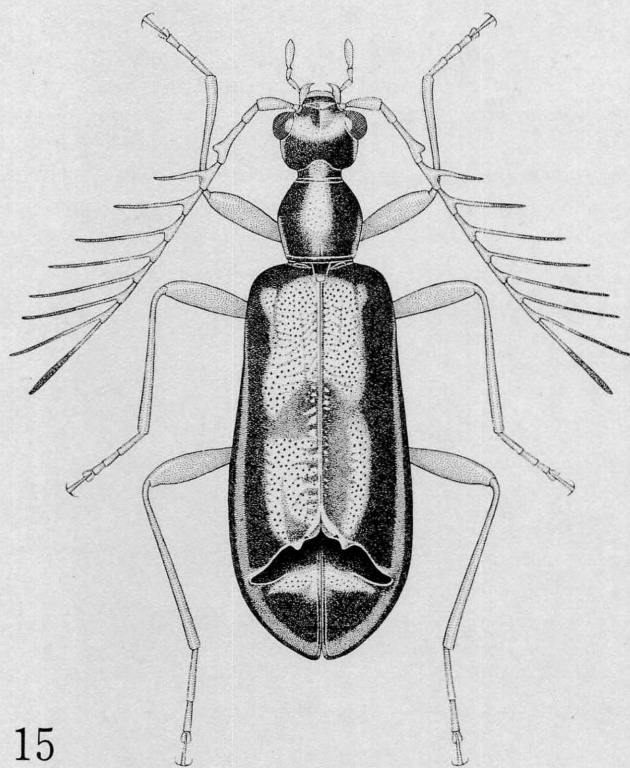


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Female Reproductive Organs of Cerambycid Beetles from Japan and the Neighbouring Areas

V. General Consideration¹⁾

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Abstract Phylogenetic aspect of the cerambycid groups excluding Lamiinae is discussed on the basis of their female genitalia. Out-group comparison method is applied for determining relative polarities of character states. It is suggested that the Lepturinae plus Cerambycinae can be discriminated into four groups, one of which comprising the O브리ini and Stenopterini is considered most derivative of the whole Cerambycidae. Some comments are made on the Lamiinae, whose female genitalia are rather uniform in spite of remarkable diversity of external features.

In the last chapter of this series of papers, I am going to take up the phylogenetic aspect of the cerambycid groups excluding Lamiinae as viewed from the results of my studies on their female genitalia. These groups are herewith regarded as being monophyletic in accordance with current taxonomic treatment based primarily upon external morphology. My study has clarified that with the exception of the vesperids, they have in common an apomorphic character state of the proctiger, which is either short or obliterated. I have excluded the Lamiinae from this study, because the subfamily is, though containing a large number of diverse species, a well defined group, in which basic plan of female genitalia does not show much variation. This does not mean that they are monotonous and useless for classification; the spermathecae and their glands, in particular, exhibit a great diversity, which is unrivaled by those of any other groups of the family. I will show it briefly in a later part of this chapter.

It must be noted here that I have no intention to set up a new phylogeny of the Cerambycidae. To do it is beyond the scope of this paper, since for doing it, all the other features, both imaginal and larval, than the female genitalia should be carefully scrutinized and taken into account, and since many foreign, especially tropical, species should be examined for comparative study. The Japanese Islands lie at the northern periphery of distribution of many groups of the Cerambycidae, and lack many critical tribes and genera that may be important for constructing phylogeny. In this paper, I am going to show what can be said or suggested from the comparative morphology of female genitalia, which has not been carefully studied before from taxonomic view-

1) This study is supported in part by the Grant-in-Aid No. 05740527 for Encouragement of Young Scientists from the Ministry of Education, Science and Culture, Japan.

point. Needless to say, I have taken external characteristics into account here and there, but they are auxiliary, and my discussion is primarily based on the female genitalia alone.

It is necessary to note that ovaries, oviduct and accessory glands are not examined in this study. They form important parts of female reproductive organs and may give some reliable information. This fault mainly arose from technical reasons. For examining these organs, it is necessary to secure fresh materials or alcoholic specimens, which are not easily available except for commoner species. Accomplishing the object of the present study requires examination of many rare species, at least a representative species from each genus currently recognized, which can be obtained or borrowed only as dried specimens generally useless for a detailed study of the organs in question.

It is also necessary to make some comments on possible relation between the structure of the 9th abdominal segment and ovipositing behaviour. It has been known that most lamiine species make preparation for oviposition by chewing into barks of trees or grasses. Such a behaviour may affect modification of abdominal segments, though nothing has been known about relationship between the ovipositing behaviour and the morphology of the 9th abdominal segment.

Such an ovipositing preparation has not been known in all the cerambycoid groups other than the Lamiinae. Though chewing before oviposition was reported on *Megasemum quadricostulatum* (Spondylinae) and *Massicus raddei* (Cerambycinae), KOJIMA (1960) threw strong doubt on these observations and no similar report has been made since then. Apart from preparation for oviposition, CHEREPANOV (1979, p. 24) recorded a peculiar behaviour observed in the Oabriini and Purpuricenini that the haired emargination of the 4th abdominal sternite (in the former) or the long hairs on the 8th sternite (in the latter) were used for concealing laid eggs with fine detritus of tree barks. In these tribes, the ovipositor has undergone considerable modification as described before, but it is difficult to determine whether this modification is a result of behavioral adaptation or the strange behaviour is achieved as a result of shortening of the ovipositor. At present, I am inclined to consider that the shortening of the ovipositor took place in the first place, since modification of hairs necessary for egg-concealing habit seems to be completed much easier than the remarkable modification of ovipositor.

Ovipositing behaviour of cerambycoid beetles other than lamiines is fundamentally similar to one another in that the eggs are laid in fissures of tree barks or narrow spaces beneath loose barks or in the soil by inserting the ovipositor. This similarity seems to deny the possibility that modification of the 9th abdominal segment as seen in cerambycids has always proceeded in accordance with behavioral changes. For instance, two species of *Purpuricen*, *P. temmincki* and *P. spectabilis*, have very similar 9th abdominal segment in the female, and yet, the former lays its eggs on thick stout bamboos, whereas the latter does so on aceraceous or lauraceous trees. These plants are utterly different from each other in the texture, hardness and other details.

In view of these evidences, I evaluated various characters of the female genitalia

on the premise that they have little modified as a result of adaptation to ovipositing behaviour, at least in most groups taken up in the present study.

Terminology

The terminology adopted in this paper was explained in the Material and Method section of my 1989 paper (SAITO, 1989 a, pp. 68–69, figs. 1–2). I have mainly followed HUTCHESON (1980) in naming various parts of female genitalia, since his naming seems concise and clear-cut, and is convenient for description. It is, however, necessary to correlate his terms with those of fundamental morphology, as will be given below.

This paper	Fundamental morphology
Paraproct	Ninth sternite
Paraproct baculum	Baculum of 9th sternite
Valvifer	Basal part of the appendage of 9th sternite
Coxite	Main part of the appendage of 9th sternite
Coxite lobe	Divided apical part of the appendage of 9th sternite
Stylus	Articulated apical appendage of 9th sternite
Dorsum of paraproct to coxite	Ninth tergite
Dorsal baculum	Baculum of 9th tergite
Proctiger	Tenth tergite
Proctiger baculum	Baculum of 10th tergite

Analysis of Characters

To determine relative polarities of the character states, out-group comparison method introduced by WATROUS and WHEELER (1981) was adopted. This was, however, not very successful, since no coleopteran group directly related to the Chrysomeloidea has been found. I therefore sought the outgroup in the Clavicornia and Heteromera, randomly picking up 10 species (2 Cucujidae, 1 Erotylidae, 4 Tenebrionidae, 1 Oedemeridae and 2 Pyrochroidae) and examining their female genitalia. They are much diversified, but invariably have very long proctiger. It is therefore probable that the shortened proctiger in the Cerambycidae and its allies except Vesperidae represents an autapomorphy.

Since the Chrysomelidae is an undubitable sister-group of the Cerambycidae, representative species of its subfamilies were examined for their female genitalia. They were roughly discriminated into two groups. One of them, consisting of Orsodacninae, Zeugophorinae and Megalopodinae, has a long paraproct which is tubular and wholly membranous, and much reduced styli. Besides, the proctiger is long in *Orsodacne*, occupying more than half the length of ovipositor. In all the other subfamilies including Donaciinae and Synetinae, the paraproct is either much reduced or obliterated, and the coxite is heavily sclerotized and usually devoid of styli. This must be an

Table 1. Summary of polarities of the characters adopted. The letter P means plesiomorphic, and A apomorphic; transformation series of apomorphic states are indicated by numerals.

1. Eighth segment (Fig. 225)	1, sclerotized and separated into tergite and sternite(P); 2, rather membranous, tergite fused with sternite(A)
2. Paraproct (Fig. 226)	1, long(P); 2, moderate(A1); 3, short(A2); 4, very short(A3); 5, extremely short without baculum(A4)
3. Components of paraproct	1, distinct(P); 2, indistinct(A)
4. Paraproct baculum (Fig. 226)	1, one pair (P); 2, two pairs(A)
5. Stylus (Fig. 227)	1, articulated to the apex of each coxite lobe (P); 2, translocated to the lateral or dorsal face of coxite lobe, or reduced (A)
6. Ninth tergite (Fig. 228)	1, sclerotized (P); 2, membranous with baculi (dorsal baculi present)(A1); 3, membranous, short and without baculum(A2)
7. Proctiger (Fig. 229)	1, long(P); 2, moderate(A1); 3, short (A2); 4, absent(A3)
8. Proctiger baculum (Fig. 230)	1, one pair(P); 2, two pairs(A)
9. Vagina (Fig. 231)	1, membranous(P); 2, partially sclerotized(A)
10. Vaginal plates (Fig. 232)	1, absent(P); 2, membranous(A1); 3, partially sclerotized(A2); 4, almost wholly sclerotized(A3)
11. Bursa copulatrix (Fig. 233)	1, membranous (P); 2, partially sclerotized, or 2', with an impression at the basal part(A)
12. Spermatheca (Fig. 234)	1, saccate(P); 2, sclerotized and straight capsular(A1); 3, sclerotized and weakly bent capsular(A2); 4, sclerotized and strongly bent capsular(A3)
13. Spermathecal duct (Fig. 235)	1, short (P); 2, long and straight(A1); 3, long and sinuate(A2); 4, long, thin and coiled(A3)
14. Sclerotization of spermathecal duct (Fig. 235)	1, not sclerotized (P); 2, heavily sclerotized and forming a part of the spermatheca (A)

apomorphic state as is seen in certain cerambycine groups. At any rate, the two major groups of the Chrysomelidae do not seem to be closely related, and may represent two different branches in the phylogeny.

The Bruchidae, sometimes included in the Chrysomelidae, has peculiar female genitalia, so far as concerned with the species examined, *Bruchidius dorsalis*. The proctiger is long and bears a pair of very long baculi extending anteriad and arcuately diverging; the stylus is extremely small and articulated to the lateral face of the coxite lobe. If these peculiarities are characteristic of the family, the Bruchidae cannot be regarded as a sister-group of the Chrysomelidae or Cerambycidae.

Thus, we have to determine polarities of the character states mostly in the Cerambycidae itself. In the following lines, the characters adopted in the descriptions will be scrutinized one by one (Table 1). A character state matrix based on the characters whose polarities were determined by these scrutinies is as shown in Table 2.

1) Eighth abdominal segment (Fig. 225). In most species of the Cerambycidae, the 8th abdominal segment is only lightly sclerotized and becomes membranous, and the tergite is fused with the sternite. This is considered apomorphic. Plesiomorphic character state is the heavy sclerotization of the segment, which remains distinctly separated into the tergite and sternite. This condition is sporadically found in *Pa-*

Table 2. Character state matrix. Question marks indicate unconfirmed data.
Scientific names with asterisks were recently changed, and are different
from those given in the descriptive parts of this paper. Arrangement
of tribes follows that adopted in the Conclusive Remarks.

Species / No. of character	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Vesperidae														
Philini														
<i>Philus pallelescens</i>	2	1	2	1	1	2	1	2	1	1	1	1	1	1
<i>Mantitheus pekinensis</i>	2	1	2	1	1	2	1	2	1	1	1	1	1	1
Vesperini														
<i>Vesperus strepens</i>	2	1	2	1	1	2	1	2	1	1	1	1	1	1
Disteniidae														
Disteniini														
<i>Distenia gracilis</i>	2	2	2	1	1	2	2	1	1	2	1	4	1	2
<i>Tengius ohkuboi</i>	2	3	2	1	1	2	2	1	1	2	1	4	1	2
Cerambycidae														
Parandrinae														
<i>Parandra formosana</i>	1	1	1	1	2	2	4	1	1	2	1	4	1	1
Prioninae														
Prionini														
<i>Prionus insularis</i>	2	2	2	1	2	1	2	1	1	2	1	4	2	1
<i>Megopsis formosana</i>	2	2	2	1	2	2	2	1	1	2	1	3	1	1
<i>Aegosoma sinicum</i>	1	1	2	1	2	3	2	1	1	2	1	3	1	1
Apatophysinae														
<i>Apatophysis barbara</i>	2	1	2	1	2	2	2	1	1	2	1	3	1	1
Spondyliinae														
Spondyliini														
<i>Spondylis buprestoides</i>	2	2	2	1	2	2	2	1	1	2	1	4	3	1
Asemmini														
<i>Tetropium castaneum</i>	2	2	2	1	2	2	2	1	1	2	1	4	1	1
<i>Nothorhina punctata</i>	2	2	2	1	1	2	2	1	1	2	1	4	1	1
<i>Asemum amurense</i>	2	2	2	1	1	2	2	1	1	2	1	4	3	1
<i>Arhopalus coreanus</i>	2	2	2	1	1	2	2	1	1	2	1	4	2	1
<i>Megasemum quadricostulatum</i>	2	1	2	1	1	2	2	1	1	2	1	4	3	1
<i>Cephalallus unicolor</i>	2	1	2	1	1	2	2	1	1	2	1	4	3	1
Atimiini														
<i>Atimia okayamensis</i>	2	3	2	1	1	2	2	1	1	2	1	4	3	1
Lepturinae														
Rhagiini														
<i>Encyclops olivacea</i>	2	3	2	1	1	2	2	1	1	2	1	4	2	1
<i>Rhagium japonicum</i>	2	2	2	1	1	2	2	1	1	2	1	4	2	1
<i>Enoploides bicolor</i>	2	3	2	1	1	2	2	1	1	2	1	4	1	1
<i>Sachalinobia koltzei*</i>	2	2	2	1	1	2	2	1	1	2	1	4	2	1
<i>Stenocorus coeruleipennis</i>	2	2	2	1	1	2	2	1	1	2	1	4	1	1
<i>Toxotinus reini</i>	2	5	2	1	2	3	2	1	1	2	1	3	2	1
<i>Pachyta lamed</i>	2	2	2	1	1	2	2	1	1	2	1	4	3	1
<i>Brachyta punctata</i>	2	3	2	1	2	2	2	1	1	2	1	3	1	1
<i>Evodinus borealis</i>	2	3	2	1	2	2	2	1	1	2	1	4	1	1
<i>Gaurotes (Paragaurotes) doris</i>	2	3	2	1	1	2	2	1	1	2	1	4	2	1
<i>G. (Carillia) atripennis</i>	2	3	2	1	1	2	2	1	1	2	1	4	2	1
<i>Lemura nishimurai</i>	2	3	2	1	1	2	2	1	1	2	1	4	2	1
<i>Dinoptera minuta</i>	2	3	2	1	1	2	2	1	1	3	1	4	2	1
<i>Acmaeops septentrionis</i>	2	3	2	1	1	2	2	1	1	3	1	4	1	1
<i>Macropidonia ruficollis</i>	2	3	2	1	1	2	2	1	1	2	1	4	1	1
<i>Pseudosieversia japonica*</i>	2	3	2	1	1	2	2	1	1	2	1	3	1	1
<i>Pidonia (Pidonia) obscurior</i>	2	3	2	1	2	2	2	1	1	2	1	4	2	1
<i>P. (Cryptopidonia) insuturata</i>	2	3	2	1	1	2	2	1	1	2	1	4	2	1
<i>P. (C.) oyamae</i>	2	3	2	1	1	2	2	1	1	2	1	4	1	1
<i>P. (Mumon) aegrota</i>	2	3	2	1	1	2	2	1	1	2	1	4	2	1
<i>P. (Omphalodera) testacea</i>	2	3	2	1	1	2	2	1	1	2	1	4	3	1
Lepturini														
<i>Caraphia lepturoides</i>	2	3	2	1	1	2	2	1	1	2	1	4	2	1
<i>Alosterna chalybeella*</i>	2	2	2	1	2	2	2	1	1	4	1	4	1	1
<i>A. tabacicolor</i>	2	2	2	1	2	2	2	1	1	4	1	4	1	1

Table 2 (Continued).

Species / No. of character	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<i>Pseudalosterna misella</i>	2	2	2	1	2	2	2	1	1	4	1	4	1	1
<i>Ohbayashia nigromarginata</i>	2	2	2	1	1	2	2	1	1	2	1	3	1	1
<i>Pyrrhona laeticolor</i>	2	2	2	1	1	2	2	1	1	2	1	3	2	1
<i>Formosopyrrhona satoi</i>	2	1	2	1	1	2	2	1	1	2	1	2	3	1
<i>Corennys sericata</i>	2	2	2	1	2	2	2	1	1	2	1	4	3	1
<i>Pachypidonia bodemeyeri</i>	2	2	2	1	2	2	2	1	1	2	1	4	1	1
<i>Nivellia sanguinosa</i>	2	2	2	1	1	2	2	1	1	2	1	4	1	1
<i>Judolia japonica</i>	2	2	2	1	1	2	2	1	1	3	1	4	1	1
<i>Pachytodes cometes*</i>	2	2	2	1	1	2	2	1	1	2	1	4	2	1
<i>Judolidia bungi</i>	2	2	2	1	1	2	2	1	2	2	1	4	1	1
<i>Kanekoa azumensis</i>	2	2	2	1	1	2	2	1	1	2	1	4	2	1
<i>Anoploderomorpha monticola</i>	2	2	2	1	1	2	2	1	2	2	1	4	1	1
<i>Brachyleptura pyrrha</i>	2	1	2	1	1	2	2	1	1	2	1	4	2	1
<i>Anastrangalia scotodes</i>	2	1	2	1	1	2	2	1	2	2	1	4	1	1
<i>Corymbia succedanea</i>	2	1	2	1	1	2	2	1	2	2	1	3	1	1
<i>Konoa granulata</i>	2	1	2	1	2	2	2	1	1	2	1	4	3	1
<i>Leptura mimica</i>	2	2	2	1	1	2	2	1	1	2	1	4	1	1
<i>L. ochraceofasciata</i>	2	2	2	1	1	2	2	1	2	2	1	4	4	1
<i>Nakanea vicaria*</i>	2	1	2	1	1	2	2	1	1	2	1	4	3	1
<i>Stictoleptura variicornis*</i>	2	1	2	1	1	2	2	1	1	2	1	4	3	1
<i>Pedostrangalia femoralis*</i>	2	2	2	1	1	2	2	1	1	3	1	4	3	1
<i>Macroleptura regalis*</i>	2	1	2	1	1	2	2	1	1	2	1	4	2	1
<i>Oedechnema gebleri*</i>	2	1	2	1	1	2	2	1	1	2	1	4	3	1
<i>Eustrangalia distenioides*</i>	2	2	2	1	1	2	2	1	1	2	1	4	2	1
<i>Japanostrangalia dentatipennis</i>	2	2	2	1	1	2	2	1	1	2	1	4	3	1
<i>Strangalomorpha tenuis</i>	2	2	2	1	1	2	2	1	1	2	1	4	3	1
<i>Parastrangalis lesnei</i>	2	2	2	1	1	2	2	1	1	2	1	4	3	1
<i>P. shikokensis*</i>	2	2	2	1	1	2	2	1	2	2	1	4	3	1
<i>P. nymphula*</i>	2	2	2	1	1	2	2	1	1	2	1	4	2	1
<i>Idiostrangalia contracta*</i>	2	2	2	1	1	2	2	1	1	2	1	4	3	1
<i>Strangalia attenuata</i>	2	2	2	1	1	2	2	1	1	2	1	4	3	1
<i>Mimostrangalia kurosonensis</i>	2	1	2	1	1	2	2	1	1	3	1	4	3	1
Necydalini														1
<i>Necydalis harmandi</i>	2	1	2	1	1	2	2	1	1	2	1	3	1	1
Cerambycinae														
Methiini														
<i>Xystrocera globosa</i>	2	2	2	1	1	2	2	1	1	2	1	2	1	1
<i>Leptoxenus ibidiiiformis</i>	2	2	2	1	1	2	2	1	1	2	1	3	3	1
Thraniini														
<i>Thranus multinodeatus</i>	2	2	2	1	2	2	2	1	1	2	1	4	1	1
Callichromini														
<i>Aromia moschata</i>	2	2	2	1	1	2	2	1	1	2	1	3	1	1
<i>Chloridolum (Chloridolum) lochooanum</i>	2	2	2	1	1	2	2	1	1	2	2'	4	3	1
<i>C. (C.) thaliodes</i>	2	2	2	1	1	2	2	1	1	2	2'	4	3	1
<i>C. (Leontium) viride</i>	2	2	2	1	1	2	2	1	1	2	2'	4	3	1
Callidiini														
<i>Ropalopus signaticollis</i>	2	2	2	1	1	2	4	-	1	4	1	3	2	1
<i>Callidium violaceum</i>	2	1	2	1	1	2	3	1	1	2	1	3	1	1
<i>Callidiellum rufipenne</i>	2	1	2	1	1	2	2	1	1	2	1	3	4	1
<i>Semanotus japonicus</i>	2	1	2	1	1	2	3	1	1	2	1	3	1	1
<i>Phymatodes (Phymatodes) testaceus</i>	2	2	2	1	1	2	2	1	1	2	1	3	1	1
<i>P. (Phymatodellus) vandykei</i>	2	2	2	1	1	2	4	-	1	3	1	3	1	1
<i>P. (Poecilium) maaki</i>	2	2	2	1	1	2	4	-	1	3	1	3	1	1
<i>P. (Paraphymatodes) albicinctus</i>	2	2	2	1	1	2	4	-	1	3	1	3	1	1
Cleomenini														
<i>Kurarua rhopalophoroides</i>	2	2	2	1	1	2	2	1	1	0	1	4	3	1
<i>Artimpaza setigera</i>	2	2	2	1	1	2	3	1	1	2	1	4	3	1
Hesperophanini														
<i>Gnatholea eburifera</i>	2	1	2	2	2	2	2	1	1	4	1	3	1	1
<i>Stromatium longicorne</i>	2	2	2	1	1	2	2	1	1	4	1	4	1	1
<i>Trichoferus campestris</i>	2	2	2	1	1	2	2	1	1	4	1	3	2	1

Table 2 (Continued).

Species / No. of character	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Cerambycini														
<i>Massicus raddei</i>	2	2	2	1	1	2	2	1	1	2	1	4	1	1
<i>Aeolesthes chrysothrix</i>	2	2	2	1	1	2	2	1	1	4	1	4	2	1
<i>Dymasius hirayamai</i>	2	2	2	1	1	2	2	1	1	4	1	4	3	1
Phoracanthini														
<i>Allotraeus (Allotraeus) sphaerioninus</i>	2	2	2	1	1	2	2	1	1	4	1	4	2	1
<i>A. (Nysina) insularis</i>	2	2	2	1	1	2	2	1	1	4	1	4	2	1
Callidiopini														
<i>Curtomerus flavus</i>	2	2	2	1	1	2	2	1	1	2	1	3	3	1
<i>Stenygrium quadrinotatum</i>	2	2	2	1	1	2	2	1	1	4	1	4	2	1
<i>Stenodryas clavigera</i>	2	3	2	1	1	2	4	1	1	4	1	4	3	1
<i>Ceresium sinicum</i>	2	3	2	1	1	2	2	1	1	4	1	4	2	1
<i>Parasalpinia kojimai</i>	2	2	2	1	1	2	3	1	1	4	1	3	3	1
Molorchini														
<i>Leptepania japonica</i>	2	2	2	1	1	2	4	-	1	4	1	2	3	1
<i>Epania shikokensis</i>	2	2	2	1	1	2	4	-	1	4	1	4	3	1
<i>Molorchoeptus mizoguchii</i>	2	2	2	1	1	2	4	-	1	4	1	4	1	1
<i>Molorchus pinivorus</i>	2	2	2	1	1	2	4	-	1	4	1	4	2	1
<i>Glaphyra nitida</i>	2	2	2	1	1	2	4	-	1	4	2	4	3	1
Rosalini														
<i>Rosalia batesi</i>	2	2	2	1	1	2	2	1	1	4	1	4	3	1
Clytini														
<i>Xylotrechus cuneipennis</i>	2	1	2	1	1	2	4	-	1	4	1	4	3	1
<i>X. rusticus</i>	2	1	2	1	1	2	4	-	1	4	1	4	3	1
<i>Perissus kiusiuensis</i>	2	2	2	1	1	2	4	-	1	4	1	4	4	1
<i>Cyrtoclytus caproides</i>	2	2	2	1	1	2	4	-	1	4	1	4	3	1
<i>Brachyclytus singularis</i>	2	2	2	1	1	2	4	-	1	4	1	4	3	1
<i>Clytus melaenus</i>	2	2	2	1	1	2	4	-	1	4	1	4	4	1
<i>Kazuoclytus lautoides</i>	2	2	2	1	1	2	4	-	1	4	1	4	4	1
<i>Plagionotus pulcher</i>	2	1	2	1	1	2	3	1	1	4	1	4	3	1
<i>Rhaphuma xenisca</i>	2	1	2	1	1	2	3	1	1	4	1	4	3	1
<i>R. diminuta</i>	2	1	2	1	1	2	3	1	1	4	1	4	3	1
<i>Chlorophorus japonicus</i>	2	1	2	1	1	2	3	1	1	4	1	4	3	1
<i>Grammoglyphus notabilis</i>	2	1	2	1	1	2	3	1	1	4	1	4	3	1
<i>Epiclytus yokoyamai</i>	2	3	2	1	1	2	4	-	1	4	1	4	1	1
<i>Amamicyltus subnitidus</i>	2	2	2	1	1	2	4	-	1	4	1	4	4	1
<i>Hayashicyltus acutivittis</i>	2	2	2	1	1	2	3	1	1	4	1	4	3	1
<i>Demonax transilis</i>	2	2	2	1	1	2	3	1	1	4	1	4	3	1
Anaglyptini														
<i>Paraclytus excultus</i>	2	2	2	1	1	2	3	1	1	4	1	4	2	1
<i>Anaglyptus (Anaglyptus) matsushitai</i>	2	2	2	1	1	2	2	1	1	4	2	4	1	1
<i>A. (Akajimatora) bellus</i>	2	2	2	1	1	2	3	1	1	4	1	4	1	1
<i>Oligoenoplus rosti</i>	2	2	2	1	1	2	3	1	1	4	1	4	1	1
<i>Hirticyltus comosus</i>	2	2	2	1	1	2	3	1	1	4	1	4	1	1
Pyrestini														
<i>Pyrestes nipponicus</i>	1	4	2	1	1	2	4	-	1	2	1	4	1	1
Purpuricenini														
<i>Purpuricenius spectabilis</i>	1	4	2	1	1	2	2	1	1	4	1	4	3	1
<i>P. lituratus</i>	1	4	2	1	1	2	2	1	1	4	1	4	3	1
<i>Amarysius sanguinipennis</i>	1	4	2	1	1	2	2	1	1	4	1	4	3	1
Obrini														
<i>Comusia testacea</i>	1	5	2	1	2	3	4	-	1	2	1	2	1	1
<i>Stenomalus cleroides</i>	1	5	2	-	1	3	4	-	1	2	1	4	3	1
<i>Longipalpus dilatipennis</i>	1	5	2	-	1	3	4	-	1	2	1	4	3	1
<i>Pseudiphra elegans</i>	1	5	2	-	1	3	4	-	2	2	1	4	3	1
<i>Obrium nakanei</i>	1	5	2	-	1	3	4	-	1	2	1	4	4	1
<i>O. brevicorne</i>	1	5	2	-	1	3	4	-	1	2	1	4	3	1
<i>O. japonicum</i>	1	5	2	-	1	3	4	-	1	2	1	4	4	1
Stenopterini														
<i>Stenopterus flavicornis</i>	1	5	2	-	1	3	4	-	1	2	1	4	4	1
<i>Callimellum abdominale</i>	1	5	2	-	1	3	4	-	1	?	1	4	4	1
<i>Merionoeda (Ocytasia) formosana</i>	1	5	2	-	1	3	4	-	1	2	1	4	4	1
<i>M. (Macromolorchus) hirsuta</i>	1	5	2	-	2	3	4	-	?	?	1	4	3	1

randra, *Aegosoma*, Obriini, Stenopterini, Purpuricerini and *Pyrestes*.

2) Ninth sternite (Fig. 226). The paraproct of the 9th sternite is usually long and bears a pair of baculi, but is extremely shortened and loses baculi in Obriini, some Stenopterini, Purpuricenini and *Pyrestes*, and bears two pairs of baculi only in *Gnatholea eburifera*. The latter two states are deemed apomorphic and seem to have developed independently.

3) Appendages of ninth sternite.

(a) Valvifer and coxite. The appendage of the 9th sternite excluding apical lobes is called coxite if the baculi are continuous, but if the baculi are divided into the basal and apical portions, the basal part of the appendage bearing the basal portions of baculi is called valvifer and is distinguished from the coxite. Both the states are found as a parallelism in all the subfamilies except Lamiinae, and their polarities cannot be determined.

(b) Coxite lobes. The bilobed apical part of the appendage of the 9th sternite is called coxite lobes. They are usually cylindrical, and are variable in the length, breadth and the degree of sclerotization. Such variants occur in all the cerambycid groups and is deemed to be a parallelism. Their polarities cannot be determined.

(c) Stylus (Fig. 227). The stylus is an elongate apical appendage usually articulated to the apex of each coxite lobe. It is translocated to the lateral face of the coxite lobe in the following groups: *Parandra*, Prioninae, *Apatophysis*, *Spondylis*, *Tetropium*, *Toxotinus*, *Brachyta*, *Evodinus*, *Pidonia* (*Pidonia*), *Alosterna*, *Pseudalosterna*, *Pachypidonia*, *Corennys*, *Konoa*, *Gnatholea*, *Comusia*, *Merionoeda* (*Macromolorchus*) and *Thranis*. It is particularly small in the three genera, *Aegosoma*, *Pachypidonia* and *Corennys*. The outward translocation and reduction of the stylus seem apomorphic, and in *Parandra*, *Apatophysis* and *Spondylis*, this state is no doubt brought about for protecting styli from the heavy sclerotization of the coxite.

4) Ninth tergite (Fig. 228). In the cerambycid groups, the 9th tergite becomes elongated by the shortening of the proctiger and bears a pair of baculi, called dorsal baculi. This apomorphic state is common to almost all the cerambycids, but in the Obriini and Stenopterini, the baculi become disappeared by exceptional shortening of the 9th segment. It is considered that the 9th tergite is plesiomorphic in a sclerotized state and apomorphic in a membranous state, and that the absence of baculi on the membranous 9th tergite is more apomorphic than their presence.

5) Tenth tergite (Figs. 229–230). The tenth tergite, or proctiger, is short in all the cerambycoids other than the Vesperidae, and is obliterated in some Callidiopini, Molorchini, some Clytini, Obriini and Stenopterini. It is usually very long in other coleopteran families, so that the vesperid state must be plesiomorphic and the character states in the other cerambycoids apomorphic.

Though plesiomorphic in the non-reduction of the proctiger, the Vesperidae is peculiar in bearing two pair of proctiger baculi, which is considered apomorphic.

6) Vagina (Figs. 231). The vagina is a tubular organ sometimes dilated at the basal part. In certain species of the Lepturinae, this dilatation takes place in com-

compensation of the reduction of bursa copulatrix and is considered to play its role. In some others, however, dilatation is developed without regard to the size of bursa copulatrix. It is, therefore, difficult to determine the polarity of this character state. On the other hand, partial sclerotization of the vagina found in some Lepturini is considered apomorphic.

7) Vaginal plates (Figs. 232). These seem to be the apparatuses to which attach the muscles connecting the vagina with the base of the 9th segment. So far as I am aware, the vaginal plates exist only in the cerambycoids exclusive of the Vesperidae, and its presence is an apomorphic character state. It varies in shape and sclerotization, from filamentous to broadly lamellar and from membranous to heavily sclerotized. Sometimes, the two sclerotized plates are fused at the bases and form the shape of V or U. This is considered apomorphic.

8) Bursa copulatrix (Fig. 233). The bursa copulatrix varies greatly in both size and shape. It is sometimes large or very large, widely ovoid or tubular, and sometimes small or even obliterated. Similar variations are observed in other families of the Coleoptera, and it is difficult to determine their polarities. However, partial sclerotization or the presence of an impression found in *Glaphyra*, *Chloridolum* and *Anaglyptus* may be apomorphic.

9) Spermatheca (Fig. 234). The saccate state of the spermatheca in the Vesperidae is considered plesiomorphic, the straight capsular state found in *Formosopyrrhona*, *Xystrocera*, *Leptepania* and *Comusia* seems to follow it, the bent capsular state is apomorphic. Heavy sclerotization of the capsule is also considered apomorphic.

10) Spermathecal gland. The spermathecal gland exists in almost all the cerambycoids, but varies in shape and position of attachment without rule.

11) Spermathecal duct (Fig. 235). The short and thick state of the spermathecal duct is the most plesiomorphic, followed by the slender straight state. It is particularly long in *Leptura ochraceofasciata*. The most apomorphic state is the multi-coiled state as seen in the Stenopterini and Clytini.

The spermathecal duct shows a unique modification in the Disteniidae. It coils in an intricate manner, becomes heavily sclerotized, and forms a part of the spermatheca. No membranous duct remains between the spermatheca and the bursa copulatrix. This is no doubt apomorphic.

Conclusive Remarks

As was demonstrated in the preceding section with the accompanying character state matrix, it is impossible to set up a convincing phylogeny of the Cerambycidae in a strict sense on the basis of female genitalia. It is true that the isolated status of the Vesperidae and Disteniidae is confirmed by my study of their female genitalia, and that phylogenetic relationships between the Parandrinae, Prioninae, Apatophysinae and Spondyliinae are clarified to a considerable extent, but relationships between tribes and genera in the subfamilies Lepturinae and Cerambycinae and affinities of these sub-

families themselves cannot be determined, with some important exceptions of tribal affinities. The following is a summary of these results.

Vesperidae — This family is regarded as a monophyletic group because of the presence of such an apomorphic character as the existence of two pair of proctiger baculi (8-2). On the other hand, it retains the most primitive characters in the cerambycoid complex, since it shows such a plesiomorphy as very long proctiger (7-1) and saccate membraneous spermatheca (12-1).

Disteniidae — This family is also considered monophyletic, because of apomorphy of the spermathecal duct, which is heavily sclerotized, intricately coiled and not separable from the heavily sclerotized spermatheca (14-2). Its affinity to other groups is not clear, because of the absence of appreciable symplesiomorphy.

Parandrinae — The parandrines are apomorphic in the absence of proctiger (7-4) and reduction of styli which are situated on the dorsal side of coxite lobes (5-2), though they lack in autapomorphy. On the other hand, they are peculiar in possessing plesiomorphic character state of paraproct, which is clearly distinguished into tergite and sternite at its anterior part (3-1).

Prioninae and Apatophysinae — In *Aegosoma* of the Prioninae, the tergite of the 9th abdominal segment is in an apomorphic state by being membraneous and lacking baculi (6-3). This character state is, however, not autapomorphic, since it is found in certain groups of other subfamilies as parallelism. In this particular case, the modification seems to have taken place as a result of functional degradation of the 9th segment, since the 8th segment is prolonged and takes the role of ovipositor.

