coleoptera larvae.

Instructors for this week-long workshop will include Drs. Daniel K. YOUNG (University of Wisconsin), John LAWRENCE (CSIRO), Alfred F. NEWTON (Field Museum), and G. Allan SAMUELSON (Bishop Museum). Lecture and laboratory sessions will take place at the University of Hawaii at Manoa, Honolulu, where low cost dormitory accommodations will also be available. The course fee is expected to be $ 350, which will include the course text.

For registration forms and information, contact Tina KUKLENSKI, Department of Entomology, Bishop Museum, P. O. Box 19000-A, Honolulu, Hawaii 96817–0916. FAX (808) 841–8968. The class will be limited to 25, so early reservations are encouraged. Course credit may be available through the University of Hawaii.

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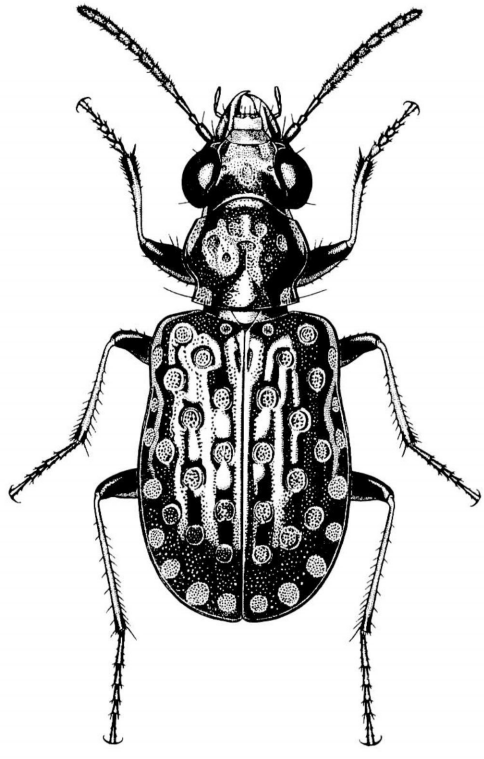

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FLEUTIAUX, E., 1942. Entomological results from the Swedish Expedition to Burma and British India. Coleoptera: Elateridae, recueillis par René MALAISE. *Ark. Zool.*, **33A** (18): 1–24.

黒沢良彦（KUROSAWA, Y.），1978. 伊豆諸島特産種ミクラミヤマクワガタの系統と分布．科博専報，(11): 141–153.

——— & H. KOBAYASHI, 1975. A new May-beetle of the genus *Fruhstorferia* KOLBE from Fermosa. *Bull. natn. Sci. Mus., Tokyo*, (A), 1: 213–215.

THOMSON, M. J., 1860. Essai d'une classification de la famille des Cérambycides et matériaux pour servir à une monographie de cette famille. XVI+396 pp., 3 pls. Soc. ent. France, Paris.

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