The Apatophysinae possesses the same apomorphic character as the Prioninae in the position of the styli, which move to the lateral faces of the coxite lobes (5-2). This character state is, however, not autapomorphic, so that it is difficult to say from the study of the female genitalia alone that these subfamilies are really monophyletic.

Spondyliinae — In this subfamily, only the genera *Spondylis* and *Tetropium* show an apomorphy same as the Prioninae in the lateral position of the styli (5-2). In all the others, the female genitalia are basically similar to those of many genera belonging to the Lepturinae and Cerambycinae and are different from those of the Prioninae.

Lepturinae and Cerambycinae — The female genitalia are basically identical between these two subfamilies, hence they cannot be clearly distinguished from each other by these characteristics alone. Based on the character state matrix, however, four groups might be recognized in them as given below.

a) Group I (Rhagiini, Lepturini, Necydalini, Methiini, Thraniini, Callichromini, Callidiini and Cleomenini). All these tribes do not show any autapomorphy in their female genitalic characters, with the exception of the following features derived from parallelism: very short paraproct and 9th tergite lacking in their baculi (2-5, 6-3) of *Toxotinus*, and almost fully sclerotized vaginal plates (10-4) in *Alosterna*, *Pseudalosterna* and *Ropalopus*. This group is, therefore, not natural but a mere assemblage of the tribes which do not show any characteristics indicative of their relationships.

b) Group II (Hesperophanini, Cerambycini, Phoracanthini, Callidiopini, Mo-

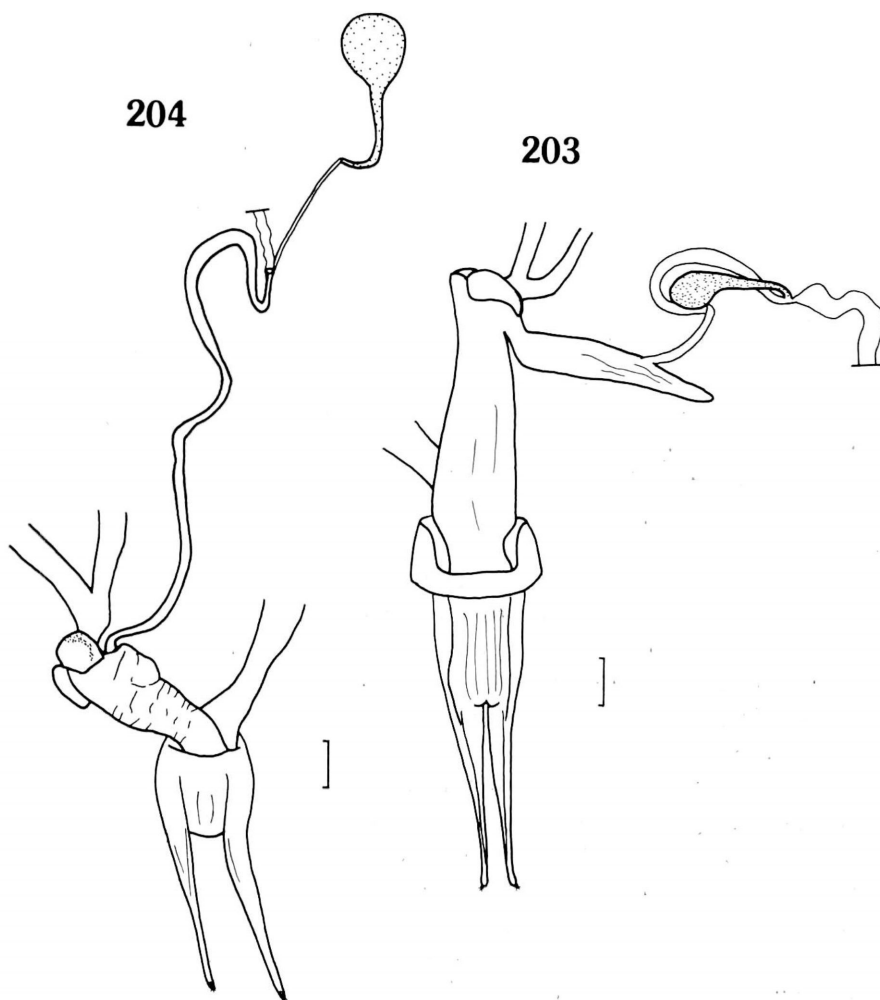
lorchini, Rosaliini, Clytini and Anaglyptini). These tribes show an apomorphic character state of almost wholly sclerotized vaginal plates (10-4), with the exception of *Massicus* and *Curtomerus*, in which the vaginal plates remain in a plesiomorphic state. All the species examined of the Molorchini and many of the Clytini possess an apomorphic character state of the proctiger (7-4), which becomes disappeared, but the same character state is also found in such various groups as *Parandra*, some Calidiini, Pyrestini, Obriini and Stenopterini, so that it cannot be regarded as a clear indication of monophyly of the two tribes in question.

c) Group III (Pyrestini and Purpuricenini). These tribes possess an apomorphic character state of the paraproct (2-4), that is, it is extremely short but bears a pair of baculi. This character state is less apomorphic than in the members of Group IV, but is autapomorphic among the cerambycoid groups. It is therefore considered that the two tribes have a monophyletic origin. Incidentally, heavily sclerotized vaginal plates (10-4) possessed by the Purpuricenini may have resulted from a parallelism.

d) Group IV (Obriini and Stenopterini). The Obriini and Stenopterini show an apomorphic character state of the paraproct and the 9th tergite, which are extremely short and devoid of baculi (2-5, 6-3), and must have been derived from a monophyletic origin. The same apomorphic character states are found in the lepturine genus *Toxotinus*, but the phenomenon must have resulted from a parallelism and cannot be regarded as an indication of its direct relationship with the obriines or stenopterines. Many of the members of these tribes also possess such apomorphic characters as the absence of proctiger (7-4) and coiled spermathecal duct (13-4). All of these suggest that they are the most derivative groups of the Cerambycidae. On the other hand, no reliable feature is detected in the female genitalia to discriminate one from the other.

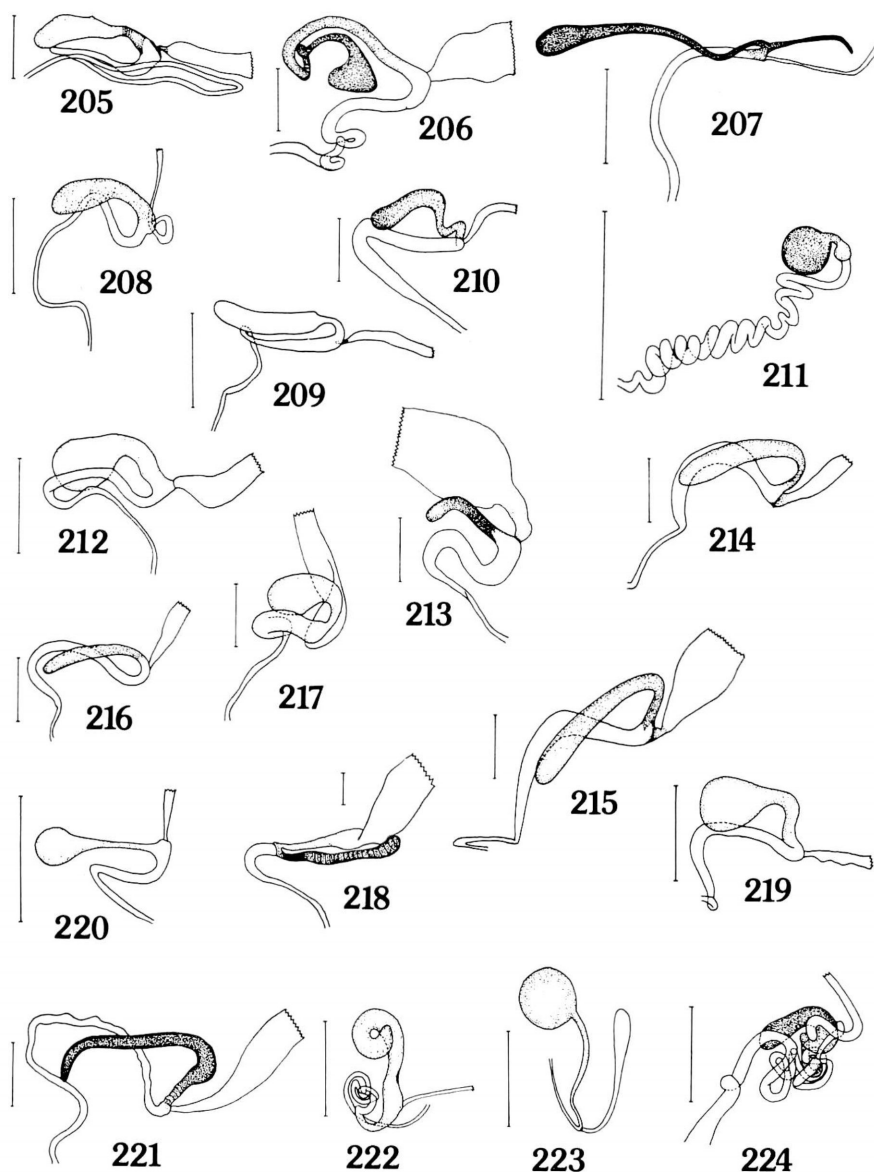
Incidentally, the genus *Comusia*, which was recently removed from the Methiini to the Obriini, is an indubitable member of one of these tribes judged from the conformation of the female genitalia. *Merionoeda* (*Macromolorchus*) *hirsuta* is rather isolated in showing an apomorphic state of the styli, which are articulated to the apico-lateral faces of the coxite lobes (5-2), but this seems to be a result of parallel specialization, not indicative of its phylogenetic independency.

Here, some words seem necessary for outlining the female genitalia of the cerambycid beetles belonging to the subfamily Lamiinae. As was already pointed out at the beginning of this chapter, they are rather uniform in spite of marked diversity of external features. The paraproct is very short and always devoid of baculi; the coxite lobes are very long and bear small styli; the dorsal baculi are absent; the proctiger is either absent or much reduced; and, the spermatheca is heavily sclerotized and bears a well developed gland (Figs. 203-204). I have examined the female genitalia of 44 species of 25 genera of Japanese lamiines, which represent 15 out of the 21 tribes known from Japan (Mesosini, Homonoieini, Apomecynini, Agapanthiini, Pteropliini, Phrissomini, Lamiini, Ancyronotini, Crossotini, Dorcaschematini, Xenoleini, Rhodopinini, Acanthocinini, Saperdini, and Astathini). They invariably possess a combination of the characters delineated above. On the other hand, the spermathecal

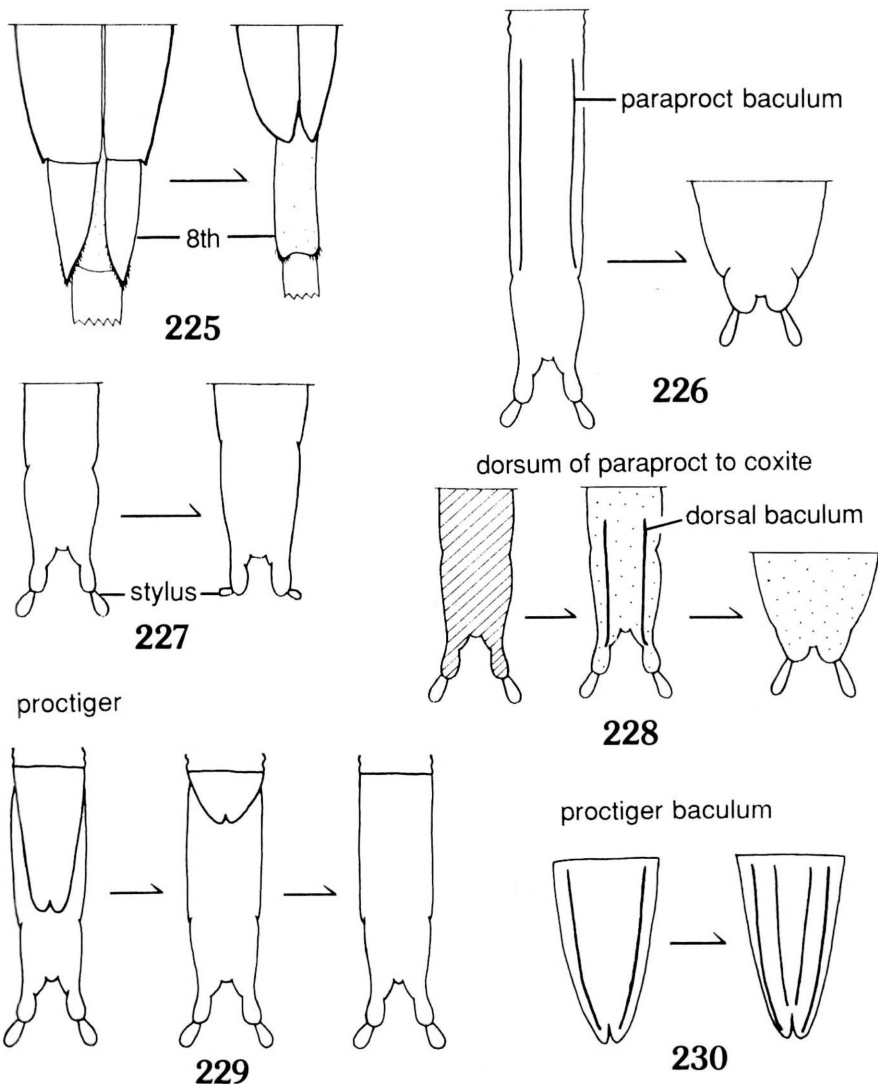


Figs. 203–204. Ovipositors and internal reproductive organs in the Lamiinae, ventral view. —
 203, *Psacothoe hilaris hilaris* (PASCOE, 1857); 204, *Cagoshima sanguinolenta* THOMSON, 1864.
 (Scale: 0.5 mm.)

capsules are, though similar to one another in fundamental structure, strikingly variable in configuration (Figs. 205–224). They are species-specific and are useful for classifying lamiine species. Similar modification of the 9th abdominal segment is also found in the genus *Aegosoma* of the subfamily Prioninae and the tribes Obriini and Stenopterini of the Cerambycinae. In the former case, the segment is similar to that of the Lamiinae in the elongation of coxite lobes and the reduction of stylus. This is, however, apparently a modification in accordance with that of the 8th segment. In the latter case, on the contrary, modification of the 9th segment seems related to the

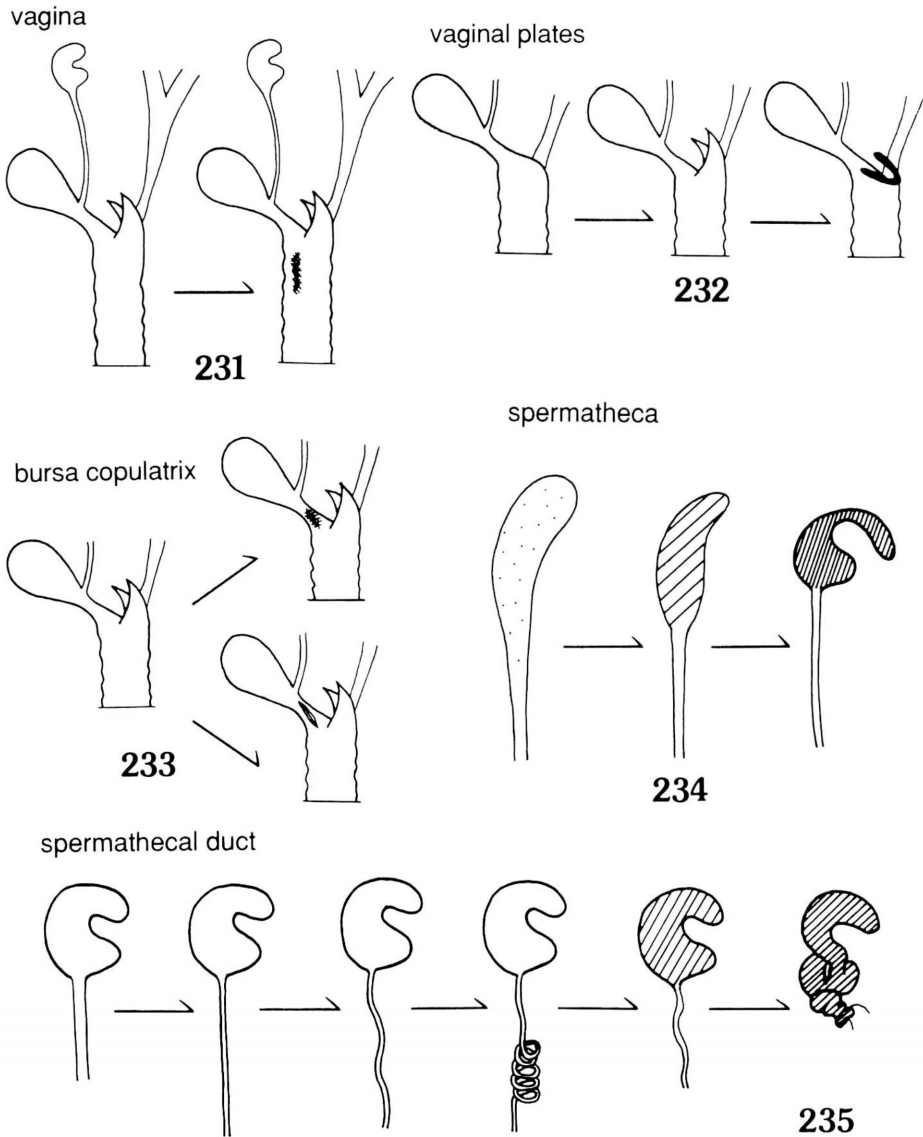


Figs. 205–224. Spermathecae in the Lamiinae. — 205, *Mesosa (Mesosa) japonica* BATES, 1873; 206, *Bumetopia oshimana heiana* HAYASHI, 1963; 207, *Asaperda agapanthina* BATES, 1873; 208, *Sybra (Sybrodiboma) subfasciata subfasciata* (BATES, 1884); 209, *Ropica tsushimensis* HAYASHI, 1972; 210, *Agapanthia daurica daurica* GANGLBAUER, 1884; 211, *Egesina (Nijimana) bifasciana bifasciana* MATSUSHITA, 1933; 212, *Pterolophia (Pterolophia) caudata caudata* (BATES, 1873); 213, *Abryna (Abryna) obscura* SCHWARZER, 1925; 214, *Parechthistatus gibber tsushimanus* OHBAYASHI, 1961; 215, *Mesechthistatus furciferus meridionalis* (HAYASHI, 1951); 216, *Xenicotela pardalina* (BATES, 1884); 217, *Palimna liturata* (BATES, 1884); 218, *Moechotypa diphyis* (PASCOE, 1871); 219, *Olenecamptus formosanus* PIC, 1914; 220, *Xenolea asiatica* (PIC, 1925); 221, *Rhodopina lewisii lewisii* (BATES, 1873); 222, *Acanthocinus griseus orientalis* OHBAYASHI, 1939; 223, *Glenea (Glenea) relicta relicta* PASCOE, 1868; 224, *Bacchisa (Bacchisa) fortunei japonica* (GAHAN, 1901). (Scale: 0.5 mm.)



change of ovipositing behaviour, resulting in the disappearance of both the proctiger and the paraproct baculi. This resemblance between the Obriini–Stenopterini and the Lamiinae must be a convergence, since the pattern of ovipositing behaviour is decisively different between them as was mentioned before.

Recently, WANG and CHIANG (1991) published a paper on the “evolution in the higher taxa of the Cerambycidae,” in which they recognized five subfamilies, Prioninae (including *Parandra*), Lamiinae, Cerambycinae, Lepturinae (including Necydalini and *Apatophysis*) and Aseminae (including *Spondylis*). The Disteniidae (including Phi-



Figs. 225–235 (on pp. 212–213). Schematic representation of female genitalia of cerambycoid beetles, showing their modification from primitive to derivative states. — 225, Eighth abdominal segment; 226, 9th sternite; 227, stylus; 228, 9th tergite; 229, 10th tergite (proctiger); 230, 10th tergite (proctiger baculum); 231, vagina; 232, vaginal plates; 233, bursa copulatrix; 234, spermatheca; 235, spermathecal duct.

linae and Vesperinae) was regarded as an independent family and was not dealt with in their paper. Their analysis is careful and fairly persuasive, but is largely based upon supposed past radiation and dispersal in relation to continental drift and

differentiation adaptive to diversification of host plants. They concluded that the ancestral cerambycid stock became first diverged into the prionine group and the remainings, then into the Lamiinae and the others, from which the Cerambycinae became diverged next, followed by the divergence of the Lepturinae, and the asemine group was left as the youngest subfamily.

Their opinion can be disputed in that the time scales given at the left-hand side of the diverging points in their phylogenetic diagrams seem too old to be convincing. No reliable fossil data were reported on existence of cerambycids in the Jurassic, and though some fossil beetles with long antennae and cerambycid-like features were recorded from the late Jurassic formation of Karatau in southern Kazakhstan, all of them were placed by MEDVEDEV (1968) in the chrysomelid subfamily Protoscelinae, and the total absence of Cerambycidae in this largest known bed of fossil beetles in the world was commented "noteworthy" (ARNOLDI *et al.*, 1977, p. 13). Based on MEDVEDEV's data, CROWSON (1981, p. 675) inferred that "the basic division of the Cerambycid and Chrysomelid lines may well date from the late Jurassic and be related to a division between Coniferae and Cycadeoids as basic food plants." According to ARNOLDI and others (*op. cit.*, p. 15), "beetles externally similar to the primitive Cerambycidae" were found only in the early Cretaceous, and KIREJTSHUK (1992) mentioned nothing about ancestral cerambycids in his recent paper on the evolution of the mode of life in fossil beetles, with the exception of some surmises.

My own impression is that the evolution of cerambycid beetles proceeded rather rapidly like that of birds, even though primitive ancestral groups may date back to the middle Mesozoic. There are ample evidences that fossil cerambycids similar to Cenozoic forms became commoner in the late Cretaceous when angiosperms became predominant among plants, and their number rapidly increased in the early Tertiary, when many present-day genera of the subfamilies Prioninae, Spondylinae, Lepturinae, Cerambycinae and Lamiinae were already in existence (HANDLIRSCH, 1907, pp. 785–791). Such a rapid diversification must have been achieved in accordance with the rapid multiplication of flowering trees, and this is probably why the Cerambycinae and Lepturinae became remarkably differentiated in rather a short geological time without changing the basic plan of their genitalia, in contrast to the marked genitalic divergence in other groups excluding Lamiinae, which must have required much longer time.

From the study of the female genitalia, it is difficult to decide at what stage of the cerambycid evolution the divergence of the Lamiinae took place. In this subfamily, every component of the 9th abdominal segment in the female shows an apomorphic state, and besides, general conformation of the ovipositor formed by this segment is uniform throughout the subfamily in spite of considerable diversification of external morphology. This may suggest that the origin of the subfamily is relatively late and that the radiation of its genera and species has taken place in rather a short time. But on the other hand, uniformity of ovipositor may only mean that ovipositing behaviour has not changed for a long time throughout this subfamily however great the modifi-

cation of external characters may have been. This subfamily seems to have originally developed by adaptation of specialized ovipositing behaviour, which could have taken place at any stage of the evolutionary history of cerambycid beetles.

In recent years, phylogenetic importance of female genitalia has received due attention from some coleopterologists, and attempts have been made to take their characteristics into consideration for phylogenetic analyses (cf. MANN & CROWSON, 1992; COCA-ABIA & MARTIN PIERA, 1992). When similar studies are made in various groups of the Coleoptera, particularly of the suborder Polyphaga, we shall be able to throw a new light on the systematics of this tremendous insect group, even if the results to be obtained may not drastically differ from current classifications.

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。V. 考察。——日本とその近隣地域に分布する、フトカミキリ亜科を除くカミキリムシ類の雌生殖器について精査した結果から、外群比較法により雌生殖器の各形質の極性を判定し、各種群についての系統解析を試み、得られた見解をまとめた。合わせて、フトカミキリ亜科について若干の考察を加えた。

ムカシカミキリ科とホソカミキリ科では、前者は担肛節に2対の棒状片をもつ、後者は受精囊と受精囊管が強く節片化してたがいに融合する、という新形質を示すことから、それぞれの単系統性が示唆された。ニセクワガタカミキリ亜科では、担肛節がなく尾状体が陰端節の側面に位置するという新形質と、肛側片が背板と腹板とに分かれるという旧形質を合わせもつ。Apatophysinae では、ノコギリカミキリ亜科とともに、尾状体が陰端節の側面に位置するという新形質を示すが、これらの亜科が真の単系統群かどうかはわからない。クロカミキリ亜科は、クロカミキリ属 *Spondylis* とトドマツカミキリ属 *Tetropium* で、尾状体の位置がノコギリカミキリ亜科の場合と同様の新形質を示すが、その他の種では、ハナカミキリ亜科やカミキリ亜科の雌生殖器と基本的に違いがない。ハナカミキリ亜科とカミキリ亜科とは、雌生殖器の形態から明確に区別することができなかったが、形質分布表からこれらを通じてよっつの族群が認められた。とくに、アメイロカミキリ族とモモトコバナカミキリ族は、肛側片が極端に短くて棒状片がないという新形質を示し、カミキリムシ科でもっとも派生的な族群だと考えられる。フトカミキリ亜科では、全般的に雌生殖器が新形質を示し、外部形態のいちじるしい多様化にもかかわらず、同質的であった。このことは、フトカミキリ亜科の起源が比較的遅く、種分化が急速に起きたことを暗示している。

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Those given at the ends of Parts I and IV are omitted.

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Description of the Larva of *Xylotrechus villioni* (VILLARD) (Coleoptera, Cerambycidae)¹⁾

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Abstract The larva of *Xylotrechus villioni* (VILLARD) (Coleoptera, Cerambycidae) is described. It is distinguishable from larvae of the other species of the genus in that 1) the head is $1.3\times$ as wide as long, 2) the mediopraesternum bears a pair of large, yellow, micro-asperate blotches, 3) the mouth frame and the prothorax bear darker pigmentation, and 4) vestigial legs are present.

Xylotrechus villioni (VILLARD) is a cerambycid species distributed in Japan (Kunashiri, Hokkaido, Honshu and Shikoku Islands), and only very rarely found in various localities. The species is known to be a borer of coniferous trees, especially of the genera *Picea* and *Abies*, occasionally causing severe damage to them. An outline of the larval habits was clarified recently (IWATA *et al.*, 1990).

The senior author had an opportunity of collecting larvae of the species on the northern slope of Mt. Fuji, central Honshu, which enabled us to describe their morphology. The morphological nomenclature used herein is almost based upon that by ŠVÁCHA and DANILEVSKY (1987).

We wish to express our sincere thanks to Messrs. Tomio KINOSHITA (Chigasaki), Yûichi MATSUMOTO (Tokyo) and Kazuki MORI (Kagoshima) for their kind help in collecting materials, providing us with useful information, and preparing photographs.

Xylotrechus villioni (VILLARD)

Larva (Figs. 1–17)

Description. Body (Figs. 1–3) robust, 38.0 mm long at the most, while the pronotal width is 8.7 mm at the most (4.4: 1).

Head (Figs. 4–5) glabrous, trapezoidal in shape, with more than the half retracted into prothorax. Mouth frame (surrounding the mouth parts) (Fig. 6) dark brown, broadly strongly pigmented. Cranium (Fig. 4) about 1.3 times wider than long, with

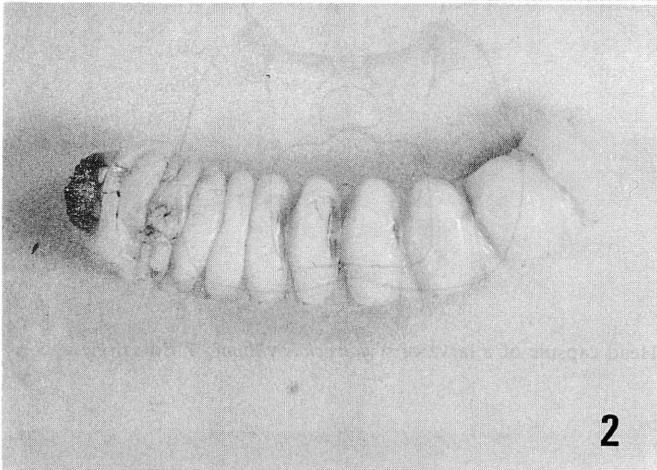
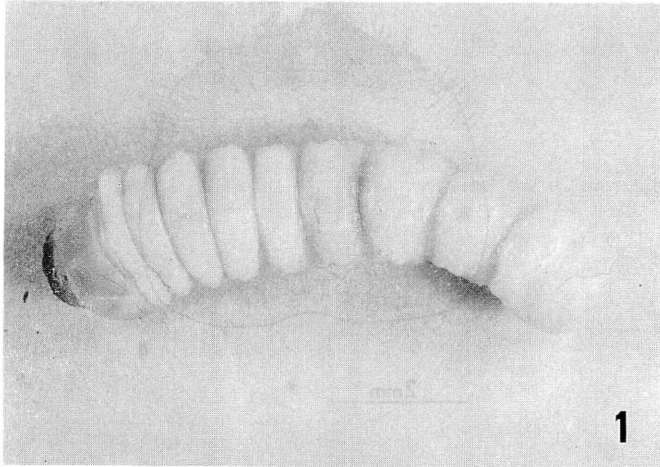
1) This work is supported in part by a Grant-in-Aid for Scientific Research (No. 02660163) from the Ministry of Education, Science and Culture, Japan.

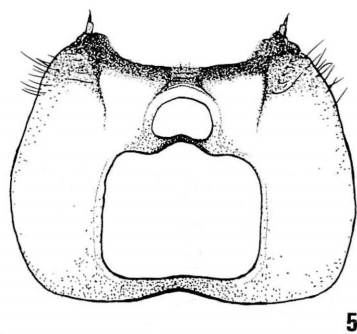
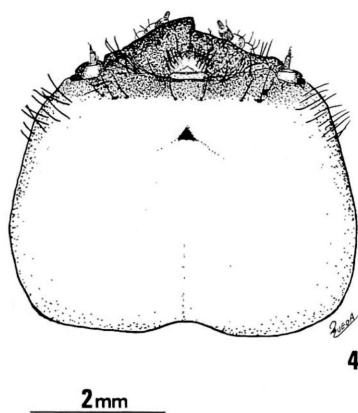
sides slightly rounded, widest near posterior $2/5$, with posterior margin almost straight. Anterior margin of frons recurved and pigmented almost back to the row of prefrontal setae, which occur in 3–4 pairs along the frontier between mouth frame and unpigmented white part, each seta occurring from a depression; epistoma transverse, indistinct, each usually bearing 2 setae; pigmented triangular area present and visible *in situ* uncovered by pronotum, situated near anterior $1/5$ of cranium; frontal lines and medial frontal line indistinct; epicranium glabrous and white. Occipital foramen (Fig. 5) ventrally divided into 2 parts by a very narrow, anteriorly curved and internally recurved metatentorial bridge, with anterior occipital foramen subcircular (reniform as seen perpendicularly) and posterior one trapezoidal (subrectangular as seen perpendicularly).

Antennae (Figs. 6–7) 3-segmented, relative lengths of antacoria, segment 1, segment 2 and segment 3 approximating 4: 1: 2.6: 1, and relative widths approximating 8: 5: 3.7: 1; visible portion of segment 1 and the tip of segment 2 whitish; antacoria and the basis of segment 1 light brown; segments 2 and 3 rusty except for their tips; segment 1 short, bearing several spines on its basis; segment 2 about twice longer than wide, bearing 3–4 fine hairs on its tip, in addition to a protuberance and segment 3; segment 3 bearing a single spine of $3/5$ length and a minute protuberance.

A pair of main stemmata (Fig. 6) located near and off the antennal bases, surrounded by pigmentation of gena; corneae convex. Gena (Fig. 6) widely pigmented, with the most pigmented area (I) bearing no setae, which is laterally surrounded by less pigmented area (II) with sparser setae, followed by the least pigmented area (III) with denser and long setae; antennal ring open at the less pigmented area (II); subfossal process distinct. Hypostoma (Fig. 5) glabrous, with hypostomal line brown and distinct anteriorly; a row of setae and seta-depressions present oblique from hypostomal line up to main stemmata; hypostomal lines indistinct posteriorly; anterior portion of hypostoma smooth and slightly curved, broadly pigmented, bearing transverse furrows on its surface; gula (Fig. 5) subquadrate, pigmented, not interrupting pigmentation of hypostomal anterior margin, bearing 2–4 transverse grooves. Pleurostoma, a region surrounded by main stemmata, mandibles and hypostoma, slightly convex, lightly through heavily pigmented toward hypostoma.

Labrum (Figs. 6, 8) whitish, transverse, convex, about twice wider than long, feebly sclerotized basally, bearing short dense setae, each of which occurs on basal ring, with the median surface lacking setae. Mandibles (Figs. 6, 9–10) brown, with dark brown basal parts, bearing coarse contour-like furrows, basally bearing a row of 3–4 setae. Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Maxilla (Fig. 11) whitish, with segment 1 of maxillary palpus longer than segment 2, followed by segment 3; bases of palpiger and segments 1–2 brown, bearing setae on non-brown surfaces; segment 3 light-brown, with a single short seta and, at its tip, several fine hairs; segment 1 and maxillary palpiger with long setae; mala





Figs. 4–5. Head capsule of a larva of *Xylotrechus villioni*; 4, dorsal view; 5, ventral view.

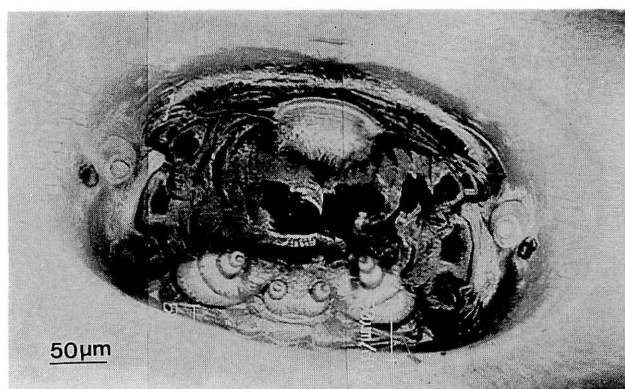


Fig. 6. Mouth frame of the same, anterior view.

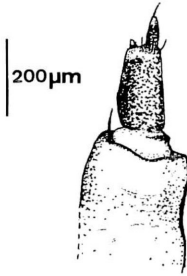


Fig. 7. Right antenna of a larva of *Xylotrechus villioni*.

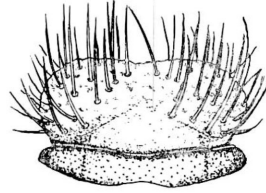
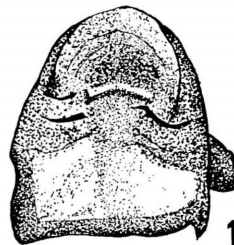


Fig. 8. Labrum of the same.

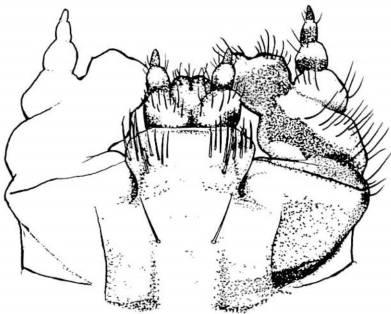


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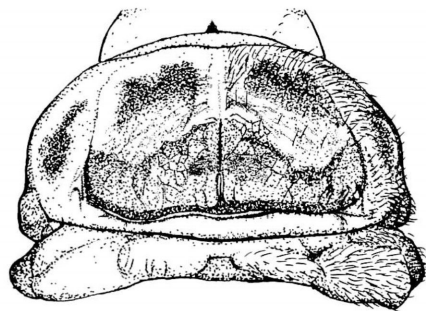
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Figs. 9–10. Mandible of the same; 9, external surface; 10, internal surface.



500µm

Fig. 11. Maxillae and labium of the same.



5 mm

Fig. 12. Pronotum and allar lobes of the same, dorsal view.

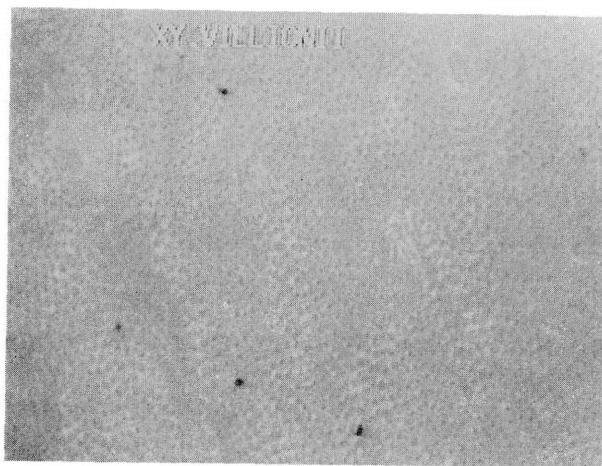
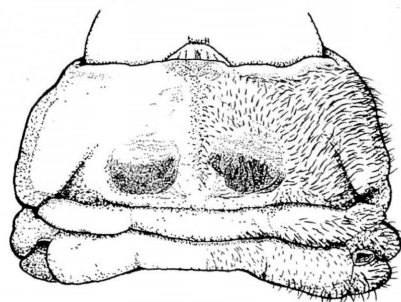


Fig. 13. Micro-asperity of a larva of *Xylotrechus villioni*.



5 mm

Fig. 14. Pronotum and allar lobes of the same, ventral view.

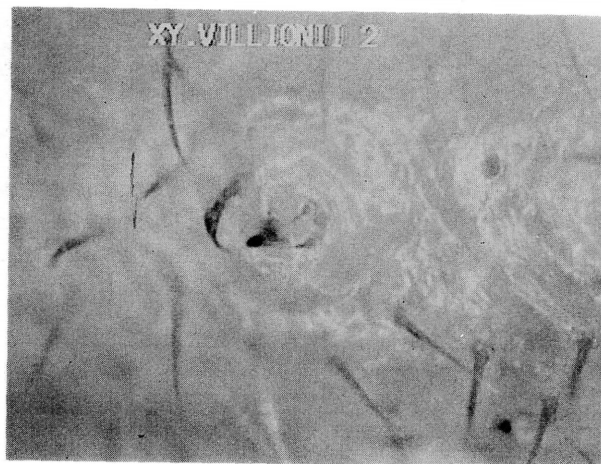


Fig. 15. Mesothoracic leg of the same.

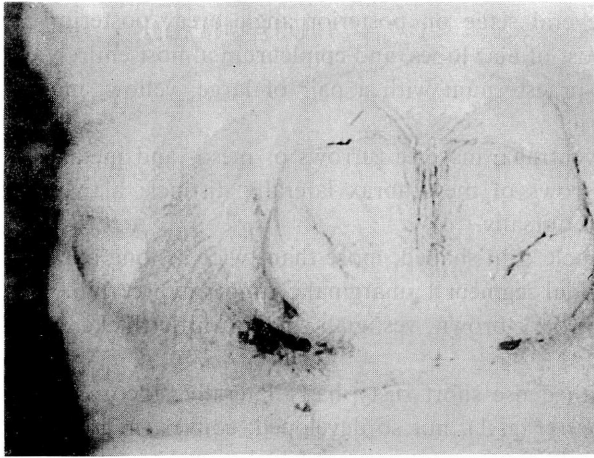
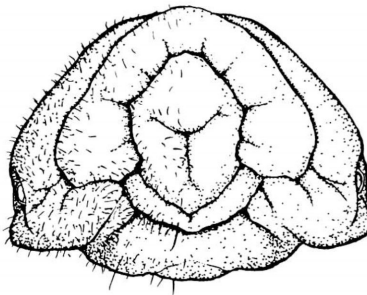


Fig. 16. Locomotory ampulla of abdominal tergite 4 of a larva of *Xylotrechus villioni*, dorsal view.



2 mm

Fig. 17. Anus of the same.

subquadrate, distanced from maxillary palpus by the width of palpal segment 3. Labium (Fig. 11) whitish; submentum feebly sclerotized, with a pair of setae off the median line; mentum without lateral sclerites, bearing a pair of areas laterally furnished with spine-like setae; praementum with basal pigmentation; labial palpi separated by more than the width of segment 1, segment 1 longer than segment 2, with anterior paler portion as long as segment 2, furnished with surrounding setae; segment 2 and basal portion of segment 1 light-brown; palpiger bearing setae, light-brown basally and laterally; ligula wider than width of segment 1 of labial palpus.

Pronotum and alar lobes (Fig. 12) with yellow pigmentation partially, furnished with light-brown hairs with unobvious basal rings partially but densely; median groove of pronotum conspicuous, deeply excised except for anterior portion; lateral furrows conspicuously excised; posterior area of pronotum covered with micro-asperities (Fig. 13), bearing furrows, rugae and a pair of setae off the median groove,

in addition to several setae on posterior angle area; posterior area of pronotum, sternellar fold, most of alar lobes, and epipleurum almost entirely covered with micro-asperities; medio-praesternum with a pair of large, yellow, micro-asperate, hairless blotches (Fig. 14).

Dorsal and ventral transverse furrows of meso- and metathoraces almost indistinct; oblique furrows of mesothorax laterally distinct; alar-lobe distinctly defined both ventrally and dorsally.

Thoracic spiracle oval-shaped, more than twice as long as wide, twice as long as spiracle of abdominal segment 1; marginal chamber indiscernible.

Legs (Fig. 15) dark-brown, vestigial, small, a little thicker and shorter than surrounding setae.

Abdomen with dense short rusty hairs laterally; locomotory ampullae present on segments 1 to 7 (Fig. 1), not so developed, convex, micro-asperate, divided by a deep medial longitudinal impression, furnished with hairs on anterior and posterior margins, laterally defined by longitudinal furrows; several transverse furrows only dorsally present (Fig. 16); anus (Fig. 17) triradiate.

Abdominal spiracles present on segments 1 to 8, oval-shaped; spiracles on segment 1 developed, $1.4\times$ as large as the others; all spiracles without marginal chambers, pleural discs absent.

Materials. Employed for morphological observations are three larvae, one of which has been damaged at the posterior half of abdomen, all being collected on 17-V-1992, at Nigô, on the northern slope of Mt. Fuji, Narusawa, Yamanashi Pref., Central Honshu. They were found under the bark of *Abies veitchii* LINDL. live tree, about 20 cm in diameter, and are supposed to be at the final stage because they had already made whirlpools, the final phase of larval boring (IWATA *et al.*, 1990). The senior author succeeded in breeding another individual (male), found at the same time under the same condition, from the larval stage to adult to verify the specific identification of the larvae employed for the observation. The larval specimens had been preserved by soaking them into Pampel's fluid according to ŠVÁCHA and DANILEVSKY (1987).

Remarks. Larva of this species is distinguishable from those of the other species of the genus by 1) the proportion of length and width of the head (1: 1.3), 2) the medio-praesternum with a pair of large, yellow, micro-asperate blotches, 3) the darker pigmentation of mouth frame and prothorax, 4) the presence of vestigial legs, and some others. The species is known to be a primary borer of coniferous trees (IWATA *et al.*, 1990), and thus the host tree species can also be a criterion for the identification.

要 約

武田雅志・上田 大・岩田隆太郎：オオトラカミキリの幼虫の記載。——オオトラカミキリ *Xylotrechus villioni* (VILLARD) の幼虫を記載した。本種幼虫は同属の他種の幼虫とは、1) 頭部の幅が長さの 1.3 倍となること、2) 真腹板に 1 対の黄色い大型の刺針状表面構造の領域を有すること、3) 口

器周辺部および前胸に色素沈着の濃い部分を有すること, 4) 痕跡的な脚が存在すること, などにより区別が可能である。

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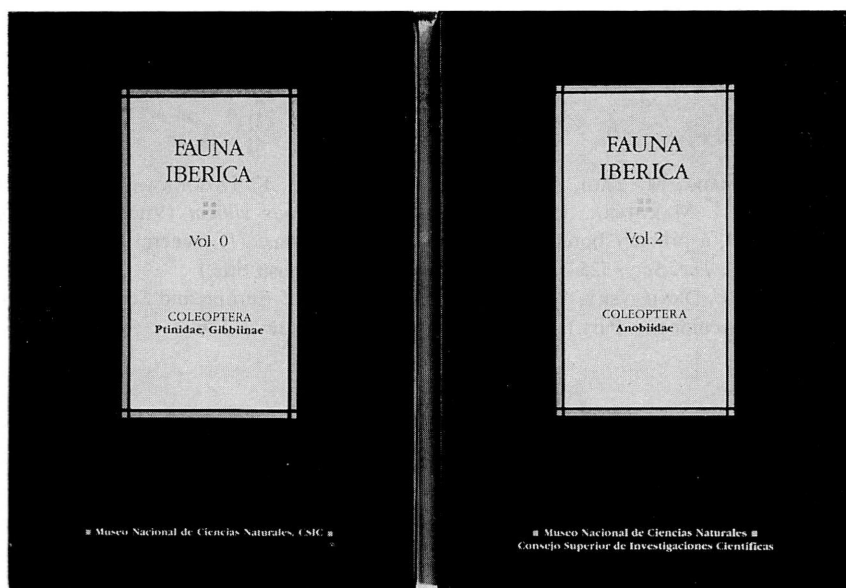
新 刊 紹 介

Fauna Iberica, Vol. 0, Coleoptera, Ptinidae, Gibbiinae. By Xavier BELLÉS. 43 pp., 1990. Museo Nacional de Ciencias Naturales, CSIC, Madrid.

Fauna Iberica, Vol. 2, Coleoptera, Anobiidae. By Francisco ESPAÑOL Coll. 195 pp. 1992. Museo Nacional de Ciencias Naturales, CSIC, Madrid.

最近のスペインにおける自然史研究の興隆はめざましいものがある。甲虫学においても同様で、1985年発足した欧州甲虫学会 (Asociación Europea de Coleopterología) の会員は、もちろんスペインに事務局を持ち、スペインの研究者の呼びかけで発足したとはいえ、全会員の 43% (1988 年の名簿による) がスペイン人会員である。ここに紹介する本も、スペインにおける自然史研究の実力をかいま見せてくれるものである。

Fauna Iberica シリーズは 1989 年に企画され、1990 年その sample issue として X. BELLÉS による Vol. 0, Ptinidae, Gibbiinae (写真左) が発行された。この本はあくまで sample issue であって、イベリア半島のヒョウホンムシ科、セマルヒョウホンムシ亜科の 2 族、2 属、6 種を扱っただけのものであるが、いまや世界のヒョウホンムシ科の分類は彼の独壇場であるだけに、文章も挿図も自信に満ちたものであり、すばらしい出来である。そして昨年 (1992 年), Vol. 1, Mollusca, Cephalopoda (軟体動物門, 頭足綱) と Vol. 2, Coleoptera, Anobiidae (甲虫目, シバンムシ科) (写真右) とが上梓された。Vol. 2 の著者 Dr. F. ESPAÑOL は、いうまでもなくスペイン甲虫界の大御所である。正確な年齢は存じ上げないが、80 才を優に超すほどのご高齢でありながら、いまでもかくしゃくとして論文を書いておられる。10 年近く前、2~3 年別刷の送付が途絶え、論文発表もほとんどなくなったので、心配していたら、つい先年、「入院していたが、無事退院できたので研究を再開する」という元気なお手紙をいただいて、なにか熱いものを感じてしまった。ESPAÑOL はゴミ



ムシダマシやチビゴミムシ、チビシデムシなどの洞窟性種群をはじめ、多くの科に手をそめているが、本当の専門はシバンムシ科であり、世界のシバンムシについてすでに 120 編以上の論文を書いている。この人にとっては、イベリア半島のシバンムシ科をまとめることなど、なんでもないことではあるが、それでも本書には、従来の学术论文にはみられなかったきめこまやかさが随所にみられ、意気込みの違いが感じられる。形態記載や地理的分布だけでなく、すべての種に *Biología* の項が設けられているのは、その文献渉猟の広さと深さ、シバンムシに対する並なみならない思い入れを物語るもので、感服に値する。部分図を含めてすべての図には点や線による陰影がつけられ、見やすくなっているのは、一般読者を意識した編集方針なのであろう。巻末のシノニム・リストは研究者にとって便利なものであり、参考文献も丹念にひろってある。

ただひとつ残念なのは、*Dorcatominae* で用いた独自の分類群である *Sección* の概念が本書では示されなかった点である。これは *tribe* あるいは *subtribe* に相当するものであり、本書の献本を受けた瞬間、この概念が他の亜科についても適用されているのではないかと期待してページをめくったものである。地域のファウナを扱うという本書の性格上、このようなオリジナリティーの高い試みはあえて避けたのかも知れない。

ともあれ、印刷も紙質も申し分なく、装丁もシックであり、学問的にも、また一般向けの見て楽しめる解説書としても、一級の出来映えに仕上がっていることだけは確かである。もちろん、カラープレートがなかったり、全体がスペイン語で書かれていることが、本書の価値をいささかも減じるものでないのは当然のことである。

なお、本シリーズの甲虫関係では、X. VÁZQUEZ による *Oedemeridae*, *Pythidae*, *Pyrochroidae*, *Mycteridae* が、近ちか出版されることになっている。

(酒井雅博)

A Revision of the Taiwanese Species of *Robustanoplodera* (Coleoptera, Cerambycidae, Lepturinae)

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Abstract A new species, *Robustanoplodera taiyal*, is described from Taiwan. A key is given for the two species of *Robustanoplodera* from Taiwan.

The genus *Robustanoplodera* was known from Taiwan only from the species *tricolor* (GRESSITT, 1935). However, I found another species which is easily distinguishable from *R. tricolor* by the coloration of the prothorax and by the shape of the last abdominal sternite in the male. This species was regarded by SEKI (1944) and HAYASHI (1960) as an aberrant form of *R. tricolor*. Actually, however, it seems closer to a species from North Vietnam than to *R. tricolor*, and I am describing it as a distinct species.

Genus *Robustanoplodera* PIC

Anoplodera (*Robustanoplodera*) PIC, 1954, L'Échange, 70 (538): 13 (Type species: *A. (R.) bicolorimembris* PIC, 1954, China).

Tamanukia HAYASHI, 1960, Niponius, 1 (6): 9 (Type species: *Anoplodera? tricolor* GRESSITT, 1935, Taiwan).

Koichius HAYASHI, 1966, Bull. Osaka Jonan Women's Jr. Coll., 1: 2 (n. n. for *Tamanukia* HAYASHI, 1960, which was preoccupied by *Tamanukia* N. BARANOV, 1935, a parasitic fly genus, Tachinidae, Diptera).

Robustanoplodera: HAYASHI & VILLIERS, 1985, Bull. Osaka Jonan Women's Jr. Coll., 19–20: 6–7, 40–41.

This genus seems related to *Anoploderomorpha*, but can be characterized by the following characteristics: male genitalia with lateral lobes of parameres broadened and concave on the ventral side, under part of parameres projecting inside in ventral view; metasternum in male with a distinct, longitudinal groove on the median line, the lateral margins of the groove narrowly elevated; 5th abdominal sternite in male excavated and lateral margins expanded; hind femora in male with a pair of small teeth on the underside.

Key to the Species of *Robustanoplodera* from Taiwan

1. Antennae with apex of 11th segment barely reaching or slightly surpassing elytral apices; elytra distinctly narrowed near the middle, then slightly broadened just before apex; underside of hind femora with a pair of small teeth (Figs. 7–8);

- 5th abdominal sternite excavated Males.... 2.
- Antennae with apex of 11th segment barely reaching basal two-thirds of elytra; elytra nearly parallel-sided or slightly narrowed towards apex; underside of hind femora without small teeth; 5th abdominal sternite only slightly impressed....
..... Females.... 3.
2. Pronotum black and densely covered with golden recumbent pubescence except for the posterior portion; abdominal sternites usually yellowish brown, but 1st to 3rd sternites are sometimes dark brown to black; 5th abdominal sternite deeply excavated, with lateral margins distinctly expanded; hind tibiae dilated in lateral view (Fig. 9); undersides of meso-metathoraces black and densely covered with silvery pubescence *R. taiyal* sp. nov.
- Pronotum brownish red with anterior and median parts of posterior margins black, sparsely covered with golden pubescence; abdominal sternites greenish black with intercoxal process of 1st, apical margins of 3rd and 4th, and 5th sternites yellowish brown; 5th abdominal sternite shallowly excavated, with lateral margins feebly expanded; hind tibiae simple (Fig. 10); undersides of meso-metathoraces black with a green tint and sparsely covered with silvery pubescence *R. tricolor* (GRESSITT).
3. Pronotum densely covered with golden recumbent pubescence except for the posterior portion; elytra distinctly convex above; apex of 5th abdominal tergite dully bilobed (Fig. 11); undersides of meso-metathoraces black.....
..... *R. taiyal* sp. nov.
- Pronotum sparsely covered with golden recumbent pubescence; elytra convex above but nearly flat near suture; apex of 5th abdominal tergite sharply bilobed (Fig. 12); undersides of meso-metathoraces black with a green tint.....
..... *R. tricolor* (GRESSITT).

***Robustanoplodera taiyal* sp. nov.**

(Figs. 1-2, 5, 7, 9, 11, 13 & 15)

Leptura (*Anoploderomorpha*) *tricolor* GRESSITT, ab. *nigrithoracica* SEKI, 1944, Ins. World, Gifu, **48**: 129. ♂.

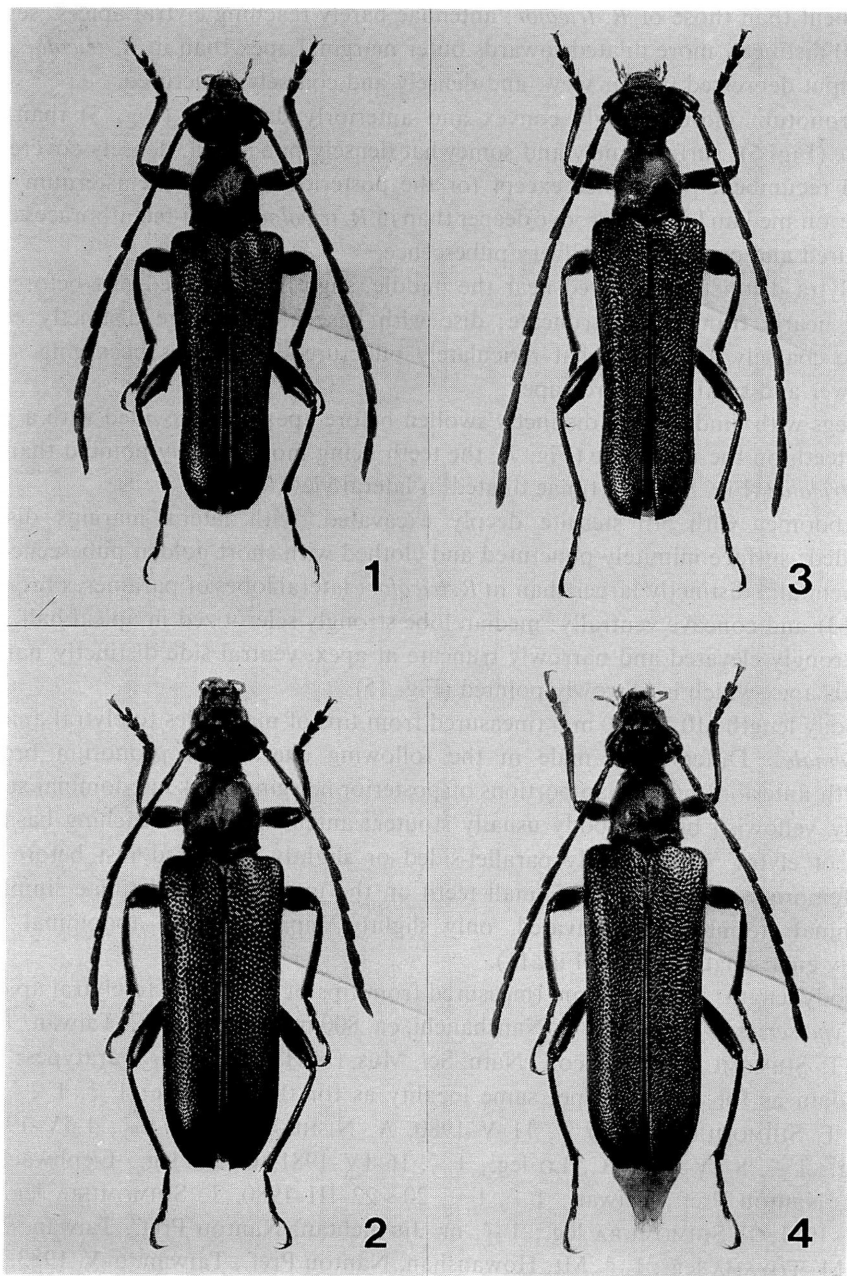
Leptura (*Anoploderomorpha*) *tricolor* GRESSITT, ab. *rufiventris* SEKI, 1944, Ins. World, Gifu, **48**: 129. ♀.

Tamanukia tricolor ab. *aurosignaticollis* HAYASHI, 1960, Niponius, Takamatsu, **1** (6): 9-10. ♂.

Koichius tricolor: SHIMOMURA & SAITO, 1979, Nat. & Ins., Tokyo, **14** (12): 24, 26, pl. 4, no. 5.

Male. Head black with maxillary and labial palpi dark brown, antennae with apical margin of 2nd segment dark brown, undersides of antennae sometimes dark brown; prothorax and undersides of meso-metathoraces black; elytra metallic dark green to blue; legs usually black, inner sides of hind tibiae sometimes dark brown; abdominal sternites yellowish brown but 1st to 3rd sternites sometimes dark brown to black; abdominal tergites black with 4th and 5th tergites yellowish brown.

Head slightly broader than posterior width of prothorax; eyes larger and more



Figs. 1-4. *Robustanoplodera taiyal* sp. nov. and *R. tricolor* (GRESSITT). — 1-2. *R. taiyal*; 1, male; 2, female. — 3-4. *R. tricolor*; 3, male; 4, female.

prominent than those of *R. tricolor*; antennae barely reaching elytral apices, segments 5 to 10 distinctly more dilated towards outer marginal apex than in *R. tricolor*; vertex to occiput depressed in rear view, and densely and coarsely punctured.

Pronotum more strongly convex and anteriorly declivous (Fig. 5) than in *R. tricolor* (Fig. 6); surface finely and somewhat densely punctured, densely covered with golden recumbent pubescence except for the posterior portion; metasternum with a groove on median line, the groove deeper than in *R. tricolor*; meso-metathoraces densely punctured and covered with silvery pubescence.

Elytra distinctly narrowed near the middle, slightly broadened just before apex; apices nearly transversely truncate; disc with base along suture distinctly convex; surface coarsely and somewhat reticulately punctured, punctures becoming sparser, shallower and smaller towards apex.

Legs with hind femora distinctly swollen before apex and provided with a pair of small teeth on the underside (Fig. 7), the teeth being more sharply pointed than those of *R. tricolor* (Fig. 8); hind tibiae dilated in lateral view (Fig. 9).

Abdomen with 5th sternite deeply excavated, with lateral margins distinctly expanded; surface minutely punctured and clothed with short golden pubescence.

Genitalia distinctly larger than in *R. tricolor*; lateral lobes of parameres broadened (Fig. 13) and concave ventrally; median lobe strongly sclerotized in apical half, dorsal side strongly elevated and narrowly truncate at apex, ventral side distinctly narrowed towards apex which is narrowly pointed (Fig. 15).

Body length: 10.5–14.0 mm (measured from tips of mandibles to elytral apices).

Female. Differs from male in the following characters: pronotum brownish red with anterior and median portions of posterior margins black; abdominal sternites entirely yellowish brown; body usually stouter; antennae barely reaching basal two-thirds of elytra; elytra nearly parallel-sided or slightly narrowed just before apex; hind femora without a pair of small teeth on the underside, hind tibiae simple; 5th abdominal sternite not excavated, only slightly impressed; 5th abdominal tergite broadly emarginate at apex (Fig. 11).

Body length: 12.5–15.0 mm (measured from tips of mandibles to elytral apices).

Type series. Holotype: ♂, Nanshanchi, ca. 800 m, Nantou Pref., Taiwan, 11–IV–1980, T. SHIMOMURA leg. (in coll. Natn. Sci. Mus. (N.H.), Tokyo). Paratypes: 2 ♂♂, same data as for the holotype; same locality as for the holotype: 1 ♂, 1 ♀, 10–V–1976, T. SHIMOMURA leg.; 1 ♀, 11–V–1980, A. NISHIYAMA leg.; 1 ♂, 4–IV–1981, C. Lo leg.; 1 ♂, 8–IV–1981, C. Lo leg.; 1 ♂, 16–IV–1981, C. Lo leg.; Lienhwachi, ca. 750 m, Nantou Pref., Taiwan: 1 ♂, 1 ♀, 20–22–III–1980, T. SHIMOMURA leg.; 1 ♂, 24–III–1981, T. SHIMOMURA leg.; 1 ♂, nr. Jiuyuehtan, Nantou Pref., Taiwan, 29–IV–1978, M. TÔYAMA leg.; 1 ♂, Mt. Howanshan, Nantou Pref., Taiwan, 6–V–1983, C. Lo leg.; 1 ♂, nr. Ssuling, Taoyuan Pref., Taiwan, 6–IV–1981, T. SHIMOMURA leg.; nr. Mt. Lalashan, ca. 1,500–1,600 m alt., Taoyuan Pref., Taiwan: 1 ♀, 29–V–1978, T. SHIMOMURA leg.; 1 ♂, 25–V–1981, C. Lo leg.; 3 ♂♂, 26–V–1981, C. Lo leg.; 2 ♂♂, 11–VI–1981, C. Lo leg.; 1 ♂, 28–V–1982, T. SHIMOMURA leg.; 1 ♂, 29–V–1982, T. SHIMOMURA

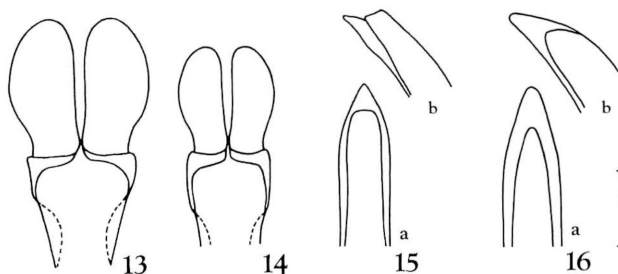


Figs. 5–12. Prothorax, left hind femur, right hind tibia of male and apical portion of 5th abdominal tergite of female of *Robustanoplodera taiyal* sp. nov. and *R. tricolor* (Gressitt). — 5, 7, 9 & 11, *R. taiyal*; 6, 8, 10 & 12, *R. tricolor*; 5–6, prothorax in lateral view; 7–8, left hind femur in sublateral view; 9–10, right hind tibia in inner-lateral view; 11–12, apical portion of 5th abdominal tergite in female in dorsal view. Transversal scale: 1.0 mm, for Figs. 5–10; longitudinal scale: 0.5 mm, for Figs. 11–12.

leg.; 1 ♀, 20–VI–1982, T. SHIMOMURA leg. (in coll. T. SHIMOMURA); 1 ♂, Hori, Formosa, VII–1959; 1 ♂, Hori, Formosa, V–1941, coll. K. SEKI (type of ab. *nigrithoracica* SEKI, 1944); 1 ♀, Seitohzan, Formosa, 4–V–1941, coll. K. SEKI (type of ab. *rufiventris* SEKI, 1944) (coll. Natn. Sci. Mus. (N.H.), Tokyo).

Diagnostic notes. The male of *R. taiyal* is similar to *R. albopubescens* HAYASHI et VILLIERS, 1985, from Tonkin, Vietnam. Males of *R. taiyal* can be recognized on the following characters: abdominal sternites yellowish brown though the 1st to 3rd sternites are sometimes dark brown to black and the elytral disc is more distinctly convex. The female of *R. taiyal* is similar to that of *R. viridipennis* (PIC, 1923), from Tonkin, Vietnam, the type of which is a female as was confirmed by HAYASHI and VILLIERS (1985). Females of *R. taiyal* can be distinguished from those of *R. viridipennis* by the following characteristics: pronotum brownish red with the anterior and median portions of the posterior margins black. The abdominal sternites are entirely yellowish brown. *Robustanoplodera taiyal* is distinguishable from *R. inauraticollis* (PIC, 1933) from Szechuan, China, by the golden pubescence on the pronotum, instead of grayish.

It is distinguishable from *R. bicolorimembris* (PIC, 1954) and *R. lepesmei* (PIC, 1956) from China by the entirely black femora, instead of bicolored of black in apical portions and yellowish brown in basal portions. “Taiyal” is the name of the tribe inhabiting the mountains of northcentral Taiwan. *Robustanoplodera albopubescens* HAYASHI et VILLIERS, 1985, may be a synonym of *R. viridipennis* (PIC, 1923), and *R.*



Figs. 13–16. Apical portions of parameres and median lobe of male genitalia of *Robustanoplodera taiyal* sp. nov. and *R. tricolor* (GRESSITT). — 13 & 15, *R. taiyal*; 14 & 16, *R. tricolor*; 13–14, parameres; 15–16, median lobe, a, dorsal view, b, sublateral view. Scale: 0.5 mm.

lepesmei (PIC, 1956) may be a synonym of *R. bicolorimembris* (PIC, 1954).

Robustanoplodera tricolor (GRESSITT)

(Figs. 3–4, 6, 8, 10, 12, 14 & 16)

Anoplodera (?) *tricolor* GRESSITT, 1935, Philip. J. Sci., **58**: 258–259.

Leptura (*Anoploderomorpha*) *tricolor*: MITONO, 1940, Cat. Coleopt. japon., (94): 34; TAMANUKI, 1942, Fn. Nipp., **10** (8–15): 72–73, fig. 105.

Anoplodera (*Anoploderomorpha*) *tricolor*: GRESSITT, 1951, Longicornia, **2**: 82, 87; HUA, 1982, Check List Longicorn Beetles China, p. 10.

Tamanukia tricolor: HAYASHI, 1960, Niponius, Takamatsu, **1** (6): 9–10.

Koichius tricolor: HAYASHI, 1966, Bull. Osaka Jonan Women's Jr. Coll., **1**: 2; HAYASHI, 1974, Bull. Osaka Jonan Women's Jr. Coll., **9**: 10–11.

Robustanoplodera tricolor: HAYASHI & VILLIERS, 1985, Bull. Osaka Jonan Women's Jr. Coll., **19–20**: 7, 40–43, text-figs. 5–6; NAKAMURA *et al.*, 1992, Check-list Longicorn-beetles Taiwan, pp. 15–16.

Type locality. “Hassenzan, Formosa, alt. 2,000 m.”

Specimens examined. Body length: ♂, 11.0–13.0 mm; ♀, 14.0 mm (measured from tips of mandibles to elytral apices). 21 ♂♂, 1 ♀, nr. Sungkang, ca. 1,900–2,000 m, Nantou Pref., Taiwan; data as follows: 1 ♂, 30–VI–1981, C. Lo leg.; 1 ♂, 12–VI–1982, C. Lo leg.; 1 ♂, 13–VI–1982, C. Lo leg.; 2 ♂♂, 19–VI–1982, C. Lo leg.; 2 ♂♂, 26–VI–1982, C. Lo & T. SHIMOMURA leg.; 3 ♂♂, 28–VI–1982, C. Lo leg.; 1 ♂, 1 ♀, 30–VI–1982, C. Lo leg.; 3 ♂♂, 11–VII–1982, C. Lo leg.; 2 ♂♂, 20–VII–1982, C. Lo leg.; 1 ♂, 23–VII–1982, C. Lo leg.; 4 ♂♂, 29–VI–1983, C. Lo leg. (in coll. T. SHIMOMURA); 1 ♂, Hori, Formosa, VII–1959 (coll. Natn. Sci. Mus. (N.H.), Tokyo).

Notes. This species was described on a probable male. Judging from the original description, the type specimen is undoubtedly a male because of the length of the antennae and the coloration of the abdomen. I determined the above specimens examined as *R. tricolor* in view of the coloration of the pronotum, the shape of the tibiae, etc. Judging from the illustrations of the male genitalia given by HAYASHI (1960, p. 10 & 1985, p. 43), his specimens belong to *R. taiyal*. The locality of the specimens

examined, nr. Sungkang, ca. 1,900–2,000 m, Nantou Prefecture, is located about 18 km southeast of the type locality, Mt. Hassenzan (=Mt. Pahsienshan, Taichung Pref.), across a wide valley. This species is distributed at higher elevations than *R. taiyal*, though they may be sympatric in certain areas.

Acknowledgements

I wish to express my sincere gratitude to Dr. J. A. CHEMSAK (College of Natural Resources, Department of Entomological Sciences, University of California) for his kindness in reviewing the original manuscript; to Dr. C. HOLZSCHUH (Institut für Forstliche Bundesversuchsanstalt Wien) for his kindness in giving useful comments and for his cooperation. Further, I am deeply indebted to Dr. S.-I. UENO of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo, for the loan of the type specimens of *R. tricolor* ab. *nigrithoracica* SEKI and *R. tricolor* ab. *rufiventris* SEKI under his care. Many thanks are due to Messrs. C.-C. LO (Shihtyutou, Nantou Pref., Taiwan), A. NISHIYAMA (Kawaguchi, Saitama) and M. TÔYAMA (Nishinomiya, Hyôgo) for their offer of the specimens used in this report.

要 約

下村 徹: 台湾産 *Robustanoplodera* 属に含まれる種の再検討. — 台湾産の *Robustanoplodera* 属に含まれる種は *R. tricolor* (GRESSITT, 1935) のみが知られ, SEKI (1944) は *nigrithoracica* (♂) と *rufiventris* (♀) を, また, HAYASHI (1960) は *aurosignaticollis* (♂) をそれぞれ *R. tricolor* の aberrant form として報告している.

手元にある台湾産の本属に含まれる標本には明らかに 2 種が含まれ, *R. tricolor* の原記載や *nigrithoracica*, *rufiventris* の基準標本などを検討した結果, *R. tricolor* と ab. form として報告されていたものとは異なった独立種であることが判明したので, 後者に対し, 新種として *R. taiyal* と命名し記載した. またこれら台湾産 *Robustanoplodera* 属 2 種の検索表を付けた. これら 2 種の雄については, *R. tricolor* の前胸が, 前縁・後縁を除き赤色～赤褐色になるのに対し, *R. taiyal* の前胸は全体が黒色で黄金色の毛が目立ち, また第 5 腹板の形状などの特徴によっても容易に識別される. 雌では, 第 5 腹背板の形状や上翅の後方から見た状態などの特徴によって識別される. *R. tricolor* は *R. taiyal* よりも高標高地に分布しているようである.

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Elytra, Tokyo, **21** (2): 234, Nov. 15, 1993

A New Record of *Trechiamma acco* (Coleoptera, Trechinae)

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Trechiamma (s. str.) *acco* S. UÉNO (1989, J. speleol. Soc. Japan, **14**, p. 24, figs. 1–3) is an anophthalmic trechine beetle known so far from only three specimens taken at two localities in Matsuzaki-chô at the western side near the southern tip of the Izu Peninsula, on the Pacific side of central Honshu, Japan. In the summer of this year, Mr. Hitoshi ISHIKAWA collected a specimen of this rare species in an abandoned prospecting adit of a gold mine in Shimoda-shi, about 9.8 km east-southeast of its type locality. Dr. Akiko SAITO and I visited this new locality recently, and succeeded in obtaining two more specimens. The collecting data are as recorded below.

1 ♂, prospecting adit at Mikura-yama, 80 m above sea-level, Ohgamo, Shimoda-shi, Izu Pen., 22–VII–1993, H. ISHIKAWA leg.; 2 ♀♀, same locality, 17–X–1993, S. UÉNO & A. SAITO leg. All deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Actually, there are two prospecting adits on Mikura-yama, both in a small gully covered with cryptomeria plantation. ISHIKAWA's specimen was found at the innermost of the lower adit, which is the longer of the two, while the other two were dug out from a small heap of muddy rock debris in the upper adit.

In closing this brief report, I wish to thank Mr. Hitoshi ISHIKAWA and Dr. Akiko SAITO for their kind support of my study.

A New Subspecies of *Pidonia amentata* (Coleoptera,
Cerambycidae) from Awa-shima Island,
Central Japan

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Abstract A new subspecies of *Pidonia* (*Cryptopidonia*) *amentata* is described from Awa-shima Island, Central Japan.

Up to this time, two subspecies of *Pidonia amentata* have been known from Japan. One of them is *P. amentata amentata* (BATES) occurring in the southwestern part of Japan, and the other is *P. amentata kurosawai* OHBAYASHI et HAYASHI in the north-eastern part of Japan.

Recently, I had opportunities to collect many specimens of *P. amentata* on flowers of *Viburnum dilatatum* on the mountains of Awa-shima Island, Niigata Prefecture, Japan. These specimens were proved to belong to a new subspecies after a careful study. In this paper, I am going to describe it under the name of *P. (Cryptopidonia) amentata awashimana*. The holotype designated in this study is deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Before going further, I wish to express my deep gratitude to Mr. H. TAKEDA who gave me the opportunity to work with this interesting material.

***Pidonia (Cryptopidonia) amentata awashimana* KUBOKI, subsp. nov.**

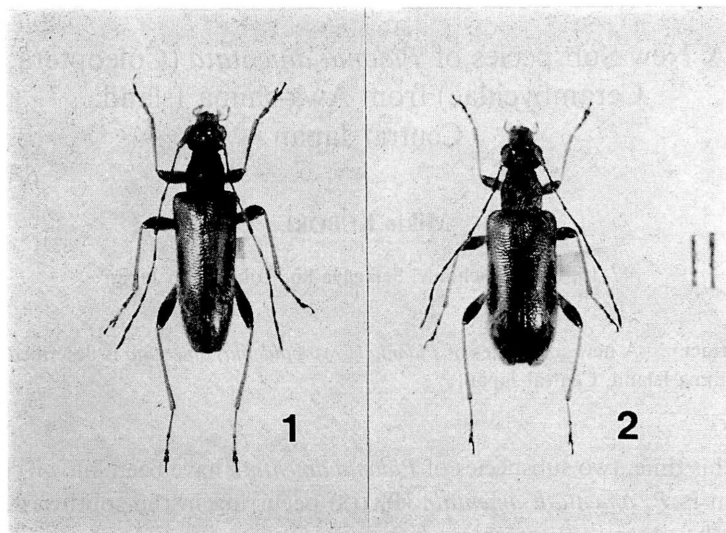
[Japanese name: Awashima-sesuji-hime-hanakamikiri]

(Figs. 1–3)

Body small, relatively roundish and furnished with pale fulvous pubescence.

Length: 7.9–5.4 mm (male), 9.3–5.8 mm (female); breadth: 2.1–1.5 mm (male), 2.4–1.6 mm (female).

Color. Male:— Body almost black; frons and mouthparts fulvous; antennae fulvous, each apex of 3rd and following segments slightly infuscated, apex of 11th segment fulvous; coxae and trochanters fulvous; femora fulvous, each apex of mid and hind femora black; tibiae fulvous; tarsi almost fulvous, sometimes each apex of mid and hind tarsi slightly dark brown; claws dark brown. Elytra almost yellowish fulvous with reduced black markings (Fig. 3). Ventral surface: head almost black, gula fulvous, tempora black; thoraces and abdomen black. Elytral markings indistinctly present; sutural marking almost lacking; basal marking lacking; latero-basal marking



Figs. 1-2. *Pidonia (Cryptopidonia) amentata awashimana* KUBOKI, subsp. nov., from Mt. Koshihaya; 1, ♂; 2, ♀.

small; latero-median marking linear, relatively obscure; latero-posterior marking lacking; apical band lacking.

Female:—Sutural marking narrowly present, vanishing behind scutellum; latero-basal marking small but relatively distinct; latero-median marking developed, broad linear, somewhat obscure; latero-posterior marking relatively large transversely, variable, sometimes small; apical band lacking; scape and pedicel fulvous, 3rd and following segments brownish fulvous, sometimes each base fulvous, apex of 11th segment fulvous; femora fulvous, each apex of fore femora black, apical halves of mid and hind femora black; each apex of mid and hind tibiae faintly infuscated. Ventral surface: head, thorax and abdomen almost black.

Structure. Head subrectangular, broad, broader across eyes than basal width of prothorax (male, 1.18: 1; female, 1.06: 1); tempora expanded, slightly convergent posteriorly; neck suddenly constricted, impressed behind tempora; vertex relatively flat, coarsely and irregularly punctured. Eyes strongly prominent. Antennae relatively short, slender, reaching elytral apex by last segment in male, reaching the level of apical tenth of elytra by last segment in female; comparative length of each antennal segment as follows:— $5 > 1 + 2 > 3 = 4 = 6$ (male) or $5 \geq 1 + 2 > 3 = 6 > 4$ (female).

Prothorax almost cylindrical, longer than basal width (male, 1.14: 1; female, 1.09: 1), shallowly constricted both behind apex and before base, weakly expanded laterally just before the middle; breadth across expanded portions slightly shorter than base in male or slightly longer than base in female, basal margin weakly bisinuate, obviously broader than apical margin (male, 1.27: 1; female, 1.30: 1); disc of pronotum convex above, coarsely punctured, sparsely clothed with fine pubescence. Elytra 2.40 times

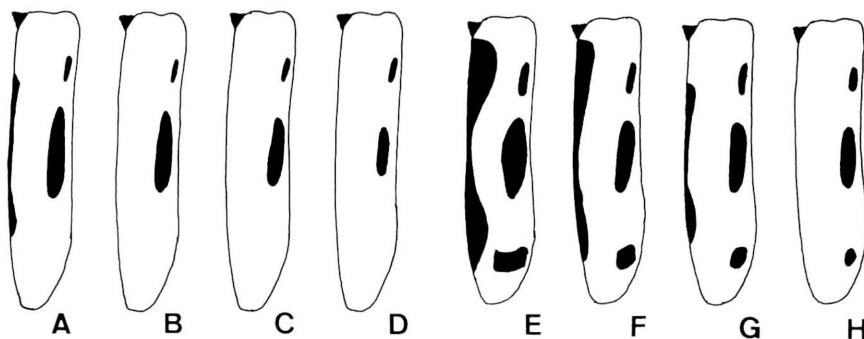


Fig. 3. Variation of elytral markings in *Pidonia amentata awashimana* subsp. nov., from Awa-shima Is. A-D: ♂, E-H: ♀.

(male) or 2.20 times (female) as long as basal width, separately rounded at apices.

Abdomen elongate and gradually narrowed towards apex, apex of last sternite weakly truncate, sometimes shallowly emarginate at middle; tergite square, angles obtuse, apex truncate, sometimes shallowly emarginate at middle; in female, last sternite semicircular, broad transversely, faintly projecting and round at apex, last tergite round at apex.

Type series. Holotype: ♂, Mt. Koshiba-yama, 30–260 m alt., Awashimaura-mura, Iwafune-gun, Niigata Pref., 12–VI–1992, M. KUBOKI leg. Paratypes: 28 ♂♂, 13 ♀♀, same data as for the holotype; 23 ♂♂, 11 ♀♀, Mt. Ohsaka-yama, 40–230 m alt., Awashimaura-mura, 12–VI–1992, M. KUBOKI leg.; 31 ♂♂, 4 ♀♀, Awashimaura-mura, 50–200 m alt., 25–V–1991, H. TAKEDA leg.; 2 ♀♀, Awashimaura-mura, 20–V–1989, H. TAKEDA leg.

Distribution. Awa-shima Island (Central Japan).

Flight period. May to June.

Flower records. *Weigela hortensis*, *Viburnum dilatatum*.

Remarks. This new subspecies resembles *Pidonia amentata kurosawai* in coloration and elytral markings, but can be distinguished from the latter by the following key:

1. Antennae longer, reaching elytral apex by 10th segment in male, reaching the level of apical twentieth of elytra by last segment in female; sutural marking of elytron narrowly present in male, broadly present in female
.....*P. amentata kurosawai* OHBAYASHI et HAYASHI.
- Antennae shorter, reaching elytral apex by last segment in male, reaching the level of apical tenth of elytra by last segment in female; sutural marking of elytron almost lacking, rarely faintly present in male, narrowly present in female
.....*P. amentata awashimana* subsp. nov.

要 約

窪木幹夫：栗島産ヒメハナカミキリの1新亜種。——筆者は最近、栗島（新潟県岩船郡）の小柴山

と逢坂山でヒメハナカミキリの調査を行ない、ガマズミの花から多数のセスジヒメハナカミキリ成虫を採集した。

これらの標本を詳細に検討した結果、栗島の個体群は、広く日本列島に分布するセスジヒメハナカミキリとは異なる形質を持つことが判明したので、これを新亜種 *awashimana* subsp. nov. として記載した。この亜種は、北海道と本州北西部に分布する *P. amentata kurosawai* に似ているが、触角が短く、雄では第 11 節で上翅端に届き、雌では上翅端から 1/10 手前にしか届かないこと、上翅の斑紋が退色し、雄では S 紋がほとんど消失し、雌では S 紋が細いことなどの点によって区別できる。

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Elytra, Tokyo, **21** (2): 238, Nov. 15, 1993

A New Record of the Genus *Gymnusa* GRAVENHORST (Coleoptera, Staphylinidae) from Hokkaido, Japan

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Gymnusa inexpectata KLIMASZEWSKI, 1979, has hitherto been reported only from Kluchevskye, Kamchatka. I captured some specimens of a staphylinid beetle probably referable to this species in Hokkaido and will report it below as new to the fauna of Japan.

I thank Dr. Shun-ichirô NAOMI for determining the specimens and for his constant advice. 3 exs., Lake Chitose-ko, the upper reaches of the Riv. Bibi-gawa, Chitose City, 7-VI-1993, K. MIYASHITA leg.; 1 ex., Ohtsu, Toyokoro-chô, 24-VI-1993, K. MIYASHITA leg.; 6 exs., Kimontô Lake, Taiki-chô, 24-VI-1993, K. MIYASHITA leg.

Two New Yunnanese Beetles of the Genera *Laena*
(Tenebrionidae) and *Sivacrypticus* (Archeocrypticidae)
(Coleoptera)¹⁾

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Abstract Two new Yunnanese species collected by a Sino-Japanese joint party of entomological investigation made in 1992 are described: *Laena watanabei* sp. nov. (Adeliini, Tenebrionidae) and *Sivacrypticus uenoi* sp. nov. (Archeocrypticidae). The former was found in soil samples taken in a temperate mixed forest in the suburbs of Kunming, and the latter was taken in a tropical rain forest at Menglun, Xishuangbanna.

Dr. Shun-Ichi UÉNO and Dr. Yasuaki WATANABE, who participated in a Sino-Japanese joint party of entomological investigation of soil animals in Yunnan, southern China, made in the autumn of 1992, collected some specimens of tenebrionid and archeocrypticid beetles at Kunming and Xishuangbanna. They were submitted to the authors for taxonomic study. One of them (tenebrionid) was found in the soil samples taken in a temperate mixed forest in the western suburbs of Kunming, and the other (archeocrypticid) was taken in a tropical rain forest at Menglun, Xishuangbanna. Both were found to belong to new species, and will be described in the present paper.

The holotypes of the new species to be described are deposited in the collection of the Shanghai Institute of Entomology, Academia Sinica.

The authors wish to express their deepest appreciation to Dr. Shun-Ichi UÉNO, Dr. Yasuaki WATANABE and all the other participants of the joint expedition for their kind assistance given to the authors in the course of the present study. Thanks are due to Dr. Ottó MERKL, the Természettudományi Múzeum, Budapest, for permission of loaning type specimens and giving invaluable advice concerning above species. The authors are also obliged to Mr. Kiyoshi ANDO for taking photographs inserted in this paper.

1) This study is supported by the Grant-in-aid No. 04041042 for Field Research of the Monbusho International Scientific Research Program, Japan.

Tenebrionidae — Adeliini

Laena (s. str.) *watanabei* sp. nov.

(Fig. 1)

Dark brown, with antennae and tibiae yellowish brown, mouth parts, tarsi and hairs on surfaces golden yellow, dorsal surface piceous, rather strongly, vitreously shining and feebly micro-shagreened, ventral surface vitreously shining and partly alutaceous; each surface distinctly covered with rather long hairs. Body rather elongate and constricted between bases of pronotum and elytra.

Head subdecagonal, feebly convex above, strongly and irregularly punctate, the punctures fused and rugose in postero-lateral portions; clypeus transversely hexagonal, gently bent downwards in front; genae raised and impunctate in middle, feebly produced antero-laterad; frons bordered from clypeus by a straight fronto-clypeal suture and also from genae by punctate grooves; eyes medium-sized, gently convex laterad, distance between them about 7 times the width of transverse diameter of an eye. Antennae reaching basal portion of pronotum, ratios of the length of each segment from basal to apical: 0.42, 0.2, 0.36, 0.35, 0.31, 0.32, 0.29, 0.28, 0.27, 0.31, 0.39.

Pronotum subcordate, slightly wider than long and widest at apical 2/5; apex almost straight; base gently produced posteriad; sides irregularly beset with small setiferous pores and gently declined towards finely grooved lateral margins, which are slightly and irregularly serrate; front angles rounded and hind angles obtuse; disc gently convex, strongly punctate, the punctures sparser in middle, closer and coarser in lateral portions, and becoming rugose near hind angles.

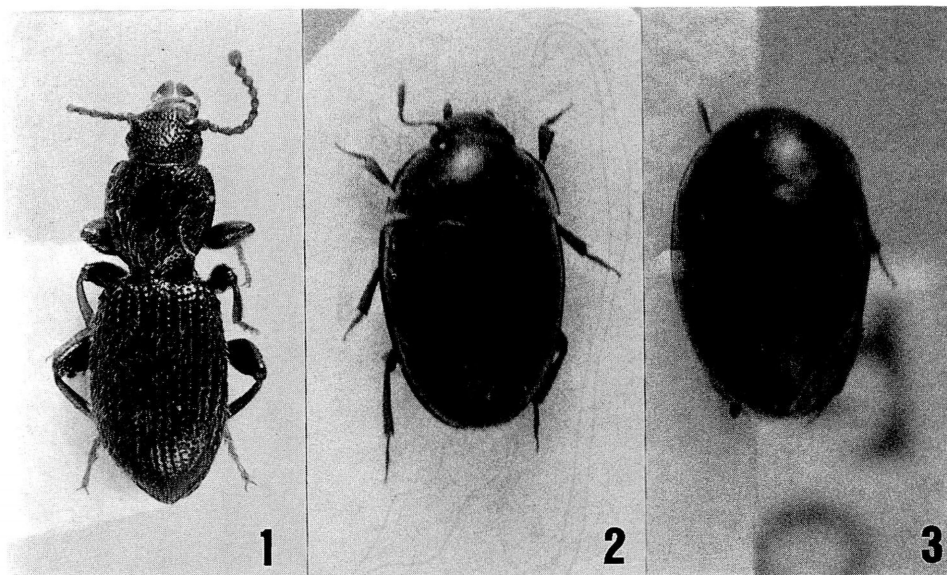
Elytra about 1.5 times as long as wide, twice the length and 1.3 times the width of pronotum, widest at the middle; dorsum moderately convex, thickest slightly before the middle; disc strongly punctato-striate, each puncture with a long fine hair; intervals gently convex in middle and strongly so in lateral portions, often with a row of sparse punctures; 7th to 9th intervals gently ridged and slightly carinate in anterior portions, the 7th with a setiferous pore at humeral portion, the 9th also with a few setiferous pores in basal portion, the arrangement of pores being irregular in each specimen.

Femora without any spines; ratios of the lengths of pro-, meso- and metatarsomeres: 0.49, 0.33, 0.29, 0.27, 1.2; 0.65, 0.32, 0.27, 0.21, 1.2; 1.0, 0.6, 0.31, 1.26, respectively.

Body length: 5.1–6.3 mm.

Holotype: ♀, Yu'an Shan, 2,130 m alt., Kunming, Yunnan, S China, 6–XI–1992, S.-I. UENO leg. Paratypes. 1 ex., 5–XI–1992, same locality and collector as for the holotype; 2 exs., Xi-shan, 2,120 m alt., Kunming, 7–XI–1992, S.-I. UENO & Y. WATANABE leg.

Notes. This new species somewhat resembles *Laena* (s. str.) *thodunga* KASZAB, 1973, originally described from East Nepal, but can be discriminated from the latter by the larger body covered with longer hairs, coarser punctures on the dorsal surface, more convex elytral intervals, and the 7th to 9th gently ridged and carinate in the an-



Figs. 1-3. — 1. *Laena* (s. str.) *watanabei* sp. nov., ♀, holotype. — 2. *Sivacrypticus uenoi* sp. nov., ♂, holotype. — 3. *S. taiwanicus* KASZAB, ♀, holotype (in Természettudományi Múzeum).

terior portions. Two species of the genus have hitherto been known from China, *Laena* (s. str.) *chinensis* KASZAB, 1965, from western Yunnan, and *L. (Catolaena) mirabilis* KASZAB, 1970, from "Ta-tsien-Lou". From the former, the new species can be distinguished by the hairy body with toothless femora, and from the latter, it is easily distinguishable by the hairy and convex dorsum of elytra.

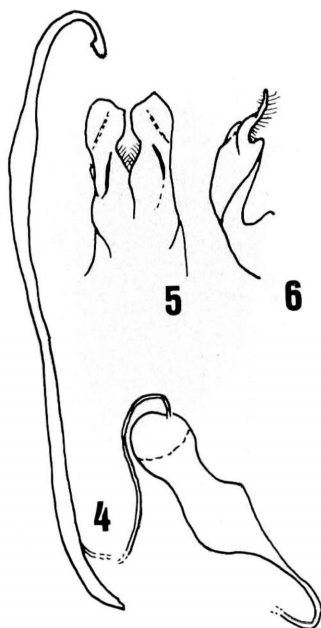
Archeocrypticidae

Sivacrypticus uenoi sp. nov.

(Figs. 2, 4-6)

Dark reddish brown, with antennae, mouth parts, outer margins of pronotum and elytra, legs, etc., lighter in colour; dorsal surface covered with decumbent short grayish yellow hairs, those on head mostly directed backwards and those on pronotum and elytra completely directed backwards. Ovoidal and strongly convex above.

Head transversely subelliptic, gently raised posteriorly, densely and finely punctate; clypeus wide, produced forwards and truncate in front; genae small, gently convex above, with outer margins hardly produced; frons wide, bordered from clypeus by fronto-clypeal suture which is fine and widely arcuate posteriad, also bordered from vertex by a fine ridge; eyes rather distinctly produced laterad, diameter about 4 times



Figs. 4-6. Male genitalia of *Sivacrypticus uenoi* sp. nov.; 4, penis with duct sclerite; 5, tegmen, dorsal view; 6, do., lateral view.

the width of transverse diameter of an eye; antennae surpassing the middle of pronotum.

Pronotum trapezoidal, widest at base and roundly narrowed towards apex; apex feebly produced forwards in middle, rimmed laterally; base bisinuous, roundly produced posteriad in middle; sides rather steeply declined towards lateral margins, which are rather distinctly rimmed; front angles obtuse and hind angles subrectangular; disc strongly convex, densely and finely punctate, the punctures uneven in size and often feebly microscopically rugose. Scutellum somewhat widely pentagonal, finely punctate and haired.

Elytra slightly longer than wide, widest at basal $2/7$, gradually narrowed towards apices and also towards base; dorsum strongly convex and thickest at basal $1/3$; disc with rows of punctures, which are small, sparse and irregularly set; intervals alutaceous and not convex.

Prosternal process large, raised, flattened, and protruded posteriad. Fore tibia dilated towards apex, acutely pointed at outer corner, with an inner end-thorn; middle tibia with two outer end-thorns and hind tibia with two outer and an inner thorns. Ratios of the lengths of pro-, meso- and metatarsomeres: 0.3, 0.18, 0.15, 0.13, 0.33; 0.35, 0.18, 0.16, 0.15, 0.34; 0.72, 0.23, 0.17, 0.51, respectively.

Body length: ca. 2.3 mm.

Holotype: ♂, Menglun, 600 m alt., Xishuangbanna, Yunnan, S China, 28-X-

1992, S.-I. UENO & Y. WATANABE leg.

Notes. The species nearest to the new one is *Sivacrypticus taiwanicus* KASZAB, 1964 (Fig. 3), but the present species can be distinguished from the latter by the larger and wider body and rows of obviously indistinct punctures on the elytra.

要 約

益本仁雄・尹 文英：中国云南省産チビヒサゴゴミムシダマシ (*Laena*) 属 (ゴミムシダマシ科) および *Sivacrypticus* 属 (Archeocrypticidae 科) の新知見。—— 1992 年秋に、中国云南省で実施された日中共同による土壌性動物調査で得られた甲虫類のうち、2 種を新種と認め、それぞれ *Laena* (s. str.) *watanabei* sp. nov. (ゴミムシダマシ科) および *Sivacrypticus uenoi* sp. nov. (Archeocrypticidae 科) と命名した。なお、Archeocrypticidae は、近年までゴミムシダマシ科の 1 族 (Archeocrypticini) として扱われていたものである。

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A Synonymic Note on *Athemus ishiharai* ISHIDA (Coleoptera, Cantharidae)

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In his revision of the Japanese species of the cantharid genus *Athemus* LEWIS, 1895, ISHIDA (1986) described *A. (Andrathemus) hisamatsui* from Honshu and Shikoku, and *A. (Andrathemus) ishiharai* from Shikoku. Recently, through the courtesy of Dr. Masataka SATÔ, Nagoya Women's University, the author was given an opportunity to examine the types of the two taxa, and found that *A. (A.) hisamatsui* is a junior synonym of *A. (A.) ishiharai*.

The author wishes to express his hearty thanks to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his critical reading of the original manuscript, to Dr. Masataka SATÔ of Nagoya Women's University and Dr. Katsuyoshi ISHIDA of Meijo University, for their kind aid and advice on the present study.

Athemus (Andrathemus) ishiharai ISHIDA

Athemus (Andrathemus) ishiharai ISHIDA, 1986, Trans. Shikoku ent. Soc., 17: 203.

Athemus (Andrathemus) hisamatsui ISHIDA, 1986, Trans. Shikoku ent. Soc., 17: 201. *Syn. nov.*

Notes. The author compared the holotypes of the two taxa carefully. They are very similar in the proportion of the body, transverse black marking of the pronotum and the shape of the genitalia, and can be considered to belong to the same species. On the other hand, the paratypes of *A. hisamatsui* in SATÔ's collection include a different species. It is necessary to re-examine if *A. ishiharai* actually occurs in Honshu or not. The author prefers to give *ishiharai* precedence over *hisamatsui* because of the problem of this confusion.

Specimens examined: 1 ♂, 3 ♀♀, Mt. Saragamine, Ehime Pref., 3-V-1983, K. ISHIDA leg. (holotype ♂ and paratypes of *A. ishiharai*); 1 ♂, Mt. Takanawa, Ehime Pref., 19-V-1956, M. MIYATAKE leg. (holotype of *A. hisamatsui*). All these specimens are preserved in the collection of the Biological Laboratory, Nagoya Women's University.

Reference

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A New Species of the Genus *Actenicerus* (Coleoptera,
Elateridae) from Mt. Ontake-san, Central Japan

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and

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Abstract A new elaterid beetle, *Actenicerus toyoshimai* sp. nov., is described from Mt. Ontake-san in central Honshu, Japan. It resembles *A. orientalis* (CANDEZE) in general characters, but differs from it in facies and genitalic configuration.

In the summer of 1983, a strange elaterid beetle was obtained by the junior author at the Tanohara Moor lying at an altitude of about 2,100 m on Mt. Ontake-san in Ohtaki-mura of Nagano Prefecture, central Honshu, Japan. Recently, we had an opportunity to examine many additional specimens from the same collecting site through the courtesy of Messrs. Ryôji TOYOSHIMA, Takashi OGASAWARA and Tetsuto WAKEJIMA. After a careful examination, it has become apparent that this species is new to science.

In the present paper, we are going to describe it under the name of *Actenicerus toyoshimai* sp. nov. The holo- and allotypes are deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Before going further, we wish to express our deep gratitude to Dr. Hitoo ÔHIRA of Okazaki for his constant guidance and for taking photographs inserted in this paper. Thanks are also due to Messrs. R. TOYOSHIMA, T. OGASAWARA, T. WAKEJIMA, K. SHINDO and T. SHINDO for their kind offer of materials.

Actenicerus toyoshimai sp. nov.

[Japanese name: Ontake-shimofuri-kometsuki]

(Figs. 1–2)

Male. Length 13.5–16.0 mm; width 3.5–4.5 mm.

Body elongate, subparallel-sided, gently convex above and shining. Colour black with dark aeneous lustre, legs black to brown with claws yellowish brown. Dorsal surface clothed with moderately long, recumbent and whitish gray pubescence; ventral surface with moderately long, recumbent and whitish pubescence which is rather

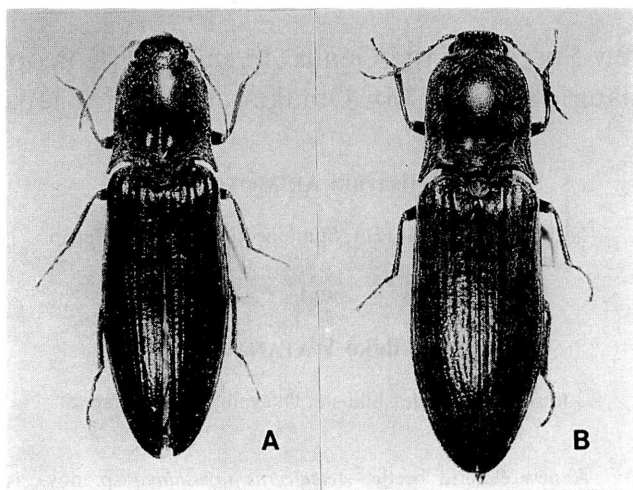


Fig. 1. *Actenicerus toyoshimai* sp. nov.; A, paratype (male); B, paratype (female).

densely set. Pronotum and elytra irregularly scattered with brown pubescence forming speckles.

Head quadrate, slightly convex between eyes, triangularly impressed between antennae; surface densely and coarsely punctate; clypeal margin transverse, well ridged before and over antennal insertions, obliterated at the middle; apical segment of each maxillary palpus hatchet-like in shape and about twice as long as its largest width; labrum semicircular, somewhat convex above, with surface coarsely punctate. Antennae rather short, not reaching posterior angles of pronotum; basal segment robust and clavate; the second short, subconical and slightly longer than wide; the third elongate triangular, about 1.7 times as long as the second and as long as the fourth; the third to tenth rather acutely serrate; apicalmost subovate, about 3.4 times as long as its largest width.

Pronotum subquadrate, widest at the base, slightly longer than the basal width, with sides almost parallel from before posterior angles to apical fifth, then roundly and clearly convergent towards anterior angles; disc gently convex above; surface smooth and shining, sparsely punctate, the punctures becoming denser and larger laterad; posterior angles elongate, projecting postero-laterally, each with a distinct carina above.

Scutellum linguiform, posterior end rounded, densely punctate,

Elytra about 2.4 times as long as humeral width; sides almost parallel in basal halves, then rounded and gradually convergent towards apices; striae defined; intervals somewhat elevated, coarsely punctate and transversely rugose.

Legs slender, with tarsi and claws simple.

Propleura rather densely and evenly punctate, the punctures smaller and sparser than those of lateral pronotal areas. Medio-longitudinal portion of prosternum

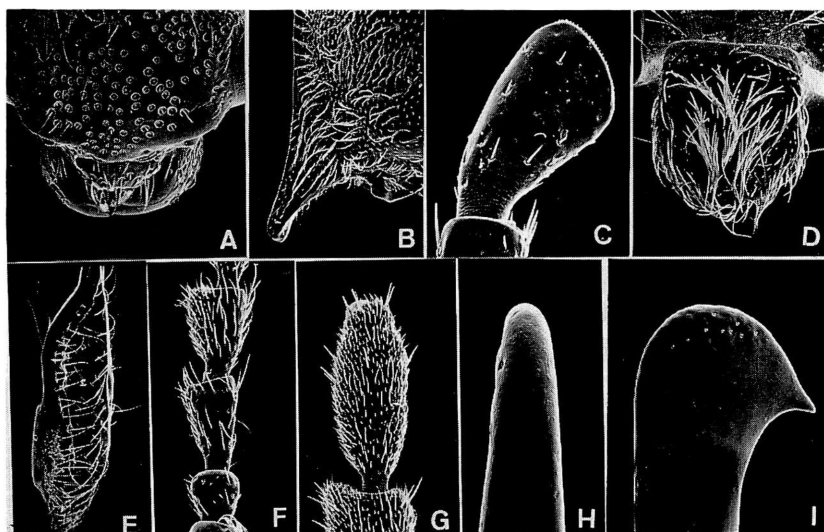


Fig. 2. *Actenicerus toyoshimai* sp. nov. (male). — A, Clypeal margin, dorsal aspect; B, left posterior angle of pronotum, dorsal aspect; C, apical segment of left maxillary palpus; D, scutellum; E, prosternal process, lateral aspect; F, second to fourth segments of right antenna; G, apical segment of right antenna; H, apical portion of median lobe of aedeagus, dorsal aspect; I, apical portion of right lateral lobe of aedeagus, dorsal aspect.

very sparsely punctate, the punctures becoming larger and denser laterad, prosternal process elongate, weakly incurved behind procoxae, then straightly projecting apicad, with obtusely pointed apex.

Aedeagus elongate and rather flattened; median lobe a little longer than lateral lobes, gradually narrowed towards apex, which is obtusely pointed; apex of each lateral lobe clearly rounded, with preapical outer angle acutely and obliquely pointed outwards.

Female. Length 15.0–16.0 mm; width 4.0–4.5 mm. Similar to male in general characters, but the antennae are shorter, with the third segment elongate and a little longer than the fourth.

Holotype: ♂, Tanohara Moor, Mt. Ontake-san, Ohtaki-mura, Nagano Pref., 26–VII–1992, R. TOYOSHIMA leg. *Allotype:* ♀, same data as for the holotype. *Paratypes:* 1 ♂, same locality as for the holotype, 30–VII–1983, A. WATANABE leg.; 1 ♂, same locality as for the holotype, 23–VII–1991, T. OGASAWARA leg.; 1 ♂, same locality as for the holotype, 30–VII–1991, H. ARIMOTO leg.; 1 ♂, same locality as for the holotype, 25–VII–1992, T. WAKEJIMA leg.; 1 ♂, 1 ♀, same locality as for the holotype, 25–VII–1992, T. SHINDO leg.; 2 ♂♂, 1 ♀, same locality as for the holotype, 25–VII–1992, K. SHINDO leg.; 3 ♂♂, 1 ♀, same locality as for the holotype, 26–VII–1992, R. TOYOSHIMA leg.; 3 ♂♂, same locality as for the holotype, 30–VII–1992, R. TOYOSHIMA leg.; 1 ♂, 2 ♀♀, same locality as for the holotype, 30–VII–1992, H. ARIMOTO leg.

Notes. This new species is allied to *Actenicerus orientalis* (CANDÈZE, 1889), from the mainland of Japan, but can be distinguished from the latter by the following points: 1) The body is robuster and more convex above. 2) The antennae are distinctly shorter. 3) The pubescence on the body surface is whitish gray, while that of *A. orientalis* is yellowish gray. 4) Both the median lobe and lateral lobes of the male genitalia are robuster though shorter.

要 約

有本久之・渡辺昭彦：御岳山産シモフリコメツキ属（コメツキムシ科）の1新種。——長野県の御岳山の田ノ原から、シモフリコメツキ属の1新種、オンタケシモフリコメツキ *Actenicerus toyo-shimai* を記載した。本種は、*A. orientalis* (CANDÈZE) に似ているが、より幅広く、より膨隆した体形、より短い触角、雄生殖器官の形態の差異などによって区別できる。

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New or Little-known Elateridae (Coleoptera) from Japan, XXVIII

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Abstract Two new species and two new subspecies of elaterid beetles are described from Japan and illustrated. They are: *Agrypnus (Colaulon) kusuii* sp. nov. (subfam. Agrypninae), *Hypolithus motschulskyi hiranoi* subsp. nov. (subfam. Hypnoidinae), *Denticollis yasumii* sp. nov. (subfam. Denticollinae) and *Ampedus (Parelater) canalicollis shidouii* subsp. nov. (subfam. Ampedinae).

In the present study, I am going to describe two new species and two new subspecies of elaterid beetles from Japan. They belong to four different subfamilies, Agrypninae, Hypnoidinae, Denticollinae and Ampedinae. The holotypes of each species and subspecies described in this paper are preserved in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Before going further, I wish to express my deep indebtedness to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his reading the manuscript and giving me useful suggestions, and to Messrs. Yoshihisa KUSUI of Nagasaki, Yukihiro HIRANO of Odawara, Yasumi TAKAHASHI of Iwate, Toshihiro OZAKI of Hirosaki, and Hiroshi SHIDOU of Sapporo for their kindness in offering the specimens used in this report.

Agrypnus (Colaulon) kusuii sp. nov.

(Fig. 1)

Male. Length 6.5 mm, width about 2.5 mm. Body robust, nearly parallel-sided and moderately convex above; surface rather shining, black to blackish brown except for dark brown around margins of pronotum and elytra; antennae (basal segment dusky brown) and legs more or less reddish brown; vestiture fulvous, scale-like and decumbent all over.

Head subtriangularly depressed between eyes; surface deeply and coarsely punctate; clypeal margin obliterated at middle, well-ridged over antennal insertions. Antenna short, not attaining to posterior angle of pronotum, 2nd segment subcylindrical, a little longer than its breadth, 3rd subclavate, almost as long as 2nd and a little shorter than 4th, 4th to 10th triangularly serrate (Fig. 1 B).

Pronotum subquadrate, widest across the middle, thence clearly narrowed towards anterior angles, subparallel-sided in posterior half; disc gently convex, deeply, coarsely

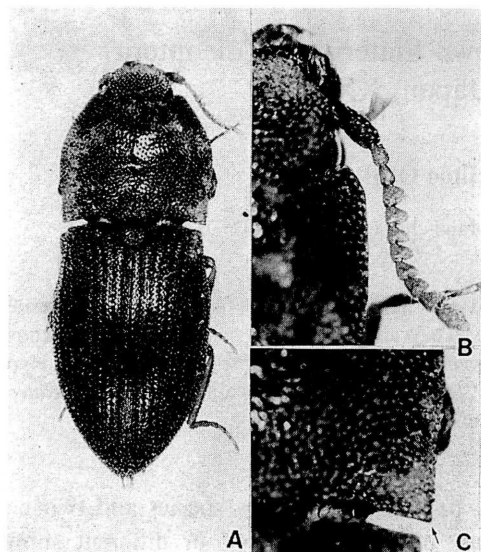


Fig. 1. *Agrypnus (Colaulon) kusuii* sp. nov. — A, Holotype (male); B, same, right antenna; C, same, right posterior angle of pronotum.

and somewhat rugosely punctate, bearing a shallow median smooth longitudinal line in posterior half; posterior angles short, with each tip pointed posteriorly, but not truncate obliquely, without carina above (Fig. 1 C).

Elytra about 1.8 times as long as their basal breadth; sides weakly reflexed, gradually dilated backwards at basal third, thence rounded and gradually converging towards apices which are normally rounded; striae well defined, deeply, circularly and regularly punctate; intervals a little elevated, irregularly and rugosely punctate. Hind wings of normal length, not degenerated.

Female unknown.

Holotype: ♂, Mage-jima Is. near Tanegashima Is. in Kagoshima Pref., 2-VIII-1991, Y. KUSUI leg.

Distribution. Mage-jima Is. off the western coast of Tanegashima Is., south of Kyushu.

This new species is closely allied to *Agrypnus (Colaulon) hypnicola* (KISHII, 1964) from Japan, but can be distinguished from the latter by the following points: the disc of pronotum bearing a smooth median longitudinal line in posterior half; the posterior angles of pronotum pointed posteriorly, not truncate.

***Hypolithus motschulskyi hiranoi* subsp. nov.**

(Fig. 2)

Male. Length 12 mm, width about 4 mm. Body black and shining except for dusky reddish-brown antennae and legs; vestiture short, decumbent and fulvous on ventral surface, almost glabrous on dorsal surface.

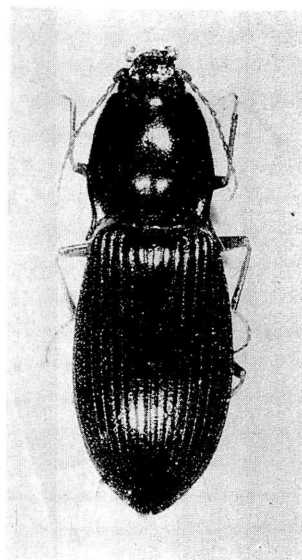


Fig. 2. Holotype of *Hypolithus motschulskyi hiranoi* subsp. nov. (male).

This new subspecies somewhat resembles subsp. *tachikawai* ÔHIRA, 1968, from Mt. Mitake, west of Tokyo, and subsp. *ohbayashii* ÔHIRA, 1968, from Mt. Ôyama in Kanagawa Prefecture, but differs from them in the following points: body robuster and stouter, with the sides of pronotum clearly sinuate just before posterior angles which are sharply produced postero-laterad; elytral striae deep, with the intervals elevated and more smoothly and minutely punctate.

Holotype: ♂, Mt. Kintoki of the Hakone Mts. in Kanagawa Pref., 6–VII–1991, Y. HIRANO leg. Paratype: 1 ♀, same data as for the holotype.

Distribution. Hakone Mts. in Kanagawa Prefecture, Honshu.

***Denticollis yasumii* sp. nov.**

(Fig. 3)

Male. Length 7.5 mm, width about 2 mm. Body elongate, almost parallel-sided and moderately convex above; surface shining, entirely yellowish brown except for dark brown antennae, most parts of head, basal margin of pronotum, scutellum, suture and 2nd and 6th to 9th intervals of elytra; legs yellowish brown; vestiture fine, erect and pale yellow.

Head deeply and triangularly excavated between eyes (Fig. 3 C); surface coarsely and unevenly punctate; clypeal margin well raised, rounded at middle; nasal area broad, subrectangular, almost 1/2 as high as its transverse width; eyes prominent, antenna elongate, extending beyond posterior angle of pronotum at least by 4 apical segments; basal segment robust and subclavate, 2nd subtriangular and almost as long as its width, 3rd to 10th weakly serrate (Fig. 3 F).

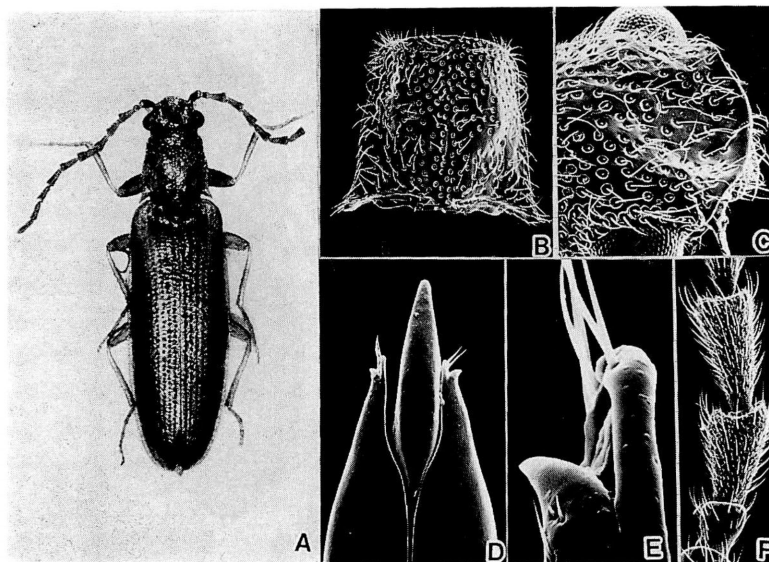


Fig. 3. *Denticollis yasumii* sp. nov. — A, Holotype (male); B, pronotum in dorsal aspect; C, head in dorso-lateral aspect; D, aedeagus in dorsal aspect; E, apical portion of left lateral lobe of aedeagus; F, 2nd to 4th segments of male antenna.

Pronotum subquadrate, widest across base, with sides weakly sinuate just behind anterior angles and weakly rounded at middle; disc moderately convex, bearing a pair of oblique impressions at the sides of basal area; surface coarsely and uniformly punctate; posterior angle short, pointed postero-laterad, without carina above (Fig. 3 B). Scutellum subquadrate, punctate and pubescent.

Elytra about 3 times as long as their basal breadth, with sides almost parallel in basal 3/4, thence rounded and gradually convergent towards apices which are obtusely rounded; striae defined, coarsely punctate; intervals elevated, irregularly and transversely rugose. Legs slender, tarsi and claws simple. Aedeagus as illustrated (Fig. 3 D-E).

Female unknown.

Holotype: ♂, Mt. Hayachine, Iwate Pref., 26-VII-1987, Y. TAKAHASHI leg. *Paratypes*: 2 ♂♂, Iwaki-chô, Aomori Pref., 25~28-VII-1986, T. OZAKI leg.

Distribution. Honshu, Japan.

This new species is somewhat allied to *Denticollis varians shirozui* ÔHIRA, 1963, from Hokkaido, but can be distinguished from the latter by the narrower and slender body and the antennae weakly serrate from the 4th to the 10th segments.

***Ampedus (Parelater) canalicollis shidoui* subsp. nov.**

(Fig. 4)

Male. Length 10 mm, width about 3 mm. Body robust and shining, black

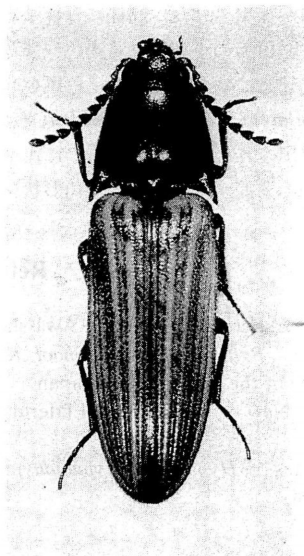


Fig. 4. Holotype of *Ampedus* (*Parelater*) *canalicollis shidouii* subsp. nov. (male).

except for cinnabar-red elytra (more or less black at the apical portion), antennae black, legs black, with blackish brown tarsi and reddish brown claws; vestiture black; pronotum usually bearing a fine opalesque lustre.

This new subspecies can be distinguished from the nominotypical subspecies from Honshu by the shorter and more clearly trapezoidal pronotum, coarser and denser punctures on head, well-ridged clypeal margin, and more clearly serrate antennae.

Holotype: ♂, Ishikari-chô, Hokkaido, 1-XI-1992, H. SHIDOU leg. Paratypes: 4 ♂♂, 1 ♀, same data as for the holotype.

Distribution. Hokkaido, Japan.

要 約

大平仁夫: 日本産コメツキムシ科の新種, XXVIII. — 本報告では, 4 亜科に属する 2 新種 2 新亜種を記載した.

Agrypnus (*Colaulon*) *kusuii* (シマヒメサビキコリ) は, 長崎検疫所の楠井善久氏が, 鹿児島県の種子島に隣接した馬毛島において採集された雄個体である. 一般外形は *A. (C.) hypnicola* (KISHII, 1964) コガタヒメサビキコリに類似しているが, 前胸背板正中部に平滑縦隆線を有し, 後角部が切断状をせず, 上翅の点刻が粗雑で深く印することにより識別できる.

Hypolithus motschulskyi hiranoi (ハコネミヤマヒサゴメツキ) は, 箱根山塊の金時山から, 小田原市の平野幸彦氏によって見出された. 体長 12 mm 内外で黒色, 光沢のある個体である. 東京都御岳山産 (subsp. *tachikawai*) や相模大山産 (subsp. *ohbayashii*) のものに比べて, 体が大型で幅広く, 前胸背板の両側は後角前で顕著に内方へ湾曲, 後角は鋭く後外方へ尖ることによって識別できる.

Denticollis yasumii (ハヤチネベニコメツキ) は, 岩手県の早池峯山において, 岩手県の高橋泰美

氏により2雄個体が採集された。同様に青森県岩木町で、弘前市の尾崎俊寛氏が2雄個体を採集されている。体長7~8 mmの小型で、黄褐色~淡黄褐色をした細長い種である。頭部と前胸背板の大部分は暗褐色で、上翅には縦の帯状の暗褐色斑を有する。

Ampedus (Parelater) canalicollis shidoni (エゾムネミゾアカメツキ) は、北海道の石狩町で志藤宏氏が薪割で見出された。本州産のものに比べて前胸背板がより短大で、頭部の点刻はより粗雑で密に生じ、触角の第3節がより顕著に三角形状をしていることなどにより識別できる。

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Elytra, Tokyo, 21 (2): 254, Nov. 15, 1993

A New Locality of *Pterostichus tanakaorum* (Coleoptera, Carabidae)

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The apterous pterostichine carabid beetle, *Pterostichus tanakaorum* MORITA et OHKURA, 1988, was described from Ryûjin-mura in the Kii Peninsula, Japan, and has hitherto been known only from the type locality. Recently, I have examined a male specimen of the same species collected at Misato-chô in Wakayama Prefecture, more than 20 km north-west of Ryûjin. I record it here as an additional locality of the interesting pterostichine.

1 ♂, Ta (220 m alt.), Misato-chô, Wakayama Pref., 15-X-1992, S. UÉNO leg. It was obtained with the microphthalmic trechine carabid, *Trechima reductoculatus* S. UÉNO.

I thank Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for giving me the opportunity to examine the specimen under his care.

A New Species of the Genus *Paratrichius* (Coleoptera, Scarabaeidae) from Sumatra

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Abstract A new trichiine scarabaeid beetle, *Paratrichius meridionalis*, is described from Sumatra. It is related to *P. hatai* MIYAKE from the Malay Peninsula.

Up to the present, only one scarabaeid species belonging to the genus *Paratrichius* has been described from the Sundaland. Recently, I had an opportunity to examine a Sumatran specimen of this genus, which was clearly different from the Malay one. In the present paper, I am going to name this species *P. meridionalis*. Generic definition of *Paratrichius* is in IWASE, 1993.

Paratrichius meridionalis n. sp.

(Figs. 1–2)

Male. Elongate, with slender legs; colour black with legs reddish brown, antennal footstalk reddish brown, each antennal lamellate segment black with yellow apex; ventral surface weakly shining, dorsal surface opaque; body decorated with white opaque cretaceous materials as follows: pronotal lateral and basal margins which are interrupted before scutellum, elytral short longitudinal lines, one from base to basal 1/5 along scutellum and suture and additional one dotted from the middle to basal 7/10 of first stria, elytral spot just before the middle of third interval, elytral transverse bands, one at basal 1/4 from fourth interval to external border and additional one at basal 2/3 from fifth interval to external border, these two bands being intermittent and weakly oblique backwards, pygidial large longitudinal lateral markings, greater parts of procoxa, prothorax, mesepimeron and metepisternum, anterior and posterior spots on metasternum, external spot on metacoxa, middle transverse bands of third to sixth (anteapical) abdominal sternites, and lateral spots of third to fifth ones.

Clypeus wider than long ($L/W=0.83$), widest just before the middle, lateral border moderately arcuate, anterior angle strongly and widely rounded, anterior border weakly but distinctly emarginate; sides weakly declined externally, disc very weakly depressed at both sides; clypeal surface densely and shallowly punctate anteriorly, transversely reticulate posteriorly, clypeofrontal suture absent; frons longitudinally reticulated anteriorly, densely punctate posteriorly. Antennal club weakly curved, about 1.25 times as long as footstalk.

Pronotum moderately convex, octagonal, wider than long ($L/W=0.92$); lateral

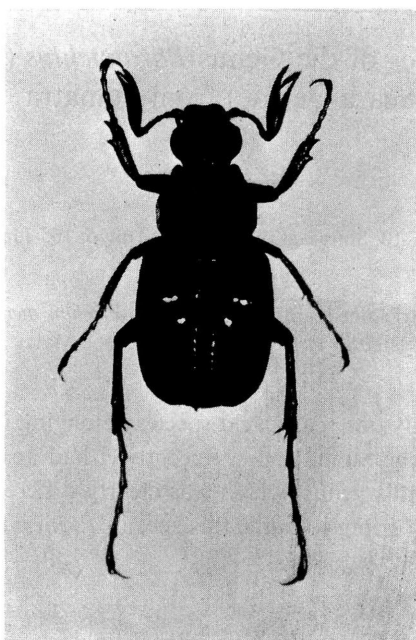
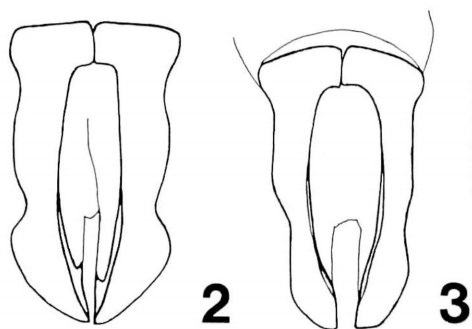


Fig. 1. *Paratrichius meridionalis* n. sp.; dorsal aspect.



Figs. 2-3. Caudal view of male parameres. — 2, *P. meridionalis* n. sp.; 3, *P. hatai* MIYAKE.
(Scale: 1 mm.)

borders curved behind the middle, convergent anteriorly, almost paralleled posteriorly, anterior angle produced anteriorly and acutely angulate, though rounded at apex, posterior angle very obtuse, posterior border widely rounded; disc very weakly depressed at both sides, covered with small horseshoe-shaped punctures behind the middle, other surface densely and concentrically reticulated, all borders marginate, margination becoming wider and weakly raised before scutellum.

Scutellum triangular, wider than long ($L/W=0.72$), lateral borders weakly arcuate, apex rounded; surface longitudinally impunctate at the middle, sides rather sparsely

punctate.

Elytra longer than wide ($L/W=1.11$), widest at the middle, lateral borders arcuate, posterior border of each elytron widely rounded; each elytron with five striae between suture and shoulder, each stria marked with a row of horseshoe-shaped punctures, but indistinct posteriorly, first (sutural) interval flat and longitudinally strigose, second one weakly convex and sparsely aciculate, third to fifth ones weakly convex, almost smooth, but aciculate posteriorly, shoulder strongly swelling, external side with three rows of horseshoe-shaped punctures behind shoulder, aciculate along external border; all surface clothed with minute setae, sparsely on disc, densely at side.

Pygidium moderately convex, wider than long ($L/W=0.71$), densely and concentrically strigose, clothed with short setae.

Mesosternum unraised between mesocoxae; metasternum convex ventrally, punctate medially, strigose laterally, clothed with short setae. Abdomen transversely strigose, clothed with short setae.

Anterior femur with weak serrated longitudinal ridge on anterior face; anterior tibia with two external teeth, lacking terminal spur; posterior tarsus 1.5 times as long as posterior tibia.

Male genitalia as shown in Fig. 2.

Length: 9 mm, width: 4.2 mm.

Holotype: ♂, near Padang, Sumatra Barat, Indonesia, X-1992 (in coll. K. SAKAI). This will be preserved in the National Science Museum (Nat. Hist.), Tokyo.

This new species is very closely allied to *P. hatai* MIYAKE (Fig. 3) from the Malay Peninsula, but differs from it in clypeal and antennal colour, shape of elytral markings and shape of male genitalia.

Acknowledgement

I wish to thank M. FUJIOKA and K. SAKAI for various help given in the course of this study.

要 約

岩瀬一男: スマトラ産 *Paratrichius* 属の 1 新種。—— スマトラ産の *Paratrichius meridionalis* を新種として記載した。この種は、マレー半島産の *P. hatai* MIYAKE に近縁でスンドラランドから記載される本属の 2 番目の種になる。

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MIYAKE, Y., 1989. New or little known scarabaeid beetles from southeastern Asia. *Lamellicornia*, Tokyo, (5): 37-45.

Notes on *Kanekoa lalashana* (SHIMOMURA)
(Coleoptera, Cerambycidae, Lepturinae)

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Kanekoa lalashana (SHIMOMURA, 1980) was described as a new species on the specimens collected on Mt. Lalashan, ca. 1,700 m in altitude, Taipei Pref., Taiwan, though *Kanekoa* was treated as a subgenus of *Anoplodera*. In addition to the type locality, I collected this species at the following two localities in northern Taiwan. The collecting data are as follows:

1) Nr. Chihtuan, ca. 1,100 m, Ilan Pref., Taiwan: 3 ♂♂, 3 ♀♀, 28 & 29-III-1980, T. SHIMOMURA leg.; 1 ♂, 31-III-1980, T. SHIMOMURA leg. (on the flowers of *Acer* sp.).

2) Yuanyanghu, ca. 1,660 m, Chienshin District, Hsinchu Pref., Taiwan: 17 ♂♂, 3 ♀♀, 5-IV-1981, T. SHIMOMURA leg. (on the flowers of *Symplocos* sp.).

Notes. The larval stage of this genus is not yet known. However, *Kanekoa lalashana* may be dependent on *Chamaecyparis* as the host plant, because large trees of *Chamaecyparis* sp. are common around the collecting sites at the above three localities, especially at Yuanyanghu and on Mt. Lalashan. HOLZSCHUH (1991) suggested that *K. lalashana* would be the same species as *Acmaeopidonia aerifera* TIPPMANN, 1955, described from Kuatun, Fukien, E. China. The genus *Acmaeopidonia* TIPPMANN, 1955, is a synonym of *Kanekoa* MATSUSHITA et TAMANUKI, 1942. *Kanekoa* is treated as a full genus at present, though it was established as a subgenus of *Leptura*. [*Acmaeopidonia* TIPPMANN, 1955 = *Kanekoa* MATSUSHITA et TAMANUKI, 1942, new synonymy].

I express my deep gratitude to Dr. S.-I. UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for reading the original manuscript of this short report.

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A Taxonomical Note on the Sumatran Species of the
Genus *Sophrops* (Melolonthidae,
Melolonthinae, Melolonthini)

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Abstract The Sumatran species of the melolonthine genus *Sophrops* allied to *Sophrops rugulosa* (BRENSKE), comb. nov., from Borneo Island, are dealt with. They contain 4 species including 3 subspecies, one of which is newly described here under the name of *S. rugulosa harauensis* T. ITOH, subsp. nov. A key to them is provided.

Up to this time, four melolonthine species related to *Brahmina rugulosa* BRENSKE, 1892, from western Borneo, have been known from Sumatra. They are *Brahmina cribripennis* BRENSKE, *Microtrichia confusa* MOSER, *M. deliensis* MOSER and *M. impressicollis* MOSER. They may be ascribed to the genus *Sophrops* and are closely allied to one another. It has been very difficult to identify these species exactly only from their original descriptions. Recently, I had an opportunity to examine a series of specimens of these beetles from Sumatra including some of their type specimens. As the result, I have come to the conclusion that in Sumatra Island, *S. cribripennis* comb. nov., *S. deliensis* comb. nov., *S. impressicollis* comb. nov., *S. rugulosa confusa* and *S. rugulosa harauensis* subsp. nov. can be recognized in relation with *S. rugulosa rugulosa* comb. nov. from Borneo.

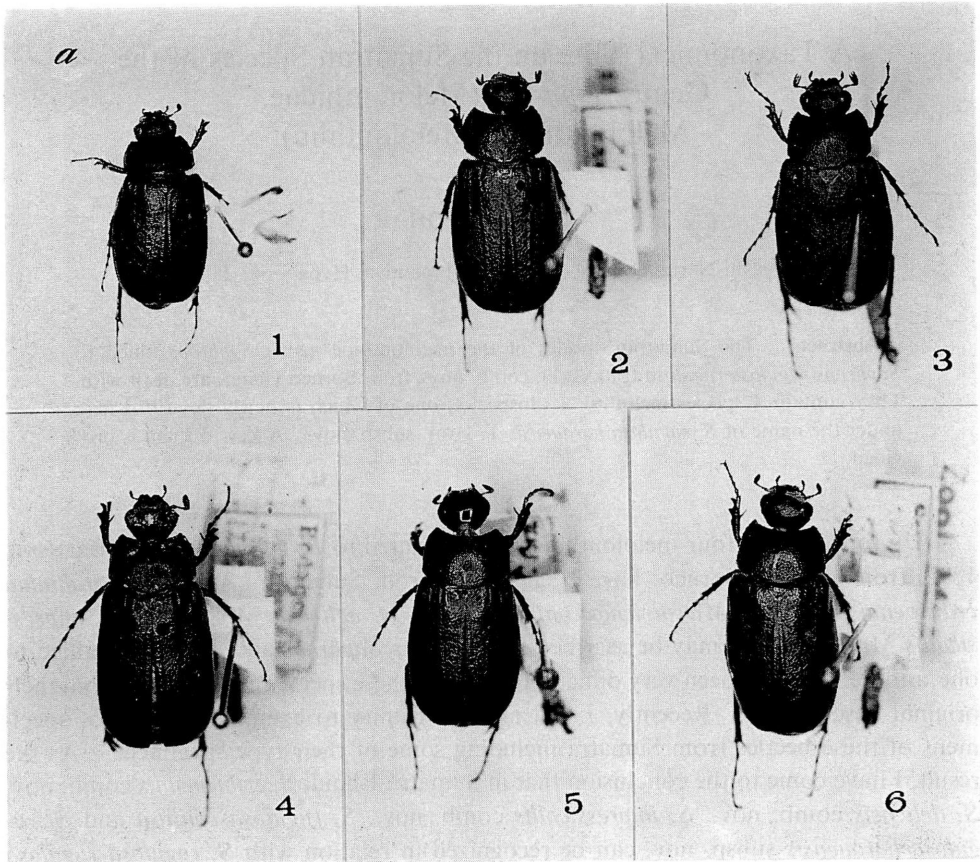
I am going to make comment on each species and subspecies, emphasizing specific differences and if necessary with illustrations.

The abbreviations used herein are as follows: CL – length of clypeus; CW – width of clypeus; PL – length of pronotum; PW – greatest width of pronotum; AC – length of antennal club; FT – length of the last 5 segments together in antennal foot-stalk; FW – greatest width of posterior femur; FL – length of posterior femur; IN – interocular distance; HW – head width.

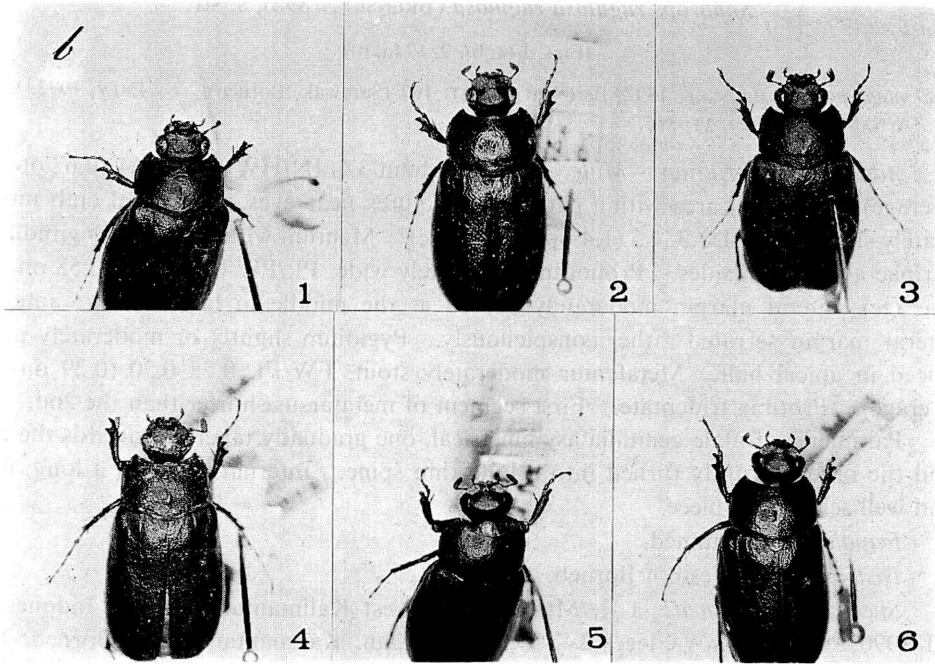
Before going further, I wish to express my sincere gratitude to Dr. F. HIEKE, Dr. M. UHLIG and Mr. J. SCHULZE of the Zoological Museum of Humboldt University, Berlin, for their kindness to have lent me the type specimens involved.

**Key to the Sumatran Species and Subspecies of the Genus *Sophrops*
Allied to *S. rugulosa rugulosa* (BRENSKE, 1892) from Borneo**

- 1 (2) Mentum with a pair of very remarkable longitudinal carinae along both sides.



- Clypeus shallower. Protibia bidentate.
 *S. cribripennis* (BRENSKE, 1892), comb. nov.
- 2 (1) Mentum with a pair of inconspicuous longitudinal carinae or without carinae along both sides. Protibia tridentate.
- 3 (4) Clypeus hardly emarginate at the anterior margin. Male genitalia with asymmetrical parameres. *S. deliensis* (MOSER, 1917), comb. nov.
- 4 (3) Clypeus clearly emarginate at the anterior margin.
- 5 (6) Pronotum clearly depressed in front of scutellum as well as vertex. Occipital area not punctate near eyes. ... *S. impressicollis* (MOSER, 1913), comb. nov.
- 6 (5) At least pronotum not depressed in front of scutellum. Occipital area more or less punctate near eyes. [*S. rugulosa* (BRENSKE, 1892), comb. nov.]
- 7 (8) Internal sac of male genitalia with 1 fully sclerotized piece.
 *S. rugulosa rugulosa* (BRENSKE, 1892), s. str.
- 8 (7) Internal sac of male genitalia with 2 fully sclerotized pieces, the smaller one of which bears a bundle of long bristles at the tip.



Figs. 1–6 (on pp. 260–261). — 1. (a) *Sophrops rugulosa rugulosa* (BRENSKE), comb. nov., ♂; (b), ditto, fore part of body. — 2. (a) *S. rugulosa confusa* (MOSER), ♂; (b) ditto, ♀, fore part of body. — 3. (a) *S. rugulosa harauensis* T. ITOH, subsp. nov., ♂; (b) ditto, fore part of body. — 4. (a) *S. impressicollis* (MOSER), comb. nov., ♂; (b) ditto, fore part of body. — 5. (a) *S. cribripennis* (BRENSKE), comb. nov., ♂; (b) ditto, fore part of body. — 6. (a) *S. deliensis* (MOSER), comb. nov., ♂; (b) ditto, fore part of body.

- 9 (10) Occipital area with a clear patch of punctures near eyes. The last segment of maxillary palpus clearly depressed. Pronotum with lateral margin curved more weakly in lateral view; antero-lateral margin serrated more strongly. *S. rugulosa harauensis* T. ITOH, subsp. nov.
- 10 (9) Occipital area hardly or slightly punctate near eyes. The last segment of maxillary palpus normally spindle-shaped. Pronotum with lateral margin curved more sharply in lateral view; antero-lateral margin serrated more inconspicuously. *S. rugulosa confusa* (MOSER, 1917)

***Sophrops rugulosa* (BRENSKE, 1892), comb. nov.**

Brahmina rugulosa BRENSKE, 1892, Berl. ent. Z., 37: 107 (Sarawak, Borneo). — FREY, 1972, Ent. Arb. Mus. G. Frey, 23: 355.

Sophrops rugulosa rugulosa (BRENSKE, 1892), s. str.

(Figs. 1 (a, b), 9, 17 (a, b))

Brahmina rugulosa BRENSKE, 1892, Berl. ent. Z., **37**: 107 (Sarawak, Borneo). — FREY, 1972, Ent. Arb. Mus. G. Frey, **23**: 355.

Additional description. Male. CW/CL about 3.6. IN/HW 0.61–0.64 (0.62 on an average). Occipital area with a patch of punctures near eyes. Antennal club moderately short, AC/FT 1.3–1.5 (1.4 on an average). Mentum without clear longitudinal carinae along both sides. Pronotum moderately wide, PL/PW 0.57–0.59 (0.58 on an average); lateral margin moderately curved at the middle in lateral view; antero-lateral margin serrated rather conspicuously. Pygidium slightly or moderately produced in apical half. Metafemur moderately stout, FW/FL 0.28–0.30 (0.29 on an average). Protibia tridentate. First segment of metatarsus shorter than the 2nd.

Parameres of male genitalia asymmetrical, one gradually tapering towards the tip and the other abruptly turned into a long thin spine. Internal sac with a long, flat and well sclerotized piece.

Female: not examined.

Distribution. Western Borneo.

Specimens examined. 1 ♂, Mt. Bawang, West Kalimantan, Borneo, Indonesia, III–1990, N. NISHIKAWA leg.; 2 ♂♂, Balaikrangan, Kalimantan Barat, Borneo, X–1989.

Notes. In this nominotypical subspecies, the parameres of male genitalia are asymmetrical in shape.

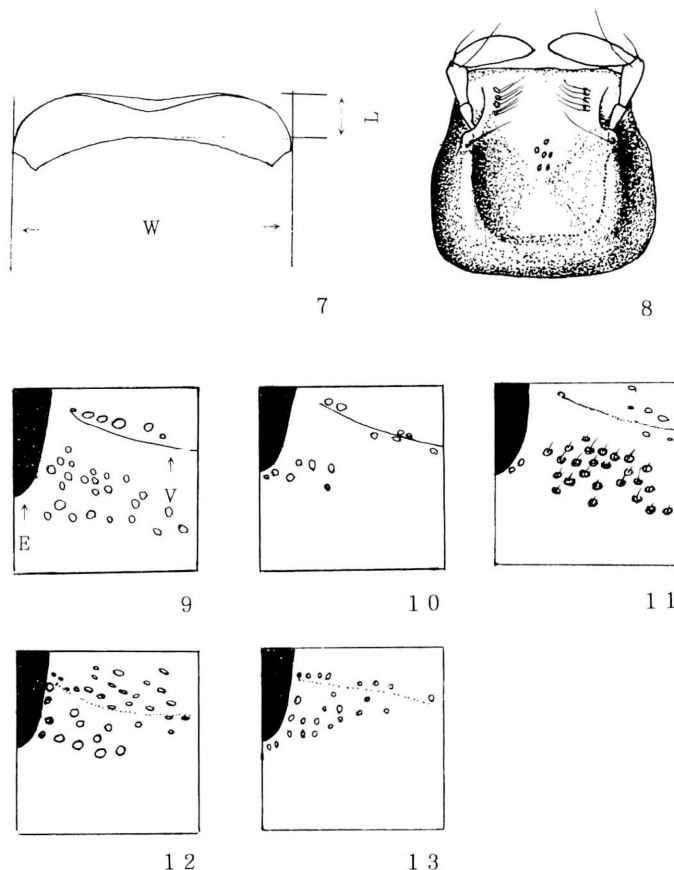
Sophrops rugulosa confusa (MOSER, 1917)

(Figs. 2 (a, b), 10, 14, 18 (a, b))

Microtrichia confusa MOSER, 1917, Stett. ent. Ztg., **78**: 91 (Sumatra). — FREY, 1972, Ent. Arb. Mus. G. Frey, **23**: 354.

Additional description. Male. CW/CL about 3.5. IN/HW 0.57–0.63 (0.60 on an average). Occipital area hardly or slightly punctate near eyes. AC/FT 1.3–1.7 (1.5 on an average). Mentum without clear longitudinal carinae along both sides. Pronotum moderately wide, PL/PW 0.54–0.61 (0.58 on an average); lateral margin moderately curved at the middle or just behind there in lateral view; antero-lateral margin serrated rather inconspicuously. Pygidium slightly produced in apical half. Metafemur moderately stout, FW/FL 0.27–0.31 (0.29 on an average). Protibia tridentate. First segment of metatarsus shorter than the 2nd.

Parameres of male genitalia symmetrical though geographically somewhat variable in shape, bent inwards like a hook at the tip in a topotypical specimen and tapering gradually towards the tip in a specimen from the Sumatran central district. Internal sac with a long, flat and well-sclerotized piece and a spoon-like piece with a bundle of inwardly directed long bristles at the tip.

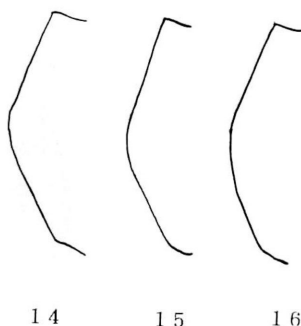


Figs. 7-13. — 7. Length (L) and width (W) of clypeus [in *Sophrops cribripennis* (BRENSKE), comb. nov. (♂)]. — 8. Longitudinal carinae of mentum in *S. cribripennis*. — 9-13. Punctures of occipital areas; 9, *S. rugulosa rugulosa* (BRENSKE), comb. nov., ♂; 10, *S. rugulosa confusa* (MOSER), ♂; 11, *S. rugulosa harauensis* T. ITOH, subsp. nov., ♂; 12, *S. cribripennis* (BRENSKE), comb. nov., ♂; 13, *S. deliensis* (MOSER), comb. nov., ♂. E: eye, V: vertex.

Female. IN/HW 0.58–0.61 (0.60 on an average), AC/FT 1.3–1.4 (1.4 on an average), PL/PW 0.56–0.59 (0.58 on an average), FW/FL 0.28–0.35 (0.32 on an average).

Distribution. Sumatra.

Specimens examined. 1 ♀, "Sumatra, WEYERS Y.", "Coll. BRENSKE", "*Microtrichia confusa* Mos. Type", "Zool. Mus. Berlin"; 5 ♂♂, 3 ♀♀, same data as for the type specimen; 1 ♀, "Sumatra, Barisan Gebirge", "Coll. BRENSKE", "Zool. Mus. Berlin"; 1 ♂, Air Mancur, near Bukit Tinggi, Sumatra, Indonesia, I~II-1988, JAMAAN leg.; 1 ♀, same locality, I-1989, JAMAAN leg.; 1 ♂, same locality, II-1989, Sin YAMADA leg.; 1 ♂, 1 ♀, Pangkalan, Paya Kumbuh, C. Sumatra, II-1988, S. YAMADA leg.; 2 ♂♂,



Figs. 14–16. Pronotal lateral margins in lateral view. — 14, *Sophrops rugulosa confusa* (MOSER), ♂; 15, *S. rugulosa harauensis* T. ITOH, subsp. nov., ♂; 16, *S. deliensis* (MOSER), comb. nov., ♂.

Mt. Singgalang, near Bukit Tinggi, W. Sumatra, IV~VI-1991, S. YAMADA leg.

Notes. This subspecies is closely allied to the nominotypical one and is distinguishable from it only by the structure of internal sac in the male genitalia. Detailed data of the type locality were not available from the type specimen.

***Sophrops rugulosa harauensis* T. ITOH, subsp. nov.**

(Figs. 3 (a, b), 11, 15, 19)

Description. Body length: 12.9–15.8 mm (♂).

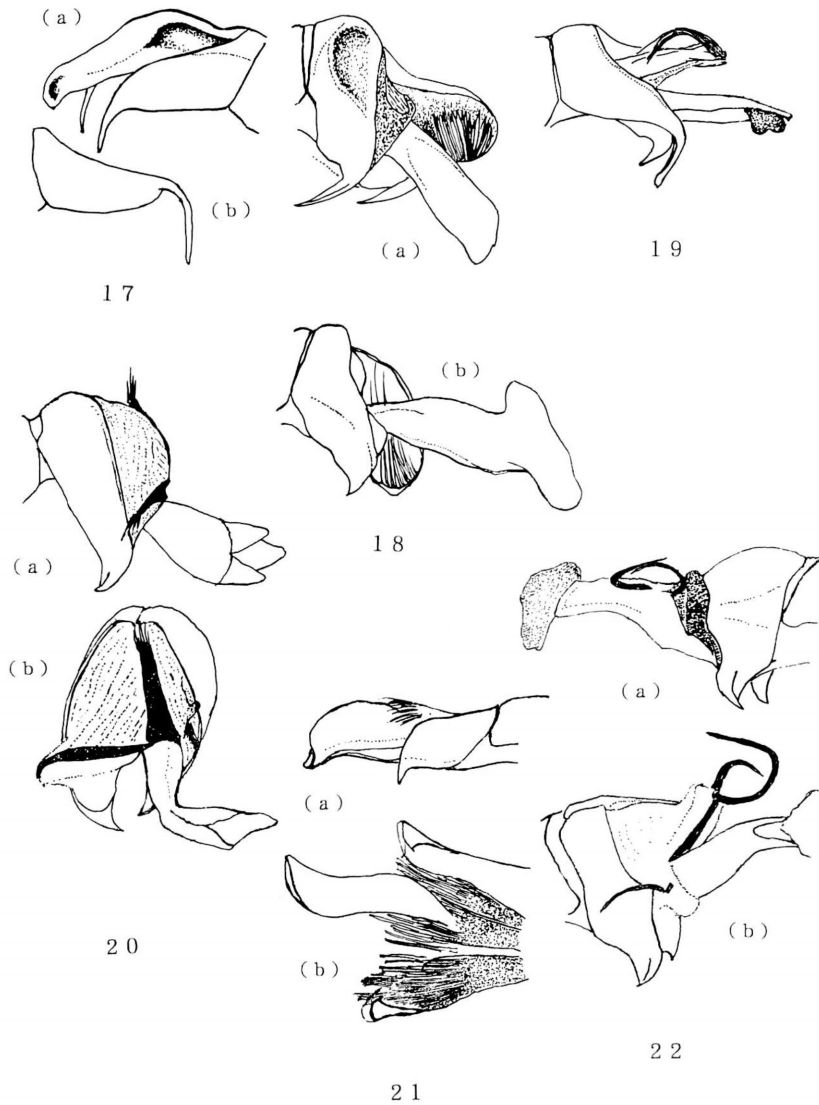
Male. Dorsal surface almost blackish, not shining. Clypeus shallow and wide, CW/CL about 4.0; anterior margin well emarginate. Frons not depressed. IN/HW 0.60–0.63 (0.62 on an average). Occipital area with a clear patch of punctures near eyes slightly apart from vertex. Antennal club relatively long, AC/FT 1.6–1.9 (1.8 on an average). Last segment of maxillary palpus remarkably depressed. Mentum without clear longitudinal carinae along both sides. Pronotum moderately wide, PL/PW 0.56–0.60 (0.58 on an average); lateral margins almost parallel from basal 2/3 to hind angles in dorsal view, and weakly curved almost at the middle in lateral view; antero-lateral margin remarkably serrate, postero-lateral one hardly serrate; disc not depressed in front of scutellum. Elytra hardly rugose. Metafemur wholly shining and more slender than in the other subspecies, FW/FL 0.25–0.28 (0.26 on an average). Protibia tridentate. First segment of metatarsus slightly shorter than the 2nd.

Parameres of male genitalia slightly asymmetrical, extending thinly and curved. Internal sac with 2 long, flat and well-sclerotized pieces, the shorter one bearing a bundle of inwardly directed long bristles at the tip.

Female. Unknown.

Distribution. Central Sumatra.

Specimens examined. Holotype: ♂, Harau Valley, Paya Kumbuh, Central Sumatra, III~IV-1988, MARLIS leg. Paratypes: 1 ♂, same data as for the holotype;



Figs. 17–22. Parameres and internal sacs of male genitalia. — 17. *Sophrors rugulosa rugulosa* (BRENSKE), comb. nov.; (a) right lateral view, (b) left lateral view. — 18. *S. rugulosa confusa* (MOSER); (a) topotypical specimen, (b) specimen from central Sumatra. — 19. *S. rugulosa harauensis* T. ITOH, subsp. nov. — 20. *S. impressicollis* (MOSER), comb. nov.; (a) left lateral view, (b) apical view. — 21. *S. cribripennis* (BRENSKE), comb. nov.; (a) right lateral view, (b) inside of parameres. — 22. *S. deliensis* (MOSER), comb. nov.; (a) right lateral view, (b) left lateral view.

1 ♂, same locality, VI-1988, MARLIS leg.; 1 ♂, same locality, IV~V-1989, MARLIS leg.; 2 ♂♂, same locality, X~XII-1989, MARLIS leg.; 1 ♂, same locality, II~IV-1990, MARLIS leg.; 2 ♂♂, same locality, III-1991, MARLIS leg.; 1 ♂, same locality, II-1988, SARIMUDANAS leg.; 1 ♂, same locality, IV-1989, SARIMUDANAS leg.; 3 ♂♂, same locality, III~IV-1992, SARIMUDANAS leg.

The holotype and a paratype are preserved in the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo, 2 paratypes in the collection of the Zoological Museum of Humboldt University, Berlin, and the rest in my collection.

Notes. This new subspecies is closely allied to *S. rugulosa confusa* (MOSER), but is strictly restricted in distribution to a narrow area of central Sumatra.

Sophrops impressicollis (MOSER, 1913), comb. nov.

(Figs. 4 (a, b), 20 (a, b))

Microtrichia impressicollis MOSER, 1913, Dtsch. ent. Z., **1913**: 274-275 (Sumatra: Deli). — FREY, 1972, Ent. Arb. Mus. G. Frey, **23**: 354.

Additional description. *Male.* CW/CL about 3.5. Frons depressed. IN/HW 0.57-0.62 (0.60 on an average). Occipital area not punctate near eyes. AC/FT 1.6-1.7 (1.6 on an average). Mentum without clear longitudinal carinae along both sides. Pronotum moderately wide, PL/PW 0.57-0.60 (0.58 on an average); lateral margin moderately curved behind the middle or at the middle in lateral view. Metafemur moderately stout, FW/FL 0.29-0.31 (0.30 on an average) and wholly shining. Protibia tridentate. First segment of metatarsus clearly shorter than the 2nd.

Parameres of male genitalia symmetrical and sickle-shaped. Internal sac with a long cylindrical well-sclerotized piece and 2 streaks of chitinous membrane, the latter bearing short setae at their tips.

Female. IN/HW 0.59-0.60 (0.59 on an average). AC/FT 1.4-1.6 (1.5 on an average). PL/PW 0.57-0.60 (0.58 on an average). FW/FL 0.36-0.38 (0.37 on an average).

Distribution. Sumatra.

Specimens examined. 1 ♂, 1 ♀, "Bedagei. int. Sumatra's O.K. ± 600' 2de Sem. 89, I. Z. KANNEGIERER.", "*Brahmina impressicollis* Mos. Type", "Zool. Mus. Berlin"; 1 ♂, same data as for type specimens, "*impressicollis* Mos.", "Zool. Mus. Berlin"; 1 ♂, 3 ♀♀, same data as for type specimens, "Zool. Mus. Berlin"; 1 ♂, "G. Tji Salimar. W. Preanger, ± 3000' Nov. 90., I. Z. KANNEGIERER", "Zool. Mus. Berlin"; 1 ♂, same locality, Sept. 95., I. Z. KANNEGIERER, "Zool. Mus. Berlin."

Notes. This species is closely allied to *S. rugulosa confusa* (MOSER), but it is larger, the pronotum is depressed at the base, and the internal sac of male genitalia has only one cylindrical, completely sclerotized piece.

Sophrops cribripennis (BRENSKE, 1892), comb. nov.

(Figs. 5 (a, b), 7, 8, 12, 21 (a, b))

Brahmina cribripennis BRENSKE, 1892, Berl. ent. Z., **37**: 106 (Sumatra). — FREY, 1972, Ent. Arb. Mus. G. Frey, **23**: 354.

Additional description. Male. Clypeus shallow and wide, CW/CL about 4.9. Frons flat. IN/HW 0.57–0.61 (0.59 on an average). Occipital area with a small patch of punctures just behind vertex near eyes. AC/FT 1.5–1.7 (1.6 on an average). Mentum with clear longitudinal carinae along both sides. Pronotum moderately wide, PL/PW 0.56–0.59 (0.57 on an average); lateral margin moderately or weakly curved clearly behind the middle in lateral view. Metasternum shining in the central area. Abdomen almost shining except for the marginal areas. Metafemur opaque only around its upper marginal area and moderately stout. FW/FL 0.30–0.33 (0.31 on an average). Protibia bidentate. First segment of metatarsus almost as long as the 2nd.

Parameres of male genitalia symmetrical and slightly pointed at the tip. Internal sac with a long cylindrical well-sclerotized piece and a bundle of outwardly directed long bristles just inside parameres.

Female. Pronotum punctate slightly umbilicately, not so coarsely as in male. Pygidium moderately produced. Metafemur wholly shining. FW/FL 0.36. Protibia bidentate.

Only one female specimen known is deformed so that its fore body cannot be measured exactly.

Distribution. Sumatra, Malay Peninsula (new record).

Specimens examined. 1 ♂, “*cribripennis* type ♂. BRSK.”, “Sumatra Jija v.” (?), “Coll. BRENSKE”, “Zool. Mus. Berlin”; 1 ♀, same data as for type specimen; 1 ♂, Cameron Highlands, Pahang, Malaysia”; 1 ♂, same locality, 1987.

In the above records, question mark means possibility of my misreading of the spelling of “Jija v.”

Notes. Another female type specimen misidentified by BRENSKE is regarded as *S. deliensis* (MOSER), comb. nov. This misidentified specimen is labelled “Sumatra stgr”, “*Brahmina cribripennis* Type BRSK.”, “Zool. Mus. Berlin.” BRENSKE’s original description of this species is more or less misleading and careful scrutiny is needed for its interpretation.

Sophrops deliensis (MOSER, 1917), comb. nov.

(Figs. 6 (a, b), 13, 16, 22 (a, b))

Microtrichia deliensis MOSER, 1917, Stett. ent. Ztg., **78**: 92 (Sumatra: Deli). — FREY, 1972, Ent. Arb. Mus. G. Frey, **23**: 354.

Additional description. Male. Dorsal surface almost blackish, sometimes dark brown in colour, and dull, not shining. Punctures on dorsum umbilicate and some

of them, mainly on elytra, with microscopically minute pubescence. IN/HW 0.58–0.66 (0.61 on an average). Occipital area slightly or hardly punctate just behind vertex near eyes. Antennal club shorter, AC/FT 1.2–1.5 (1.3 on an average). Mentum without clear longitudinal carinae along both sides. Pronotum wider and less convex, PL/PW 0.50–0.55 (0.53 on an average); lateral margin weakly curved at the middle in lateral view. Elytra slightly rugose. Metafemur moderately stout, FW/FL 0.27–0.32 (0.29 on an average) and wholly shining.

Parameres of male genitalia remarkably asymmetrical, one larger than the other. Internal sac with a long, well-sclerotized piece and 1 streak of chitinous membrane, the latter bearing coil-shaped ornaments at the tip.

Female. IN/HW 0.60–0.64 (0.62 on an average), antennal club as short as in male, AC/FT 1.1–1.4 (1.3 on an average). Pronotum wider, PL/PW 0.51–0.56 (0.53 on an average). Metafemur moderately stout as in male, FW/FL 0.34–0.39 (0.36 on an average).

Distribution. Sumatra (northern to central regions).

Specimens examined. 1 ♂, “Sumatra Deli”, “*Microtrichia deliensis* Type Mos.”, “Zool. Mus. Berlin”; 1 ♀, same locality, “*deliensis* Mos.”, “Zool. Mus. Berlin”; 1 ♂, Harau Valley, Paya Kumbuh, near Bukit Tinggi, C. Sumatra, 14–VIII–1987, T. ITOH leg.; 1 ♂, same locality, IV–V–1988, SARIMUDANAS leg.; 1 ♂, 1 ♀, same locality, IV–1989, SARIMUDANAS leg.; 3 ♂♂, 1 ♀, same locality, IX–1989, SARIMUDANAS leg.; 4 ♂♂, same locality, X–1989–I–1990, SARIMUDANAS leg.; 2 ♂♂, 2 ♀♀, same locality, II–IV–1990, SARIMUDANAS leg.; 1 ♂, 1 ♀, same locality, III–1991, SARIMUDANAS leg.; 2 ♂♂, same locality, III–IV–1992, SARIMUDANAS leg.; 3 ♂♂, 6 ♀♀, same locality, III–IV–1988, MARLIS leg.; 1 ♀, same locality, IX–X–1988, MARLIS leg.; 1 ♂, 2 ♀♀, same locality, II–1989, MARLIS leg.; 1 ♀, same locality, IV–V–1989, MARLIS leg.; 2 ♂♂, same locality, X–XII–1989, MARLIS leg.; 2 ♂♂, same locality, II–IV–1990, MARLIS leg.; 3 ♂♂, 1 ♀, same locality, III–1991, MARLIS leg.; 1 ♀, Pangkalan, Paya Kumbuh, near Bukit Tinggi, C. Sumatra, II–1988, Sin YAMADA leg.; 1 ♀, Lembah Anai, near Bukit Tinggi, C. Sumatra, II–1989, Sin YAMADA leg.; 1 ♀, “Sumatra stgr”, “*Brahmina cribripennis* Type BRSK.”, “Zool. Mus. Berlin”; 2 ♀♀, “Bedagei. int. Sumatra’s O.K. ± 600’ 2de Sem. 89. I. Z. KANNEGIETER”, “Zool. Mus. Berlin.”

Notes. This species is characterized by the weakly emarginate clypeus, the wider pronotum and the smaller antennal club. One of BRENSKE’s female type specimens of *Brahmina cribripennis* is apparently misidentified with this species. Two of MOSER’s female type specimens of *Microtrichia impressicollis* are misidentified with this species as well.

要 約

伊藤 武：インドネシア・スマトラ島のヒメクロコガネ属 *Sophrops* の研究。——ボルネオ島に産する小型のクロコガネの一種、*Brahmina rugulosa* BRENSKE, 1892 とその類縁種でスマトラ島に産するものをヒメクロコガネ属 *Sophrops* のものと見なし、これら各種について解説した。今回、新た

に 1 新亜種 *Sophrops rugulosa harauensis* T. ITOH を記載し、これを含めて検索表を作成し、必要なものについては付図を掲載した。

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Ent. Arb. Mus. G. Frey, **23**: 354–356.
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 ——— 1917. Beitrag zur Kenntnis der Melolonthiden. *Stett. ent. Ztg.*, **78**: 54–97.

Elytra, Tokyo, **21** (2): 269–270, Nov. 15, 1993

Collecting Records of *Rhagium morrisonense* KANO (Coleoptera, Cerambycidae, Lepturinae)

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Rhagium morrisonense KANO, 1933, was described as a subspecies of *R. inquisitor* on a female specimen collected at the summit of Mt. Niitaka (=Mt. Yushan; =Mt. Morrison) in Taiwan. GRESSITT (1951) recorded Hassenzan (=Mt. Pahsienshan, Taichung Pref.) and Rokuritsuzan as the localities of this species (as *Stenocorus inquisitor morrisonensis*). HAYASHI (1963) recognized *R. morrisonense* as an independent species after examining a male and two female specimens collected on mountains of central Taiwan, without detailed locality and date. YU and NARA (1988) showed a female specimen collected at Wuling, Taichung Prefecture in their book with coloured illustrations. These are probably all the records of localities of *R. morrisonense* known up to the present.

I collected this species near Tayuling, ca. 2,500–2,600 m, on the borders between Nantou and Hualien Prefectures and near Kuanshan-yakou, ca. 2,600 m, Taitung Pref., Taiwan. The collecting data of this species are herewith reported from specimens preserved in my collection.

1) 2 ♂♂, 1 ♀, nr. Tayuling, ca. 2,500 m, Nantou Pref., Taiwan. (I collected some mature larvae on July 28, 1978, from under barks of fallen coniferous trees. Three larvae pupated from mid-September to early November, and the adults emerged in Tokyo at the beginning of November and early in December, 1978).

2) 18 ♂♂, 24 ♀♀, nr. Tayuling, ca. 2,600 m, Hualien Pref., Taiwan, 24 & 25–III–1980, T. SHIMOMURA leg. (from pupal cells under barks of a dead standing *Pinus armandi*

FRANCHET).

3) 1 ♀, a place between Kuanshan-yakou and Yakou-shanchuang, ca. 2,600 m, Taitung Pref., Taiwan, 4 & 5-IV-1980, T. SHIMOMURA leg. (from pupal cell under the bark of a dead standing coniferous tree).

Besides, I have examined a specimen of this species preserved in the National Science Museum (Nat. Hist.), Tokyo. The collecting data are as follows: 1 ♂, Nanhu Mts., 2,250 m alt., Hsiang-ku, Hoping Hsiang, Taichung Hsien, Taiwan, 3-XI-1990, J. AOKI leg.

Notes. This species mainly occurs in coniferous forests on mountains at an elevation of about 2,400–2,500 m or higher places in central Taiwan. CHANG (1969) reported *Pinus* as the host plant of this species. The host plant, *Pinus armandi*, near Tayuling, Hualien Prefecture, was identified by Dr. Y. HAYASHI on a sample of barks of the tree.

I express my deep gratitude to Dr. Yasaka HAYASHI (Tokyo University of Agriculture) for determination of the host plant, and to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for giving me a chance of examination of the specimen and for reading the original manuscript of this short report.

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A New Species of *Aceraius* (Coleoptera, Passalidae) from Borneo

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Abstract A new species of the genus *Aceraius* is described from Borneo under the name *A. hirtimarginalis*. It is related to *A. wallacei* KUWERT.

For some years, Bornean passalid beetles have been studied by several Japanese scientists, but one species in my collection still remains undescribed. This belongs to *Ophrygonius* ZANG defined by GRAVELY (1918), but the present author cannot find a clear distinction between *Ophrygonius* and *Aceraius*, so that the new species will be described under the name *Aceraius hirtimarginalis* n. sp.

Aceraius hirtimarginalis n. sp.

(Figs. 1–3)

Antenna with six long-lamellate segments; basal segment very finely shagreened, almost opaque. Labrum hairy, angles rounded, anterior border weakly emarginate, with left angle slightly more prominent than right one. Dentition of both mandibles complete; both upper teeth distinct though low and obtuse, dorsal border behind apex of left one weakly sinuate in lateral view; left lowest terminal and anterior lower teeth larger than right ones, left lowest terminal tooth smaller than left anterior lower tooth, right lowest terminal tooth larger than right anterior lower tooth; each anterior lower tooth with a minute horizontal notch at apex. Mentum without scar, central part with a pair of small but distinct depressions along anterior border, lateral part rather closely covered with large hair-bearing punctures.

Head nearly symmetrical, but the left outer tubercle is slightly larger than the right one; anterior angle of head not prominent anteriorly. Left outer tubercle widest at base, produced anteriorly and slightly curved internally, obliquely truncate at distal end, inner border of left outer tubercle uniformly curved with sharp ridge, outer border very weakly curved anteriorly without sharp ridge; right outer tubercle similar to left one though smaller than the latter, ridge on inner border of right outer tubercle nearly straight and very slightly extending externally. Inner tubercle situated at anterior border of head in dorsal view, pointed anteriorly; ridge between the two inner tubercles emarginate three times, the middle concavity being smaller than lateral ones; central tubercle sharply pointed (paratype) or obtuse (holotype) in lateral view. Anterior marginal wall of clypeus between inner tubercles almost vertical. Frontal area wider

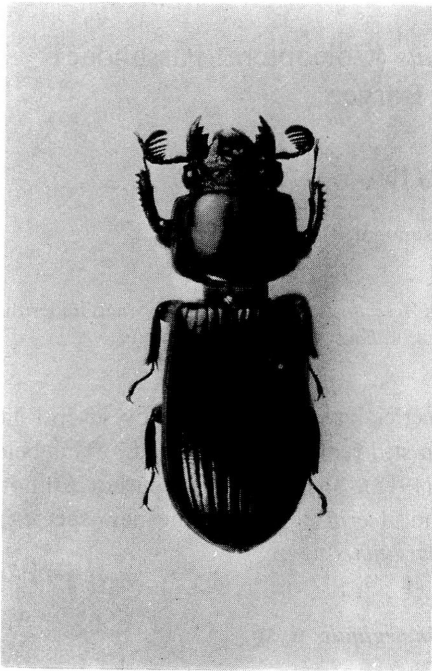


Fig. 1. *Aceraius hirtimarginalis* n. sp.; dorsal aspect.

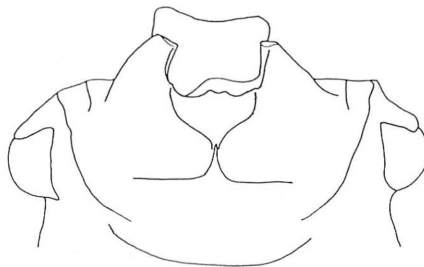


Fig. 2. *Aceraius hirtimarginalis* n. sp.; dorsal view of head.

anteriorly, frontal ridge sharp, with a shallow groove; posterior part of supraorbital ridge, its outer branch being rather sharp and inner branch indistinct posteriorly; supraorbital and supraoccipital ridges not joined, the former extending behind to distal end of parietal ridge as indistinct and obtuse ridge, the latter not extending to behind eye; parietal ridge straight (paratype) or very weakly arcuate (holotype), not curved posteriorly at distal end. Frontal area and anterior part of head hairless, sparsely covered with very minute punctures; area between frontal and parietal ridges rather densely covered with large hair-bearing punctures; area behind parietal ridge finely roughened, covered with large hair-bearing punctures.

Pronotum polished with very fine median groove; anterior border almost straight with marginal groove at lateral 1/3; surface rather densely covered with hair-bearing

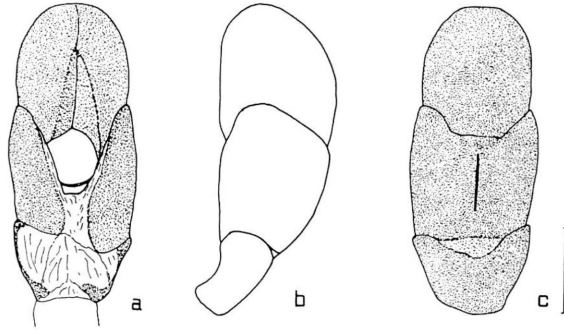


Fig. 3. *Aceraius hirtimarginalis* n. sp.; holotype (scale: 0.5 mm). — Male genitalia: a, dorsal view; b, lateral view; c, ventral view.

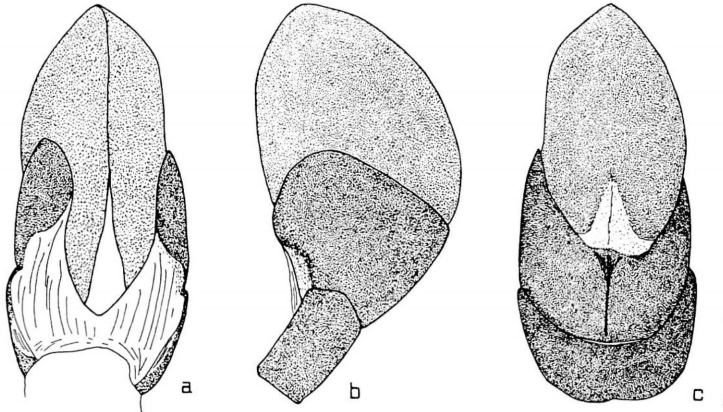


Fig. 4. *Aceraius wallacei* KUWERT, from Mt. Serapi, Sarawak (scale: 0.5 mm). — Male genitalia: a, dorsal view; b, lateral view; c, ventral view.

punctures laterally.

Elytra wider posteriorly, rather flattened dorsally; elytron with eighth, ninth and tenth ribs densely covered with hair-bearing punctures from base to apex, other ribs smooth.

Mesosternum including scar shagreened laterally, mesosternal scar narrow. Metasternum with anterior intermediate area, lateral area and posterior narrow transverse part of posterior intermediate area densely covered with hair-bearing punctures; lateral area and posterior intermediate area not sharply defined. Second abdominal sternite without large puncture.

Male genitalia as shown in Fig. 3.

Length (from middle of anterior margin of labrum to apices of elytra): 30–31 mm.

Holotype: ♂, Head Quarter, Mt. Kinabalu, Sabah, Borneo, 06–VI–1976, T. MIZUNUMA leg.; paratype 1 ♂, Trus Madi Mountains, Sabah, Borneo, VI–1993, N.

KATSURA leg. The holotype will be preserved in the National Science Museum (Nat. Hist.), Tokyo.

This new species is characterized in the group “*Ophrygonius*” by the combination of long-lamellate segments of antenna and hairy side of elytron, and differs from *A. wallacei* KUWERT (Fig. 4) in the following points: smaller body size, shape of right outer tubercle of head, elytra with external three ribs hairy, etc.

Acknowledgement

I wish to thank M. FUJIOKA, Y. MIYAKE and K. SAKAI for various help extended to me in the course of this study.

要 約

岩瀬一男: ボルネオ産 *Aceraius* 属の 1 新種. — ボルネオ産の *Aceraius hirtimarginalis* を新種として記載した. この種は, GRAVELY (1918) によれば *Ophrygonius* に属すると判断されるが, *Aceraius* との区別が明確なものであるとは考えられないので, 本稿では *Aceraius* 属の種として記載した.

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A New *Aceraius* Species (Coleoptera, Passalidae)
from Sabah, Borneo¹⁾

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Abstract A new species, *Aceraius hikidai*, is described from Sabah, Borneo. It seemingly resembles *A. pilifer* in having the small-sized body, but can readily be distinguished from the latter by having the anterior lower tooth of left mandible simple at the apex and the metasternum punctured and hairy in the anterior portion close to the mesocoxae.

Aceraius pilifer was originally described as *Passalus pilifer* from Java by PERCHERON (1835), and briefly redescribed by GRAVELY (1914) based on the specimens from Sumatra, Java and Borneo.

Recently, KON and JOHKI (1992) also recorded *A. pilifer* from Borneo (this identification was made with GRAVELY's (1918) key). After the publication of this paper, we had an opportunity to examine by courtesy of Dr. S. BOUCHER of the Muséum national d'Histoire naturelle, Paris, a specimen of *A. pilifer* from Java, which had been identified by BOUCHER based on comparison with the type specimen of *A. pilifer* preserved in the collection of the Muséum national d'Histoire naturelle, Paris. We found that the beetle previously recorded as *A. pilifer* by KON and JOHKI (1992) was specifically distinct in several external characters from the specimen of *A. pilifer* from Java. In addition, we found two specimens of this Bornean form concerned among the speci-

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mens in the collection of the Department of Biology, Universiti Kebangsaan Malaysia Kampus Sabah.

Thus, we are going to describe a new *Aceraius* species based on these specimens. In the following description, we adopt the terminology of GRAVELY (1914) for external morphology and that of LINDROTH (1957) for male genitalia. The abbreviations of morphometric characters are: length of left outer tubercle, from the apex of left inner tubercle to the outer apex of left outer tubercle (LOTL); length of right outer tubercle (ROTL); width of left outer tubercle at the narrowest place (LOTW); distance between the apices of inner tubercles (DIT); distance between the apical angles of supra-orbital ridges (DAS); body thickness at the center of metathorax (BT); width of elytra at the level of the shoulders (EW).

Before going further, we wish to express our hearty thanks to Dr. S. BOUCHER, the Muséum national d'Histoire naturelle, Paris, for loaning a specimen of *A. pilifer* and Dr. T. HIKIDA of Kyoto University, for critically reading an early version of manuscript. Our cordial thanks are also due to Prof. Emer. T. HIDAKA, Kyoto University, for giving us the opportunity of performing the researches on the Bornean Passalidae.

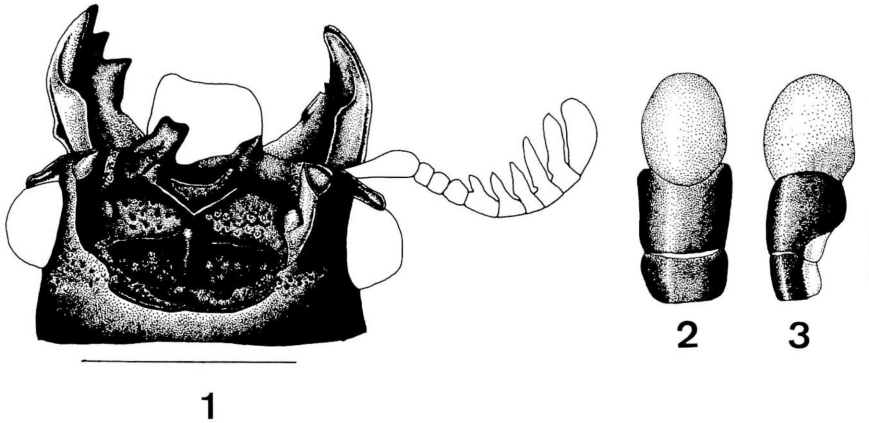
Aceraius hikidai sp. nov.

(Figs. 1–3)

Aceraius pilifer: KON & JOHKI, 1992, Elytra, Tokyo, **20**: 211. — KON, ARAYA & JOHKI, 1993, Elytra, Tokyo, **21**: 116. [Nec PERCHERON]

Description of holotype. Male. Length from anterior margin of head to apices of elytra 30.4 mm. Body black, polished; BT/EW 0.74.

Anterior angle of head rounded. Ridge on canthus rounded. Left outer tubercle larger than the right one, obliquely truncated and weakly bifid at distal end; outer margin of left outer tubercle concave in distal portion, with weak swelling near base; inner margin of left outer tubercle almost straight; right outer tubercle moderately large, obliquely truncated at distal end, not pointed downward in anterior view; outer angle of right outer tubercle acute, much more prominent forward than the inner one; upper surface of both outer tubercles rough; LOTW/LOTL 0.50; ROTL/LOTL 0.83. Inner tubercle large, pointed forward and upward; DIT/DAS 0.29. Ridge between inner tubercles distinct, slightly concave; frontal ridge almost straight, accompanying distinct groove anteriorly; parietal ridge not swollen upward in distal portion; supra-orbital ridge not curved inward in anterior portion. Area between both outer tubercles with some hairs; areas between frontal and parietal ridges, behind parietal ridge and behind eye with setiferous hair-bearing punctures; frontal area impunctate, hairless, rough. Upper margin of both mandibles without swelling behind upper tooth; upper tooth of left mandible truncated and weakly bifid at apex, not pointed forward in profile, higher than the right one; anterior margin of left upper tooth vertical; right upper tooth truncated at apex, pointed forward in profile; anterior margin of right upper tooth concave; anterior lower tooth of left mandible simple at apex; lowest



Figs. 1-3. *Aceraius hikidai* sp. nov., male, holotype; 1, head (scale: 5 mm), setae are omitted from this figure; 2-3, male genitalia (scale: 2 mm), ventral view (2), right lateral view (3).

terminal tooth of right mandible represented by a small denticle; upper portion of anterior lower tooth of right mandible represented by a low trapezoid, anterior angle obtusely angular, posterior angle rounded, upper side straight; lower portion of anterior lower tooth of right mandible represented by a small denticle, located more posteriorly than anterior angle of upper portion. Labrum with setiferous hair-bearing punctures, anterior margin almost straight in central portion, angles rounded, left angle more prominent forward than the right one; left lateral margin of labrum straight; right lateral margin slightly convex. Mentum with setiferous hair-bearing punctures in lateral portion, with a few punctures in central portion, weakly convex forward at middle of anterior margin. Antenna with six short lamellae.

Pronotum polished, with weak median groove, with a few setiferous hair-bearing punctures in lateral scar and in the vicinity of anterior corner, hairy in marginal groove; intercoxal process of prosternum with long hairs in whole of posterior portion. Mesosternum mat, impunctate, hairless, with shallow but distinct scar, rough in scar; mesothoracic episternum frosted and sparsely hairy in posterior portion, polished and with large punctures in both anterior and dorsal portions. Ridge separating intermediate and lateral areas of metasternum blunt, punctured, hairy throughout; lateral and anterior intermediate areas densely punctured and hairy throughout; posterior intermediate area a little more sparsely punctured and hairy, with shallow irregular dents along posterior margin of central area; central area punctured and hairy in anterior portion close to mesocoxae. Tenth rib of elytra punctured and hairy in anterior portion close to shoulder, impunctate and hairless in posterior portion; ninth punctured and hairy along whole length; eighth impunctate and hairless along whole length; seventh sparsely punctured and hairy along whole length; fifth and first punctured and hairy in posterior portions close to apices of elytra. Grooves of elytra hairless. Second to fourth tarsomeres moderately broadened distally in all legs; upper and

Table 1. Measurements (mm) of holotype and paratypes of *Aceraius hikidai* KON, UEDA et JOHKI, sp. nov. BL, body length.
See text for other abbreviations.

	Holotype (male from Kinabalu)	Paratype (female from Kinabalu)	Paratype (female from Kundasang)
BL	30.4	29.3	30.4
BT	7.3	7.1	7.2
EW	9.8	9.5	9.9
LOTW	0.6	0.6	0.7
LOTL	1.2	1.2	1.2
ROTL	1.0	0.9	1.0
DIT	1.5	1.5	1.7
DAS	5.2	5.2	5.4

lateral margins of distal end of fifth tarsomere rounded in all legs.

Second sternite punctured and hairy in whole of posterior portion; third and fourth with hairs in lateral portion; fifth and sixth hairless except for lateral margin. Basal piece of male genitalia transverse, membranous on dorsal side; parameres consolidated on ventral side; penis rounded at distal end, with orifice at base of dorsal side.

Variation. No evident sexual dimorphism. In the paratype from Kundasang, inner margin of left outer tubercle convex; area between both outer tubercles hairless. See Table 1 for variation in measurements.

Type series. Holotype: 1 male, Mt. Kinabalu (1,740 m in alt.), Sabah, Borneo, 3-X-1987, A. UEDA & G. GUNSALAM leg. Paratypes: 1 female, same data as for the holotype, 1 female, Kundasang, Sabah, Borneo, 12-VIII-1987, T. HIKIDA leg. The holotype is deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo, one paratype (1 female from Mt. Kinabalu) in the collection of the Department of Biology, Universiti Kebangsaan Malaysia Kampus Sabah, Malaysia, one paratype (1 female from Kundasang) in the collection of the Muséum national d'Histoire naturelle, Paris.

Etymology. The name is dedicated to Dr. T. HIKIDA of Kyoto University, who has been giving us invaluable advice and encouragement. He is also the collector of one of the paratype specimens.

Notes. This species is distinct from *A. pilifer* (PERCHERON) by having the following characters: anterior lower tooth of left mandible simple at apex; upper portion of anterior lower tooth of right mandible represented by a low trapezoid; mesosternum mat, with distinct scar; central area of metasternum punctured and hairy in anterior portion close to mesocoxae; third and fourth sternites hairy in lateral portions.

要 約

近 雅博・上田明良・常喜 豊: ボルネオ, サバから採集されたオオクロツヤムシ属の 1 新

種。——ボルネオ、サバ州からオオクロツヤムシ属の 1 新種を記載し、*Aceraius hikidai* sp. nov. と命名した。この種は、体が小さい(約 30 mm) 点において *A. pilifer* (PECHERON) に似ているが、左の大顎の anterior lower tooth の先端がシンプルにとがっていることと、後胸腹板の中脚基節に近い部分に毛と点刻をもつ点において容易に区別できる。

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Elytra, Tokyo, **21** (2): 279–280, Nov. 15, 1993

On the Colonies of the Bornean Passalid Beetle, *Ophrygonius uedai* (Coleoptera, Passalidae)

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Most passalid species live in colonies in dead wood (KON & JOHKI, 1992, etc.). However, the two passalid species of the subfamily Aulacocyclusinae, *Taeniocerus bicanthatus* (PERCHERON) and *T. platypus* KAUP, are known to live in colonies on the ground under fallen trees, not digging galleries into logs (KON & JOHKI, 1987; KON & ARAYA, 1992).

Recently, we had an opportunity to observe some passalid beetles in the Kinabalu

Table 1. Colony composition of *Ophrygonius uedai* observed in the Kinabalu Park.

Date	Adults		Larvae			Eggs
	Female	Male	3rd instar	2nd instar	1st instar	
1. 17-IX	1	1	1	0	0	0
2. 18-IX	1	1	3	0	0	0
3. 18-IX	1	0	1	0	0	0
4. 18-IX	1	1	1	3	0	0
5. 18-IX	1	1	1	1	0	3
6. 19-IX	1	1	0	2	0	0

Park, Sabah, in September, 1993, and found that *Ophrygonius uedai* KON et JOHKI, belonging to the subfamily Passalinae, also lived in colonies in the interface between logs and the ground. We report briefly its microhabitat and colony composition. Six colonies were observed in the Kinabalu Park (1,600–1,800 m in alt.). They occurred in bisexual pairs with their young, with the exception of one colony comprising one female adult and one 3rd (final) instar larva (Table 1), within an oval shallow depression (8–20 cm in short axes, 20–40 cm in long axes; $n=6$) on the ground under tough logs. In all the cases when the colonies were uncovered by removing the logs, the adult beetles lay on their backs whereas the larvae lay on their faces. The ceiling of the colonies (lower surface of log) had a trace of being scratched, as observed for *T. platypus* (KON & ARAYA, 1992). There was a lot of wood frass on the colony floor. The larvae seem to depend for food on the wood frass scratched from the colony ceiling by the parents.

JOHKI and KON (1987) showed relationship between habitat and body shape in adult passalid beetles and noted that species living in the detritus-like microhabitats (like on the ground under fallen trees) possess markedly wide front tibiae. However, the front tibiae of *O. uedai* are not so wide as compared with the other *Ophrygonius* species.

We express our gratitude to Mr. Rajibi Haji AMAN, Sabah Parks, for granting the permission of the present research.

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Studies on the Asian Staphylininae, I (Coleoptera, Staphylinidae)

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Abstract Systematic characters of the subfamily Staphylininae are schematically illustrated. A new subtribe of the tribe Philonthini is established. Three genera of the subfamily Staphylininae are redescribed with a redescription of one known species, and their systematic positions are discussed.

Through the studies on the comparative morphology of species, genera and higher groups of the Asian Staphylininae, I came to realize that there still remain many problems to be solved as regards their phylogenetic relationships and taxonomic details. Rather a small number of papers have hitherto been published on the phylogenetic system of the Staphylininae from the Oriental Region and the Far East. CAMERON (1932) offered a classificatory system of the Oriental Staphylininae just before the publication of *Coleopterorum Catalogus* compiled by SCHEERPELTZ (1933). Later, he (1940) published a systematic key to the genera of the Palearctic Staphylinidae, and in 1964, he gave a generic key to the Oriental Xanthopygini (Staphylininae). In 1952, BLACKWELDER listed up all the generic names in the Staphylinidae theretofore published, though he arranged them alphabetically, not in a systematic order. In 1974 and 1978, COIFFAIT published a monograph of the Staphylininae from the western Palearctic Region, and redescribed all the genera occurring in the areas concerned.

Scrutinizing the above mentioned and some other papers, I have come to the conclusion that there still remains considerable discrepancy of opinion as to the conception of the Xanthopygini. It is therefore necessary to revise generic characters of all the staphylinine genera.

In the first part of this series of papers, I am going to redescribe three genera and a species, to discuss on their systematic position, and to erect a new subtribe.

At the beginning of this series of papers, I wish to express my hearty thanks above all to Mr. Taichi SHIBATA, adviser of the Osaka Coleopterological Society, for his constant guidance in taxonomic researches and for preparation of the manuscript of this part, and to Professor Kôhei SAWADA, Shukugawa Women's Junior College, for his invaluable advice on my taxonomic study of the Staphylinidae. I am deeply indebted to the members of the Osaka Coleopterological Society for their continuous offer of material, especially to Mr. Tateo ITO, Kyoto Prefecture, for literature and in various other ways. Thanks are also due to Professor Yasuaki WATANABE, Tokyo University of Agriculture, and Mr. Yasutoshi SHIBATA, Tokyo Metropolis, for their

kind help in literature and material, and to Dr. Shun-Ichi UENO of the National Science Museum (Nat. Hist.), Tokyo, for his kindness of critically reading the manuscript of this paper.

Terminology (with abbreviations) Schematically Illustrated
by *Agelosus carinatus* SHARP as a Sample

(Figs. 1-9, 12-15, 17)

Superior lateral line (sll) of pronotum=superior lines or outer line of pronotal epipleuron.

Inferior lateral line (ill) of pronotum=inferior line or inner line or pronotal epipleuron.

Discal margin of pronotum=marginal line forming true margin of pronotal disc; it is composed of apical and basal margins, and 1) superior lateral line and a line composed of both superior and inferior lines combined together, or 2) superior lateral line, or 3) superior lateral line and a part of inferior lateral line.

Apical angle (aa) of pronotum=turning point of pronotal discal margin.

Apical corner (ac) of pronotum=the area between side margin and discal margin, mainly in ventral view.

Macroseta (ms)=primary setae on head, pronotum and elytra.

Chaetotaxy=arrangement of macrosetae, mainly on head, pronotum and elytra.

Socket=large pore accepting a macroseta.

Chaetotaxy (as a schema) in *Agelosus carinatus* (SHARP) showing each position of sockets in dorsal view.

Head with 7 setae on each side: front marginal (fm), supraantennal (sa), genal (g), supraorbital (so), postgenal (pg), infraorbital (io) and occipital (o).

Pronotum with 4 setae on each side: antero-marginal (am), antero-lateral (al), mid-lateral (ml) and latero-basal (lb).

Elytron with 4 setae: humeral (h), postero-lateral (pl), parascutellar (ps) and postero-median (pm).

Prosternal fossae (psf)=paired depressions in posterior area of prosternum (median ridge=elevation between the fossae).

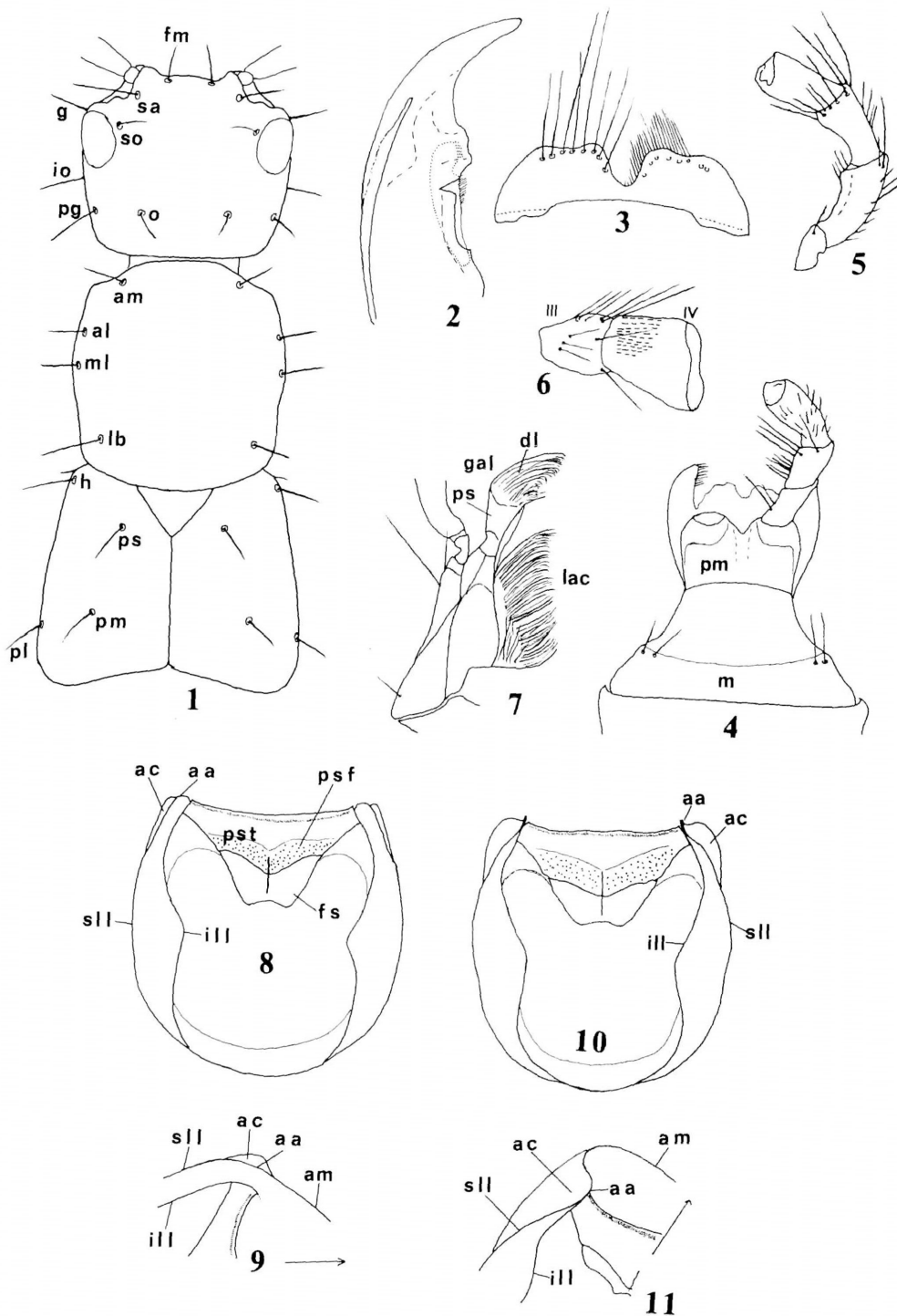
Terminal seta (ts) of galea (absent in the genus *Agelosus*)=one or some setae inserted at latero-apical corner of the proximal sclerite (sensu SAWADA 1972).

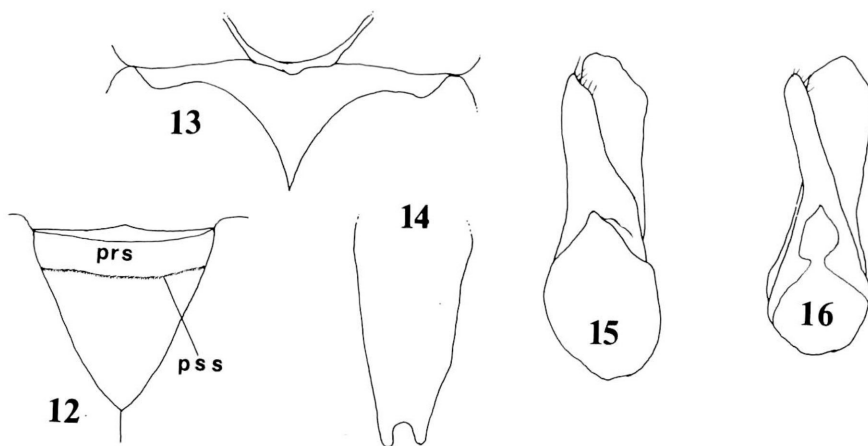
Large seta=characteristic large setae, mainly on each part of body.

Elytral length=the length between prescutoscutellar suture and apex of elytral suture.

Other abbreviations: em=epimeron; fs=furcasternum; gal=galea; gs=gular suture; lac=lacinia; m=mentum; pm=prementum; ps=prosternum; prs=prescutum;

Figs. 1-11. *Agelosus carinatus* (SHARP) (1-9) and *A. weisei* (HAROLD) (10-11). — 1, Fore body with macrosetae; 2, left mandible; 3, labrum, fine setae are removed in the left half and large setae are removed in the right half; 4, labium; 5, left maxillary palpus; 6, ditto, lateral view of 3rd and 4th segments; 7, right maxilla; 8 & 10, pronotum in ventral view; 9 & 11 ditto, right front corner in latero-ventral view.





Figs. 12–16. *Agelosus carinatus* (SHARP) (12–15) and *A. weisei* (HAROLD) (16). — 12, Scutellum; 13, mesosternum; 14, male 9th sternite of abdomen; 15–16, male genitalia in ventral view.

pss=prescutoscutellar suture; sm=submentum.

Anisolinus SHARP

(Figs. 19–32)

Types species: *Anisolinus picticornis* SHARP.

Anisolinus SHARP, 1889, Ann. Mag. nat. Hist., (6), **3**: 113 (Staphylinini). — BERNHAUER & SCHUBERT, 1914, Coleopt. Cat., pars 57: 365 (ditto). — SCHEERPELTZ, 1940, Koleopt. Rdsch., **30**: 44 (ditto). — BLACKWELDER, 1952, Bull. U.S. natn. Mus., **200**: 53, 423 (ditto). — ADACHI, 1957, J. Toyo Univ., **11**: 19 (ditto). — SAWADA, 1961, Ent. Rev. Japan, **13**: 4 (Xanthopygini). — NAOMI, 1981, Kontyû, Tokyo, **49**: 109 (ditto). — SHIBATA, 1984, Annual Bull. Nichidai Sanko, (22): 107 (ditto). — NAOMI, 1992, Bull. biogeogr. Soc. Japan, **46**: 1–2 (ditto).

Species examined:—

Anisolinus picticornis SHARP

♂, Mt. Sobatsubu, Shizuoka, Japan, 29–IX–1984, M. YAMAMOTO leg.

Anisolinus taoi NAOMI

♀, Mt. Daibosatsu, Yamanashi, Japan, 30–IX–1984, Y. YAMAMOTO leg.

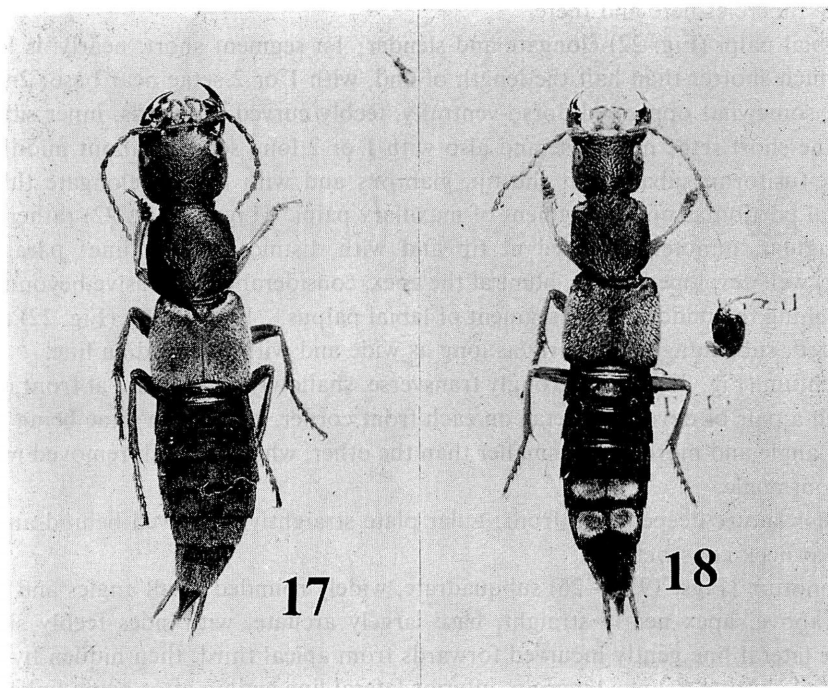
Anisolinus elegans SHARP (Figs. 19–32)

♂, Mt. Amaishi, Tanba, Hyôgo, Japan, 20–VIII–1980, Y. HAYASHI leg.

Anisolinus hayashii SAWADA

♂, Mt. Kohjin, Nara, Japan, 18–VII–1976, T. ITO leg.

Description. Body subparallel-sided, narrow, rather flattened above, opaque to weakly shiny; head and pronotum umbilicately punctured dorsally, elytra rather densely and more or less roughly punctured.



Figs. 17-18. Habitus. — 17. *Agelosus carinatus* (SHARP). — 18. *Agelosus weisei* (HAROLD).

Head (Fig. 19) suborbicular, gently convex above, rounded behind, with neck thick, a little wider than a half width of head. Antennae filiform, long, with basal 3 segments polished. Eyes moderately large, nearly as long as postgenae and somewhat protrusive laterad. Chaetotaxy of macrosetae as shown in Fig. 16; front marginal seta mal-developed and recumbent inwards.

Mandible (Fig. 20) long, slender, roundly curved, a little shorter than head, unidentate near base, the tooth wide at the base and subacute at the tip; prostheca unilobed, with long pubescence.

Labrum (Fig. 21) short, wide, narrowly and deeply notched at the middle, explanate in front and with 2 long large setae on each lobe.

Galea (Fig. 23) thickened apicad; distal lobe densely pubescent at apex; proximal sclerite trapezoidal, glabrous and bearing a fine terminal seta. Lacinia (Fig. 23) wide and moderately long, densely pubescent, with a few stout suberect pubescence near the base. Maxillary palpi (Fig. 24) elongate, with 1st segment small, geniculate and glabrous; 2nd very long, strongly thickened in apical two-thirds, weakly incurved, glabrous on ventral side but dorso-ventrally with sparing pubescence and a few fine setae; 3rd clavate, much slenderer and a little shorter than 2nd, very sparsely pubescent and with some setae on apical portion; 4th long, fusiform, thickest at apical third, a little narrower and shorter than 3rd, subacute at tip, glabrous but bearing several

elongate tubercles here and there.

Labial palpi (Fig. 22) elongate and slender; 1st segment short, nearly as long as wide, much shorter than half the length of 2nd, with 1 or 2 setae near base; 2nd subclavate, somewhat oppressed dorso-ventrally, feebly curved outwards, inner side with a few fine short setae near base and also with 1 or 2 long setae at about middle; 3rd elongate-fusiform, subacute at the tip, glabrous and with several elongate tubercles on apical portion as on 4th segment of maxillary palpi. Ligula (Fig. 22) rather short, subtriangular, minutely notched at tip and with distinct median line; paraglossae (Fig. 22) well developed, stout, blunt at the apex, considerably protrusive beyond ligula and reaching the middle of 1st segment of labial palpus. Prementum (Fig. 22) thickly sclerotized, subpentagonal, nearly as long as wide and with fine median line.

Mentum (Fig. 22) short, strongly transverse, shallowly emarginate at front margin and with a pair of developed setae on each front corner, one of the setae being placed at front angle and more or less smaller than the other, which is much removed inwards from front angle.

Gular suture deepened in front; gular plate straightly narrowed behind and very narrow at neck constriction.

Pronotum (Figs. 19, 25–26) subquadrate, widely rounded at all angles and gently convex above, apex nearly straight, base largely arcuate, with sides feebly sinuate; superior lateral line gently incurved forwards from apical third, then hidden by apical corner and shifting to apical margin, inferior lateral line ending after being linked with lateral border of prosternum and never united with superior lateral one; apical corner very narrow in ventral view; macrosetae well developed, one placed at about anterior third of each lateral side and the other on each hind angle. Pronotal epimera absent.

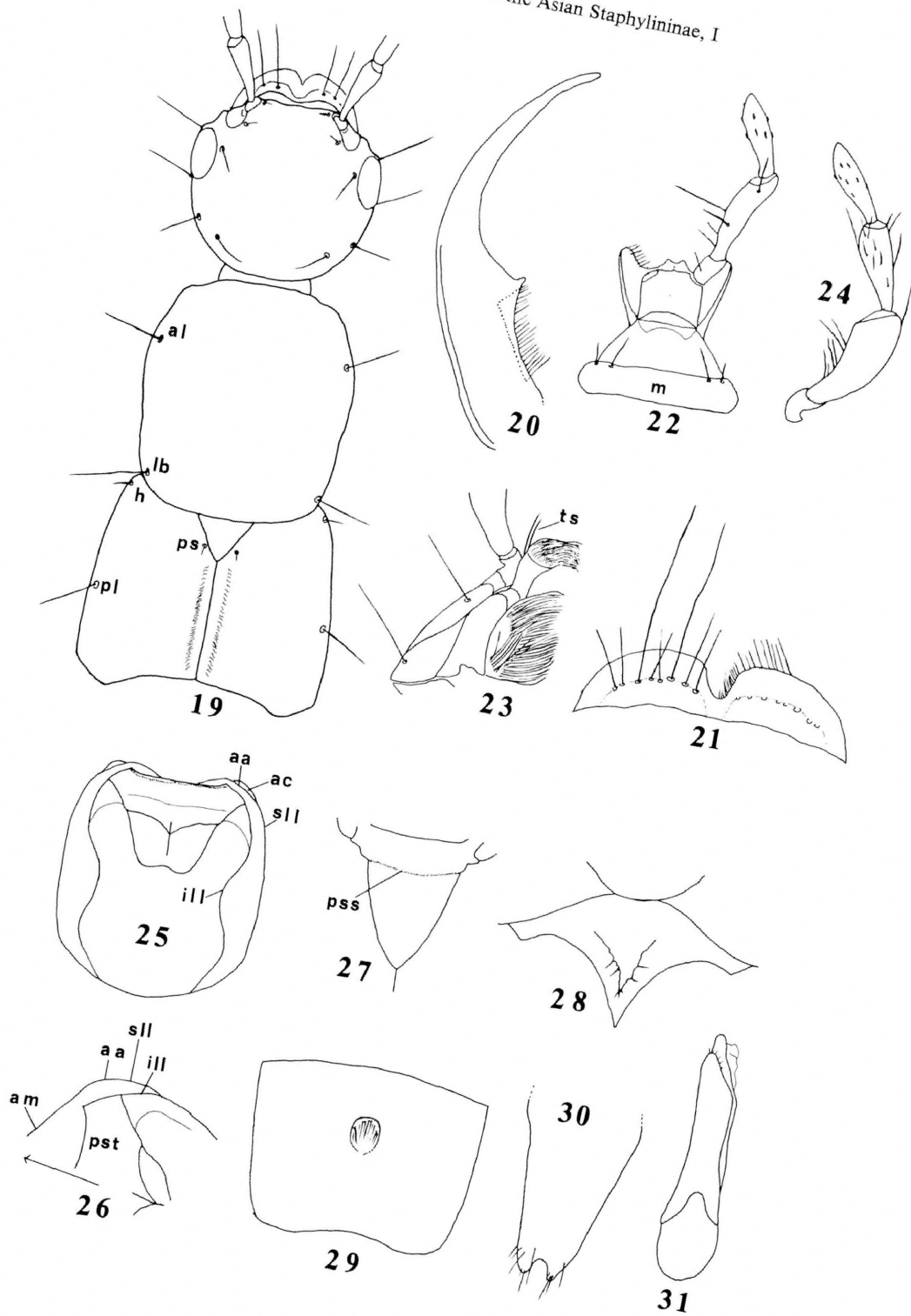
Scutellum (Fig. 27) subtriangular, blunt at the tip, punctured as on pronotum; prescutum well developed.

Elytra (Fig. 19) flattened above, slightly dilated apicad, sides feebly arcuate and each apex gently arcuate, sutural area distinctly convex and well defined; macrosetae almost vestigial, only the latero-apical macroseta well developed (in *A. hayashii* the humeral one is also well developed); elytral epipleuron not bordered above by carina or ridge.

Prosternum (Figs. 25–26) not highly convex in the middle, lateral border rather long, placed at front angle and widely distant from discal margin of pronotum; prosternal fossae rather shallow and ill-defined anteriorly, median ridge blunt but sharp on short and aciculate protuberant prosternal process. Furcasternum (Fig. 25) long, sharply ridged medianly except for hind portion.

Mesosternum (Fig. 28) shallowly depressed, with a V-shaped or subtriangular low and flat convexity in the middle, with hind margin distinctly ridged; mesosternal pro-

Figs. 19–31. *Anisolinus elegans* SHARP. — 19, Fore body with macrosetae; 20, left mandible; 21, labrum; 22, labium; 23, right maxilla; 24, left maxillary palpus; 25, pronotum in ventral view; 26, ditto, left corner in latero-ventral view; 27, scutellum; 28, mesosternum; 29, male 7th abdominal sternite; 30, male 9th abdominal sternite; 31, male genitalia in ventral view.



cess narrow, moderately long, acute at the tip and widely distant from the top of anterior process of metasternum; intersternal piece deeply sunk. Mesocoxae tightly contiguous to each other.

Abdomen subparallel-sided, with basal 3 tergites shallowly and transversely depressed at the bases; in ♂ 7th sternite (Fig. 29) with a smooth circular fovea before the middle, the fovea with a peculiar tuft of long erect soft hairs; in ♂ 9th sternite (Fig. 30) somewhat asymmetrical and shallowly emarginate at apex.

Male genitalia (Fig. 31) considerably asymmetrical; parameres well developed and merged into one plate.

Legs long and slender; protibiae clavate, generally not spinous except for apex; protarsi more strongly dilated in ♂ than in ♀; mesotibiae considerably spinous; metatibiae sparsely spinous; empodial setae short and paired.

Discussion. This genus is very similar in chaetotaxy of the pronotum to the genus *Philonthus* CURTIS and in limbic conformation of the pronotum to *Philonthus cyanipennis* (FABRICIUS) (Figs. 34–37) and belongs to the same group as the genera *Amichrotus* SHARP, *Tympanophorus* NORDMANN, *Hesperosoma* SCHEERPELTZ in the similarity of structures of mouth organs, pronotum and mesosternum and also of male secondary sexual feature.

It is radically different in limbic conformation of pronotum from the genus *Creophilus* MANNERHEIM (belonging to the Xanthopygini SHARP; Figs. 38 and 39, *Creophilus maxillosus* (LINNÉ)), in which the superior lateral line of the pronotum ends at the front angle just before the inferior lateral line and never joins with the latter, so that the inferior lateral line only extends forwards and shifts the front margin as in the genus *Xanthopygus* KRAATZ.

Reference species examined:—

Philonthus (s. str.) *splendens* FABRICIUS

♂, Tubney, Berks, England, 17–IV–1948 (through the kindness of Dr. A. SMETANA).

Philonthus cyanipennis (FABRICIUS) (Figs. 34–37)

♂, Mt. Kohjin, Nara, Japan, 11–V–1981, M. YAMAMOTO leg.

Creophilus maxillosus (LINNÉ) (Figs. 38–39)

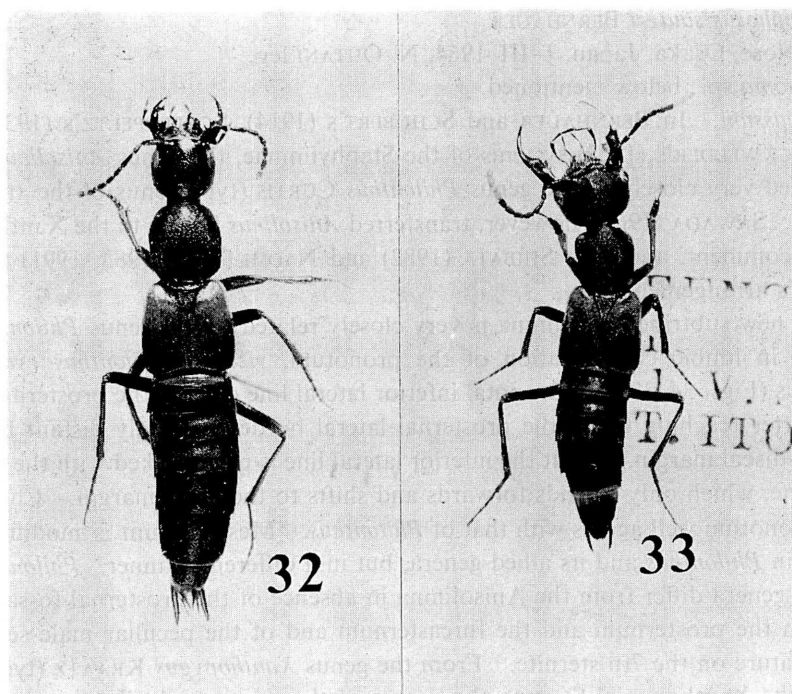
♂, Mailiru, Taiwan, 6–V–1966, N. ITO leg.

Anisolinina subtrib. nov. (Philonthini)

(Figs. 19–32)

Type genus: *Anisolinus* SHARP, 1889.

Description. Pronotum (Figs. 19, 25–26) with inferior lateral line distinctly (widely to narrowly) separated throughout from superior lateral line, ending at lateral border of prosternum and never linked with the latter, so that the superior lateral line only extends forwards and shifts to the front margin; chaetotaxy on each side composed of 2 macrosetae, one of them being placed much behind latero-apical corner and the other almost on hind corner. Pronotal epimeron absent.



Figs. 32-33. Habitus. — 32. *Anisolinus elegans* SHARP. — 33. *Hesperosoma miwai* (BERNHAEUER).

Mesosternum (Figs. 28, 49) more or less modified by such peculiar structures as tubercles, subtriangular convexity, carina and others.

In ♂ 7th sternite (Figs. 29, 51) bearing a well defined, suboval and shallow fovea in about middle, the fovea bearing a peculiar tuft of long soft hairs.

Mentum (Figs. 22, 43) with a pair of separated main setae at each front corner, outer one generally mal-developed. Terminal segment of each palpus without any setae or pubescence but often with several tubercles. Terminal setae of galea mal-developed, fine and pale in colour.

Prosternum (Figs. 25-26) with lateral borders distinctly separated from pronotal discal margin; prosternal fossae rather ill-defined anteriorly; prosternal process aciculate protrusive with a very short, median carina in the apical portion. Furcasternum carinate medianly.

The following genera should also be treated as members of the present subtribe due to the presence of common characteristics as mentioned above: *Amichrotus* SHARP, *Tympanophorus* NORDMANN and *Hesperosoma* SCHEERPELTZ.

Genera and species examined:—

Anisolinus spp.: above-mentioned.

Amichrotus apicipennis SHARP

♂, Mt. Gassan, Yamagata, Japan, 8-IX-1967, J. KAMEI leg.

Tympanophorus sauteri BERNHAUER

♂, Nose, Osaka, Japan, 1–III–1964, N. OHTANI leg.

Hesperosoma sp.: below mentioned.

Discussion. In BERNHAUER and SCHUBERT's (1914), SCHEERPELTZ's (1933, 1943) and BLACKWELDER's (1952) systems of the Staphylininae, the genus *Anisolinus* SHARP was placed very closely to the genus *Philonthus* CURTIS (type genus of the tribe Philonthini). SAWADA (1961), however, transferred *Anisolinus* SHARP to the Xanthopygini without comment, and then SHIBATA (1982) and NAOMI (1981, 1983, 1991) followed SAWADA's arrangement.

The new subtribe Anisolinina is very closely related to the genus *Philonthus* and its allies in limbic conformation of the pronotum, viz., in *Philonthus cyanipennis* FABRICIUS (Figs. 34–37), the pronotal inferior lateral line ends at the prosternal lateral border after reaching there, the prosternal lateral border is widely distant from the pronotal discal margin, so that the inferior lateral line is never linked with the superior lateral line, which only extends forwards and shifts to the front margin. Chaetotaxy of the pronotum well agrees with that of *Philonthus*. Mesosternum is modified peculiarly as in *Philonthus* and its allied genera, but in a different manner. *Philonthus* and its allied genera differ from the Anisolinina in absence of the prosternal fossae, sharp carina on the prosternum and the furcasternum and of the peculiar male secondary sexual feature on the 7th sternite. From the genus *Xanthopygus* KRAATZ (type genus of the tribe Xanthopygini SHARP), the genera of the present subtribe is radically different in configuration of the pronotal margins. In the genus *Xanthopygus*, the pronotal superior lateral line abruptly vanishes after arriving at the front angle and is never linked with the inferior lateral line as in the genus *Creophilus* LEACH (Xanthopygini, Figs. 38–39), hence the inferior lateral line only extends forwards and shifts to the front margin. In *Creophilus* LEACH, *Hadropinus* SHARP and *Liusus* SHARP (all belonging to the Xanthopygini), the prosternal lateral border is tightly united with the pronotal discal margin at the front angles, and the mesosternum has no special structure on the surface.

Hesperosoma SCHEERPELTZ (Philonthini, Anisolinina)

(Figs. 33, 40–54)

Type species: *Hesperosoma malaisei* SCHEERPELTZ.

Hesperosoma SCHEERPELTZ, 1964, Arkiv Zool., 17A (2): 270–271.

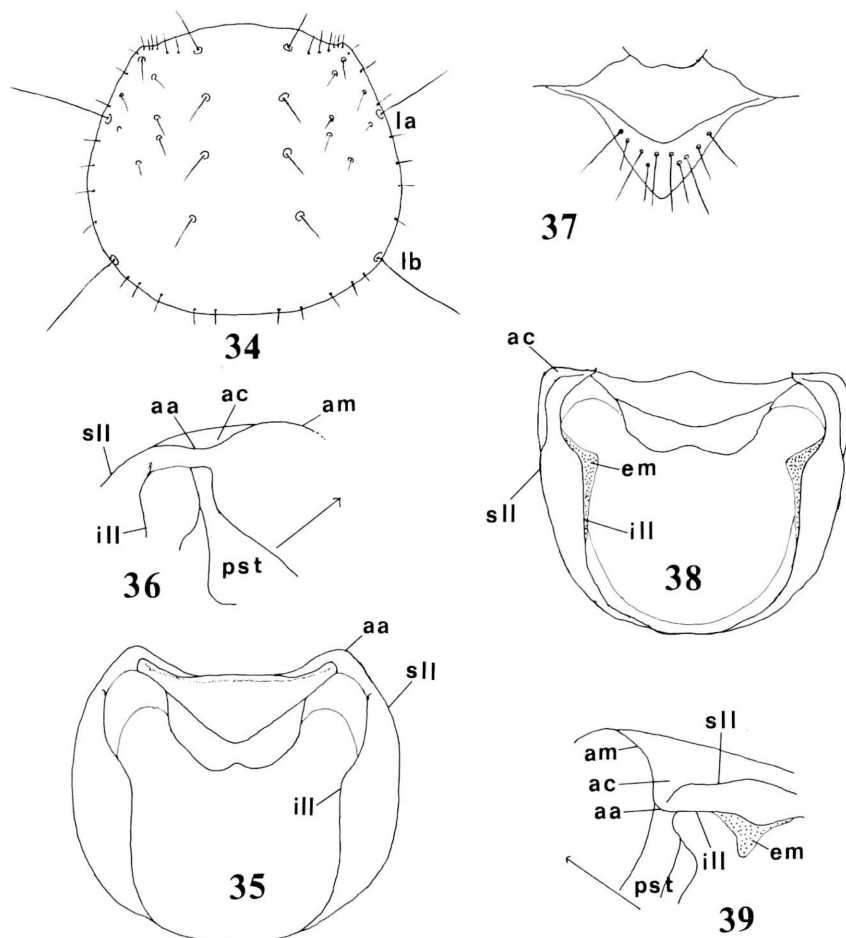
Paramichrotus NAOMI, 1982, Trans. Shikoku ent. Soc., 16: 37–39, figs. *Syn. nov.* (not *Paramichrotus* CAMERON, 1932).

Material examined:—

Hesperosoma miwai (BERNHAEUER), comb. nov. (specimen)

Amichrotus miwai BERNHAUER, 1943, Mitt. münch. ent. Ges., 33: 177. — SHIBATA, 1973, Annual Bull. Nichidai Sanko, (16): 63; 1976, Ent. Rev. Japan, 29: 10–11.

Amichrotus (Paramichrotus) miwai: NAOMI, 1982, Trans. Shikoku ent. Soc., 16: 37–39.



Figs. 34–39. *Philonthus cyanipennis* (FABRICIUS) (34–37) and *Creophilus maxillosus* (LINNÉ) (38–39). — 34, Pronotum in dorsal view, together with macrosetae and other setae; 35 & 38, ditto, in ventral view; 36 & 39, front corner in latero-ventral view; 37, mesosternum.

Description. Body narrow, subparallel-sided, rather flattened above and weakly shiny; upper sides of head, pronotum and elytra densely clothed with umbilicate and considerably coarse punctures.

Head (Fig. 40) large, transversely obtrapezoidal, conspicuously narrowed behind, widely rounded at hind angles and gently convex above but deplanate on frontal area. Antennae filiform, long, nearly reaching the middle of pronotum, with basal 3 segments polished. Eye moderately large, more or less longer than postgena and rather prominent. Chaetotaxy of macrosetae on head as shown in Fig. 40, front marginal seta and supra-antennal one mal-developed.

Mandible (Fig. 42) slender, very long, much longer than head, almost straight in basal half and arcuately incurved in apical half, with a short blunt molar tooth behind the middle. Prosthema slender, with long pubescence on the inner margin.

Labrum (Fig. 41) short and very transverse, gently bi-arcuate, deplanate anteriorly, moderately deeply notched at the middle and with smooth front margin; each half with 2 main setae and some small ones on the transverse middle line.

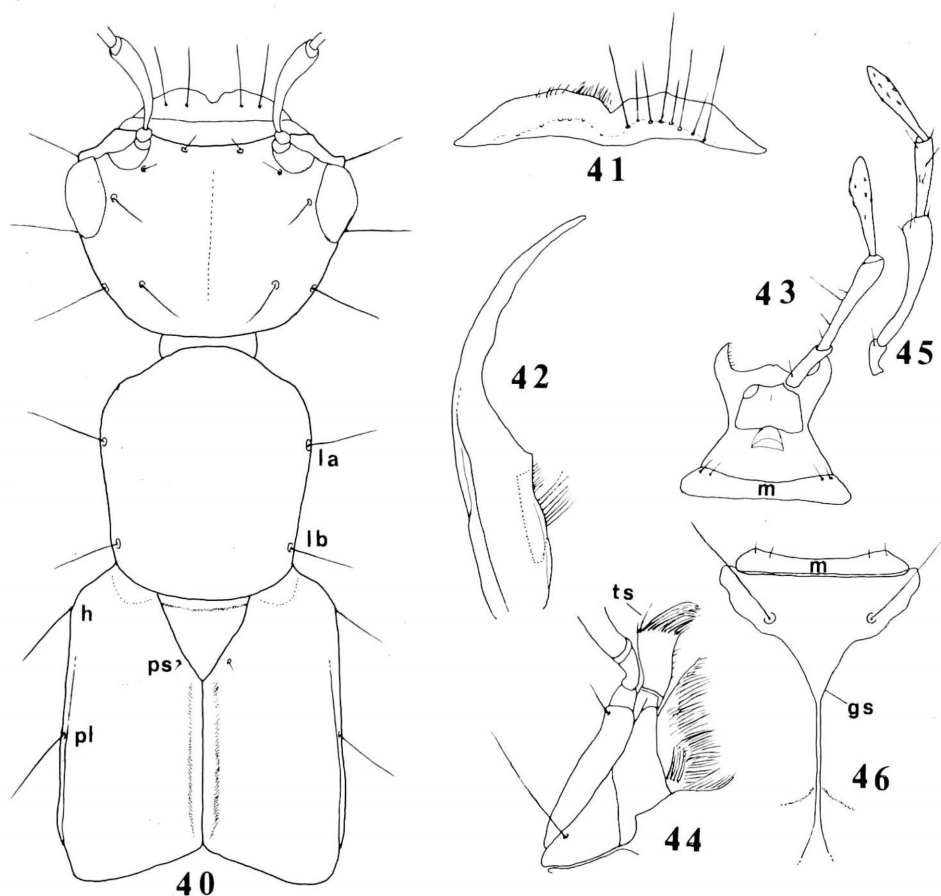
Galea (Fig. 44) thickened apicad; distal lobe with dense and incurved pubescence; proximal sclerite glabrous, with 2 fine and pale terminal setae. Lacinia (Fig. 44) moderately long and wide, densely pubescent, with several scanty long suberect pubescence near base. Maxillary palpus (Fig. 45) slender and very long, apex fully reaching the tip of mandible; 1st segment the shortest, strongly geniculate, weakly oppressed dorso-ventrally and with a fine short seta; 2nd very elongate, much longer than the others, gradually thickened apicad, gently incurved, slightly oppressed dorso-ventrally, without large seta but with very scanty fine small setae on apical portion; 3rd nearly straight, cylindrical, clavate, a little slenderer than and nearly half as long as 2nd, a little shorter than 4th and bearing only several scanty small setae; 4th elongate-subfusiform, thickest at apical third, subacute at the tip, much shorter than 2nd, glabrous but with several elongate tubercles.

Labial palpus (Fig. 43) very elongate, much longer than half the length of maxillary palpus; 1st segment short, about half as long as 2nd but much longer than wide, and with a curved fine short seta near base; 2nd very long, a little longer than 3rd, somewhat oppressed, gradually thickened apicad and slightly thicker than the others, with 2 very long large setae at the middle and a few small setae near base and apex; 3rd elongate-subfusiform, thickest at apical third, glabrous but with several elongate tubercles as on 4th segment of maxillary palpus. Ligula (Fig. 43) subtriangular, rather short, notched at apex and finely sulcate medianly. Paraglossa (Fig. 43) short and wide, with fine pubescence on the inner margin. Prementum (Fig. 43) transverse, forming an inverted T-shape and impressed medianly.

Mentum (Fig. 43) well sclerotized, short, strongly transverse, and shallowly emarginate in front; paired main setae on apical corner rather mal-developed, a little distant from each apical angle and also from each other.

Gular suture (Fig. 46) not strongly impressed; gular plate straightly and strongly narrowed behind.

Pronotum (Figs. 40, 47–48) subcordate, widest at about anterior third, widely rounded at each angle, sides gently sinuately convergent behind, apex and base gently arcuate; disc strongly convex above; inferior lateral line ending after uniting with lateral border of prosternum and never linked with superior lateral line, which is gradually incurved forwards from anterior third, then hidden by apical corner and shifting to apical margin; apical corner (in ventral view) subfusiform and not narrow; chaetotaxy composed of well developed 2 macrosetae on each side, one of them being placed much behind apical angle and the other on hind angle. Pronotal epimeron absent.



Figs. 40–46. *Hesperosoma miwai* (BERNHAURE). — 40, Fore body with macrosetae; 41, labrum; 42, left mandible; 43, labium; 44, right maxilla; 45, left maxillary palpus; 46, gular plate.

Scutellum subtriangular, acute at the tip, scattered with coarse and barnacle-like punctures; prescutum well developed.

Elytra (Fig. 40) subquadrate, slightly dilated behind and shallowly emarginate at apices; disc rather flattened, sutural area well defined, narrow and considerably convex; chaetotaxy of each elytron composed of only 2 macrosetae, one short and placed on humeral corner, and the other near the upper border at about the middle of elytral epipleuron, other original setae vestigial, indistinct.

Prosternum (Fig. 47) weakly convex in middle, lateral border long, placed at pronotal apical angle and narrowly but distinctly separated from pronotal discal margin; prosternal fossae shallow and ill-defined anteriorly, median ridge low and blunt but sharply carinate on prosternal process which is acicularly protuberant at the tip. Furcasternum rather short, carinate medianly except for the posteriormost.

Mesosternum (Fig. 49) bearing large subtriangular or V-shaped median convexity, with hind margin sharply ridged; mesosternal process rather wide, blunt at the apex and often with a short carina; intersternal piece not sunk, placed on the same level as metasternal anterior process. Mesocoxae narrowly separated from each other.

Abdomen gradually narrowed behind; paratergites rather recumbent, well visible from above; basal 3 tergites (Fig. 50: 5th tergite) strongly depressed at each base, the depression bearing medianly a transversely quadrate and well defined fossa; basal 4 tergites each with a large seta near each latero-apical angle; 7th sternite (Fig. 51) with a transversely suboval and smooth large fovea behind the middle, the fovea well defined anteriorly, bearing peculiar tuft of long erect soft hairs at the base, with apical margin widely and shallowly emarginate; 8th sternite (Fig. 51) weakly triangularly depressed in the middle of apex and shallowly emarginate at apical margin; 9th sternite (Fig. 53) weakly sclerotized, semimembranous, wide, suboval and bilobed at the apex.

Male genitalia (Fig. 54) symmetrical, fan-like; penis webfoot-like, markedly flattened and largely undulate in apical half; parameres well developed, bilobed, very widely forked, each tooth with a few fine setae at the tip, inner portion between the teeth wide, feebly arched to subtriangularly protrusive.

Legs long and slender; protibia (Fig. 52) without any visible spines except for apex; protarsus (Fig. 52) distinctly but not strongly dilated in male; mesotibia with several short and fine spines; metatibia with only a few fine setae on the underside. Empodial setae paired, fine and much shorter than claws.

Discussion. Though this genus agrees well with *Paramichrotus* NAOMI, I felt some hesitation to treat the latter as a synonym of *Hesperosoma* SCHEERPELTZ, for the reason that he did not refer to details of the 7th abdominal sternite and male genital organ in his original description of the genus.

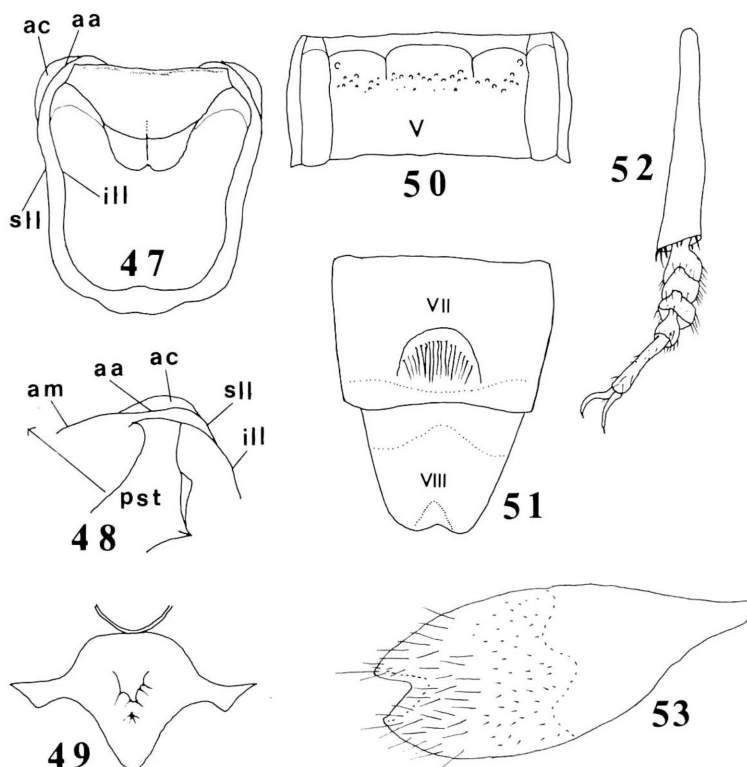
In the structure of the mouth organs and the chaetotaxy on the pronotum, this genus closely resembles the genus *Hesperus* FAUVEL. In the prothoracic configuration and the mesosternal structure, it is similar to the genus *Anisolinus* SHARP. In the peculiar structure of the male 7th sternite, it is similar to the genus *Amichrotus* SHARP. Its male genitalia somewhat resemble those of the genus *Craspedomerus* CAMERON or *Philonthus nichinaiensis* COIFFAIT (from Nepal). It seems necessary to revise the systematic relationships of these genera in the future.

Hesperosoma miwai (BERNHAEUER)

(Figs. 33, 40–54)

Type locality: Arisan (=Ali-shan, Chiai Hsien, Taiwan).

Body narrow, subparallel-sided, rather flattened above and weakly shiny; blackish brown, apical 4 segments of antenna, apical margin of 7th abdominal segment and base of 8th whitish yellow, elytra, basal 3 segments of abdomen and legs reddish brown, elytra narrowly yellowish at apices and with a large bluish-tinged black macula



Figs. 47–53. *Hesperosoma miwai* (BERNHAEUER). — 47, Pronotum in ventral view; 48, ditto, left front corner in ventral view; 49, mesosternum; 50, 5th abdominal tergites; 51, male 7th and 8th sternite of abdomen; 52, protibia and protarsi; 53, male 9th sternite.

on each posterior half, the maculae touching neither sutural area nor apex, 6th to 8th tergites of abdomen slightly iridescent, femora mostly brownish and tibiae somewhat narrowly infuscate on dorsal sides. Length: 9–13 mm.

Head (Fig. 40) markedly wider than long (27: 16), much wider but shorter than pronotum (27: 20 & 16: 22), conspicuously narrowed posteriad, front and hind margins shallowly emarginate, and hind angles widely rounded; surface weakly convex above but distinctly deplanate on frons, densely and nearly uniformly punctured, median line indistinct and barely discernible by a fine and faintly raised line. Mandibles slender, very long, much longer than head (27: 16). Eye rather small, much shorter than postgena (11: 17), rather prominent laterad. Antennae slender, long, extending a little beyond the middle of pronotum; 1st to 8th and 11th segments each more or less longer than wide, 9th nearly as long as wide, 10th a little wider than long, 11th semiovally excised at the side of apex, and with the following relative lengths: 22.0–10.0–14.0–9.0–8.0–7.5–7.0–6.5–6.5–6.0–10.0.

Gular plate (Fig. 46) wide at apex but rapidly narrowed posteriad and very narrow in posterior half.

Pronotum (Figs. 40, 47–48) subcordate, strongly convex above, a little longer than wide (22: 20), nearly as long as but much narrower than elytra (20: 28.5); apex weakly arcuate and sinuate near front angles, base gently arcuate, lateral margins sinuately convergent behind, with all angles widely rounded; disc a little more densely and coarsely punctured than on head, median line distinct in posterior two-thirds, narrow, smooth and intermittent; prosternal process markedly aciculary protrusive, with a short carina on the apical portion.

Mesosternum (Fig. 49) without carina on its process; median convexity narrowly subtriangular.

Scutellum densely and coarsely punctured as on pronotum, but the punctures are somewhat barnacle-like, their interspaces being covered with a fine reticulate microsculpture.

Elytra (Fig. 40) subquadrate, slightly dilated posteriad, feebly sinuate at sides, much wider than long (28.5: 22, but subequal in width to maximum length), apex shallowly emarginate, with latero-apical angles nearly rectangular; disc densely and roughly punctured, strongly impressed beside scutellum, vaguely and widely depressed laterad, lateral margin sharply edged (rather sharply ridged) except for the basal third, and without microsculpture.

Abdomen a little narrower than elytra, each segment with fine reticulate microsculpture which is distinct in the base and becomes vestigial posteriorly; punctures on tergites not dense, small even in the base and becoming finer posteriorly on each segment, those on sternites much larger than on tergites, rather coarse on the base of 3rd and 4th sternites; basal 3 tergites (Fig. 50) deeply and strongly depressed and impunctate in each base, the depressions each bearing more deepened and transversely oblong median fossa, pubescence mostly pale brownish yellow but mingled with sparing blackish one on 4th and 5th tergites, blackish brown on the following 3 segments except on yellowish parts of 7th and 8th segments; 7th sternite with a large transversely suboval fovea behind the middle, the fovea deepened anteriorly and with a tuft of long brownish golden soft hairs in the front part; apical margin widely and shallowly emarginate, 8th sternite narrowly and shallowly emarginate at apical margin and subtriangularly depressed before apex.

Legs long and slender; protibia (Fig. 52) not spinous except for apex; mesotibia sparsely with several thin spines; metatibia bearing only a few fine spines beneath.

Male genitalia (Fig. 54) in dorsal view symmetrical, fan-like; penis webfoot-like, largely widened, flattened and longitudinally undulate in apical half, apical orifice suboval; parameres very widely forked, each tooth stout, long, reaching the latero-apical angle of penis, minutely punctured along the inner margin and with 2 fine long setae at the tip, inner part between the teeth only feebly arcuate and basal part vaguely depressed.

Specimens examined. 4 ♂♂, Fengchihu, Chiai Hsien, Taiwan, 30–IV– and 1–V–

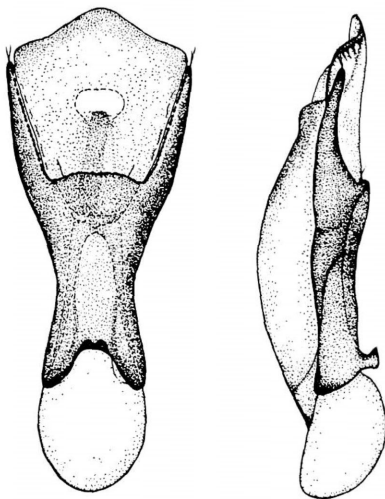


Fig. 54. *Hesperosoma miwai* (BERNHAEUER); male genitalia (after SHIBATA, 1976).

1983, T. ITO leg.; 1 ♂, same locality, 21–VI–1971, Y. MAEDA leg.

The materials examined are much larger (length: 10.7–12.8 mm) than the type specimens (length: 9 mm), but agree well with BERNHAUER's original description of this species. This species resembles *Hesperosoma malaisei* SCHEERPELTZ in general appearance, but in the latter species, the fore body is dark brownish violet and the apical 5 segments of antenna are whitish yellow.

Agelosus SHARP (Staphylinini, *Ocypus*-group)

(Figs. 1–18)

Type species: *Goerius carinatus* SHARP.

Agelosus SHARP, 1889, Ann. Mag. nat. Hist., (6), **3**: 110 (Staphylinini). — BERNHAUER & SCHUBERT, 1914, Coleopt. Cat., pars 57: 400 (Xanthopygini). — SCHEERPELTZ, 1940, Kol. Rdsch., **30**: 48 (Xanthopygini). — MÜLLER, 1943, Atti Mus. civ. Stor. nat. Trieste, **15** (5): 96 (as a subgenus of *Staphylinus* LINNÉ). — BLACKWELDER, 1952, Bull. U.S. natn. Mus., **200**: 41 & 424 (Xanthopygini). — ADACHI, 1957, J. Toyo Univ., (11): 180 (Xanthopygini). — NAOMI, 1983, Kontyû, Tokyo, **51**: 582–583 (Xanthopygini). — SHIBATA, 1984, Annual Bull. Nichidai Sanko, (22): 111 (Xanthopygini). — HAYASHI, 1991, Ent. Rev. Japan, **46**: 179 (Staphylinini). *Xanthocypus* MÜLLER, 1925, Boll. Soc. ent. ital., **57**: 40 (as a subgenus of *Staphylinus*). *Syn. nov.*

Species examined:—

Agelosus carinatus (SHARP)

♂, Mt. Amaishi, Tanba, Hyôgo, Japan, 21–VI–1990, Y. HAYASHI leg.; ♀, Mt. Kuragatake, Ishikawa, Japan, 28–V–1961, Y. HAYASHI leg.

Agelosus unicolor unicolor NAOMI

♂ (paratype), Mt. Hakuchô, Ôita, Japan, 23–V–1981, S. NAOMI leg.

Agelosus unicolor masaoi HAYASHI

♂ (holotype), Ashizuri, Kôchi, Japan, 6-V-1988, T. ITO leg.

Agelosus weisei (HAROLD), comb. nov. (Figs. 10-11, 16, 18)

Ocybus weisei HAROLD, 1877, Dt. ent. Z., 21: 344. — SHARP, 1889, Ann. Mag. nat. Hist., (6), 3: 109.

Staphylinus weisei: BERNHAUER & SCHUBERT, 1914, Coleopt. Cat., pars 57: 391. — SCHEERPELTZ, 1933, Coleopt. Cat., pars 129: 1404.

Staphylinus (Xanthocypus) weisei: MÜLLER, 1925, Boll. Soc. ent. ital., 57: 40.

Ocybus (Xanthocypus) weisei: ADACHI, 1957, J. Toyo Univ., (11): 181. — SHIBATA, 1984, Annual Bull. Nichidai Sanko, (22): 95-96.

♂, Kizu, Kyoto, Japan, 28-X-1984, T. ITO leg.; ♀, Ina, Nagano, Japan, 10-VIII-1958, Y. HAYASHI leg.

Agelosus ohkurai HAYASHI

♂ (holotype), Fengchihu, Chiai Hsien, Taiwan, 4-V-1970, Y. KIYOYAMA leg.; ♀, same locality as holotype, 8-V-1982, F. KIMURA leg.

Ocybus lewisius SHARP has been treated as a species of the subgenus *Xanthocypus*, but it is neither a *Staphylinus* species nor an *Ocybus* species. *Staphylinus (Xanthocypus) ganglbauerianus* BERNHAUER is not known to me.

Description: — Body stout, wide, subparallel-sided, flattened above, closely covered with hairs bearing punctures and nearly opaque; wings variably developed.

Head (Fig. 1) transversely subquadrate, widely rounded at hind angles, base nearly straight, disc weakly convex and umbilicately punctured. Antennae filiform, moderately long and with basal 4 segments polished. Eye moderate in size, a little shorter than postgena and not prominent. Chaetotaxy composed of 7 well developed macrosetae.

Mandibles (Fig. 2) rather long, thick, stout, strongly arcuate and nearly as long as head, each with a large molar tooth at about middle and sharply notched just behind the tooth, but in *A. ohkurai* these are not notched; right tooth bidentate; sulcus on upper surface long, nearly two-thirds as long as mandible, shallow and finely, sparsely punctured medianly; protheca unilobed, slender, gently widened apicad.

Labrum (Fig. 3) very transverse, bilobed by deep median emargination, with about 9 long setae just behind front margin of each lobe and with very thick pubescence at apex of the inner half.

Galea (Fig. 7) widened apicad; distal lobe densely pubescent; proximal sclerite glabrous and without terminal seta. Lacinia (Fig. 7) large and wide, densely pubescent, but nearly glabrous in the outer part. Maxillary palpi (Figs. 5-6) thick, stout and somewhat variable in shape; 1st segment small, the shortest, strongly geniculate and with only one main seta; 2nd considerably thickened distally, gently incurved, longer than any of the others and with several small setae mainly near base and also a few main setae at apex; 3rd much thicker at apex than at base (apex as thick as 2nd), somewhat incurved, with multiple small setae on trunk and several main setae on apical portion; 4th much thicker than any other segments, considerably thickened apicad

(in ♀ the 4th less thickened), a little longer than 3rd, truncate at apex, glabrous, without any hairs but with multiple longitudinal sulci on basal two-thirds of dorso-lateral surface.

Labial palpus (Fig. 4) rather thick, stout and rather variable in shape as maxillary palpus; 1st segment longer than wide, a little thickened apicad, internally with 1 main seta but without small seta; 2nd a little thicker and shorter than 1st, considerably thickened apicad, internally with 2 main setae at apex and several small ones near base; 3rd much thicker and longer than the other segments, considerably thickened apicad and only clothed with numerous small setae. Ligula rather long and wide, deeply emarginate in the middle, each half rounded at apex and tuberculate laterally at the apex; paraglossae wide, long, stout, distinctly protrusive beyond ligula, reaching base of 2nd segment of labial palpus, rounded at apex and with dense fine pubescence on inner half. Prementum semitransparent, transverse, longitudinally convex on each half like a palpiger.

Mentum (Fig. 4) short, strongly transverse, with a pair of main setae on each rounded front angle, both the setae well developed.

Gular suture distinct, fine, impressed in the front half and weakly arcuate inside; gular plate a little convex in front half.

Pronotum (Figs. 8–9) subquadrate, subparallel-sided, widely rounded behind and gently convex above; limbic conformation of pronotum considerably variable, inferior lateral line ending after united with lateral border of prosternum and never linked with superior lateral line before reaching the border, so that the superior lateral line only extends forwards and shifts to front margin; apical corner narrow to wide in ventral view. Pronotal epimeron absent.

Scutellum (Fig. 12) triangular, flattened, finely and asperately punctate and with well developed prescutum.

Elytra flattened above, subquadrate, shallowly emarginate at apex and without any ridge at sides; surface coarsely, densely and roughly punctate, with linear micro-sculpture, sutural area not convex nor defined; chaetotaxy as shown in Fig. 1. Wings developed in various degree according to species.

Prosternum (Fig. 8) transverse, short, strongly convex in middle and sharply carinate between well defined prosternal fossae; lateral border widely distant from pronotal discal margin in *A. carinatus*, but in *A. weisei*, the border in the front portion is distinctly linked with pronotal discal margin at the apical angle; prosternal process short, aciculate and protrusive. Furcasternum sharply carinate medianly except for apical portion.

Mesosternum (Fig. 13) short, very transverse, shallowly depressed in middle, sparsely asperate-punctate except for mid-basal area, transversely and weakly convex at the base of prosternal process, which is moderately long, narrow, acute at the tip and depressed in the apical portion; the intersternal piece rather deeply sunk. Mesocoxae contiguous to each other.

Abdomen slightly expanded in middle and gently narrowed behind; in ♂ 10th

tergite narrowly rounded at apex, 8th sternite shallowly emarginate at apex, and 9th sternite (Fig. 14) rather asymmetrical, semicircularly emarginate at apex and without large seta.

Male genitalia (Fig. 15) strongly asymmetrical; penis thick, nearly straight in ventral view, gently curved ventrad and more or less narrowed apicad; parameres merging into one plate, inclined to the left.

Legs moderately long, thick and stout; tibiae clavate with abundant, conspicuous and thick spines; protarsus strongly dilated in both sexes except for apical segment; paired empodial setae fine and long.

Discussion. The present genus is very similar to the genus *Ocypus* LEACH in shape of the mouth organs, chaetotaxy on the head, pronotum and elytra, and structure of the pro- and mesosterna. Limbic conformation of the pronotum in this genus appears to be different from that in *Ocypus*, but it is rather variable according to species as mentioned above.

The genus *Agelosus* SHARP differs from the genus *Ocypus* LEACH in the presence of un haired 4th segment of maxillary palpus and the absence of terminal seta on the proximal sclerite of galea.

Agelosus weisei (HAROLD) (the type of the subgenus *Xanthocypus* MÜLLER) is apparently different in limbic conformation of the pronotum from *Agelosus carinatus* (SHARP). However, the conformation is not basically different from each other, and in most other generic characters, the former accords well with the latter. Therefore, *Xanthocypus* should be treated as a synonym of *Agelosus*.

要 約

林 靖彦：アジア産ハネカクシ亜科の研究, I. — ハネカクシ亜科は、大型種を多く含み多様性に富む甲虫類の一群である。所属する属や族の系統や位置については、若干の変更はあるものの、JUNKの甲虫目録 (Staphylinidae I-VIII) が発表されたあと、多くの研究者がそのシステムには従っている。筆者は、*Agelosus* 属の研究から、SAWADA, 1961, SCHEERPELTZ, 1964, NAOMI, 1981-'83 を見直して、*Xanthopygini* 族には真の本族とは異質な要素をもつ多くの属が含まれているという結論に達した。そして、これら異質なものの処遇を考えると、ハネカクシ亜科全体の見直しなくして正しい位置づけはできないと思われた。それで、本亜科のアジア産の属や種の再検討を中心に、系統を考えていきたい。

第 1 報において、アジア産既知 3 属の再記載を行い、それらの類縁関係について考察し、さらに 1 新亜族を立てた。

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新 刊 紹 介

Monografía de los Carábidos de las islas Canarias (Insecta, Coleoptera). Por Antonio MACHADO. 734 pp., 1 folder. 1992. Instituto de Estudios Canarios, La Laguna.

ゴミムシ類やハンミョウ類を含む広い意味でのオサムシ科は、甲虫類のうちでももっともよく研究されているもののひとつである。しかし、古い時代の出版物を別にすれば、ひとつの国に産する種のすべてを網羅した総説は意外に少ない。この類を専門に調べている研究者でも、研究が進むほど亜科や族による得手不得手ができてきて、全体を満遍なく見渡すことがむずかしくなる。そのうえ、総まとめのために決断を迫られる上位分類群の取り扱いが障壁になって、群による精粗が生じたり、完結をみずに終わったりする例が少なくない。われわれ日本人にとって、ANDREWES (1929-'35) による旧英領インドのゴミムシ類の総説が、ナガゴミムシ亜科の前で終わってしまったのは痛恨事であった。

完結したものでは、JEANNEL (1941-'42 および 1946-'49) によるフランスとマダガスカル、LINDROTH (1961-'69) によるカナダ・アラスカ、それに DARLINGTON (1952-'71) によるニューギニアのゴミムシ類の総説が、当該地域のゴミムシ相を通覧するためにも、属以上の分類群のことを知るためにも、きわめて重要な文献になった。これらの業績に比肩できるような総説が、久しぶりに世に出たのはたいへん嬉しいことである。ここに紹介するカナリー群島のゴミムシ類総説がそれで、1冊の大部の書物として出版されたのもあまり例がない。著者の MACHADO とは面識がないので、風貌を詳しく伝えられないが、カナリー群島のゴミムシ類に関する論文をしばしば公表し、とくに洞窟から目を疑うほど特異な種類を報告している研究者である。

この総説の内容は6部に分かれ、まず第1部でこれまでの研究史、重要な標本の所在、カナリー群島での採集法などが紹介される。研究史のところでは、この地のゴミムシ類を手掛けた研究者が列記され、かなり多くの先学の肖像写真が見られるのは嬉しい。第2部は、オサムシ亜目に含まれる科の取り扱いと、分類に用いられる形態の解説で、とくに目新しい点はない。ムカシゴミムシ科、セスジムシ科、ハンミョウ科、ヒゲトオサムシ科はそれぞれ独立の科とされ、残りのすべてがオサムシ科にまとめられている。

全体の7割を占める第3部は分類で、これまでに知られている陸生食肉類の全種が、比較的簡潔な記載と豊富な線画で分類順に解説される。この部分の作成に用いられた検視標本は23,000点に及び、それが18亜科232種に整理された。また、各種について生態の記載があり、野外での著者の体験がにじむ記述になっている。採用されている分類体系はJEANNELなどのものに近いが、新しい知見が取り入れられているので細部には相違がある。また、包含される属の数がそれほど多くはないので、族に関する詳しい検討はなされていない。

第4部は目録、第5部は生態の総括や分布の解析で、この論議はなかなかおもしろいが、詳しいことは省略する。そのあとに付録として、マデイラやカボヴェルデのゴミムシ目録がついているのは、比較するのに便利である。

先に挙げた総説類に比べると、本書で扱われているゴミムシ類は日本のものとの関係がうすく、しかも島嶼のために偏りが大きいので、直接の参考になる点は多くない。しかし、地方誌をまとめるに際してひとつの規範となることは間違いなく、ゴミムシ類の研究者にかなり大きい影響を与えることだろうと思われる。

(上野俊一)

Descriptions of Five New Species of the Subgenus
Hypostenus of the Genus *Stenus* LATREILLE
(Coleoptera, Staphylinidae) from Japan^{1,2)}

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Abstract Five new species of the subgenus *Hypostenus* of the staphylinid genus *Stenus* are described as follows: *S. coiffaitiellus* from Mie Pref., *S. aoi* from Fukui Pref., *S. maiko* from Shiga Pref., *S. kagura* from Okayama Pref., *S. daigonis* from Kyoto-fu.

Key words: Coleoptera; Staphylinidae; Steninae; *Stenus*; *Hypostenus*; Japan.

In this paper, five new staphylinid species belonging to the subgenus *Hypostenus* are described all from Honshu based on PUTHZ and NAOMI collections, and their aedeagi except for *S. aoi* sp. nov. are illustrated for comparison.

Stenus (Hypostenus) coiffaitiellus NAOMI et PUTHZ, sp. nov.

(Fig. 1 A)

Stenus rufescens: HROMÁDKA, 1982, 131 (*falsus*).

Male and female. Body length: 2.7–3.5 mm (fore-parts: 1.5–1.6 mm).

Head black and very shining; pronotum brown to reddish brown, moderately shining; abdomen dark reddish brown; maxillary palpi and antennae reddish brown to yellowish brown; labrum reddish brown with yellowish brown anterior margin; legs reddish brown.

Body elongate and cylindrical.

Head shorter than (0.84: 1) and broader than (1.36: 1) pronotum, 1.61 times as broad as long, broadest at about posterior 1/3; labrum with sparse pubescence; clypeo-frontal area with sparse setae and fine punctures; interocular area with basiantennal

1) Studies on the subfamily Steninae from Japan, XXII (NAOMI).

2) Contribution to the knowledge of Steninae, 236 (PUTHZ).

tubercles distinct, forming short keels which are narrowed posteriorly, a pair of longitudinal depressions which are distinct, relatively deep, and convergent anteriorly, median part between the depressions elevated and almost triangular in form; punctation moderately fine and moderately dense, distinct, round, irregular, diameter of punctures about as large as cross-section of 3rd antennal segment in its basal 5th, interstices sometimes narrower than, but often broader than, diameters of punctures, distinctly sculptured and very shining. Antennae when reflexed extending toward posterior 1/3 of pronotum, 8th segment a little smaller than 7th, 9th and 10th each elongate oval, with relative lengths of segments from base to apex as 10: 8: 15: 10: 8: 6: 6: 5: 6: 6: 9.

Pronotum about as long as and narrower than (0.87: 1) elytra, gently convex above, broadest at about the middle, constricted at base; surface almost even, with a median longitudinal furrow, which is very shallow and runs full length of pronotum except for anterior and posterior marginal areas; punctation very dense, sparser at median part than at lateral parts, somewhat coarser than on head, almost regular and distinct, diameter of punctures about as large as widest cross-section of 3rd antennal segment, interstices smaller than half the diameter of punctures, very distinctly sculptured and shining.

Elytra broader than long (1.19: 1), moderately convex above, side margins much rounded, hind margins together forming a wide and arcuate emargination; surface almost even; punctation slightly coarser than on pronotum, very dense and almost regular, interstices distinctly sculptured and moderately shining. Mesoscutellum minutely sculptured, with a few small punctures at posterior part.

Legs moderate in length; 4th tarsal segments distinctly and deeply bilobed.

Abdomen subparallel-sided or very weakly narrowed posteriorly; paratergites and tergosternal sutures absent; 3rd to 6th tergites each with a transverse depression; punctures on 3rd tergite dense, oval to round, distinct and somewhat different in size, the interstices distinctly sculptured and very shining, punctures becoming smaller and sparser posteriorly from 3rd to 8th tergites, punctures on 7th tergite elliptical, distinct and moderately dense, the interstices distinctly sculptured, about as broad as diameters of punctures.

Male. Eighth sternite with a small and shallow emargination in about posterior 1/25; 9th sternite with a pair of posterolateral projections, the projections moderately long and acutely pointed, posterior margin between the projections almost straight, four long setae at each base of the projection. Aedeagus (Fig. 1 A) with median lobe bulbous at base, moderately constricted at the middle, broadest at the apico-lateral corners which are gently rounded, then strongly narrowed toward a moderately pointed apex, apico-marginal sclerotized area relatively developed, but the apico-median part is weakly pigmented, internal armatures as in Fig. 1 A; parameres slender, extending far beyond the apico-median part of median lobe, very acutely pointed at apices, and sparsely set with long setae at apico-internal parts.

Female. Eighth sternite rounded at posterior margin, median area nearly in-

distinctly projected; spermatheca 2/3 as long as valvifer, consisting of a narrow tube which is strongly coiled in a longitudinal direction.

Holotype, male (PUTHZ collection), Shimajiriama, Ise, Mie Pref., 27-VII-1957, H. COIFFAIT coll. Paratypes, 2 males and 1 female, same data as holotype.

Distribution. Japan (Honshu).

Remarks. This new species was first reported by HROMÁDKA (1982) as *Stenus rufescens* SHARP, 1874, based on the same specimens cited above.

Stenus coffaitiellus sp. nov. is allied to *S. toshiharui* NAOMI, 1990, but the median lobe of aedeagus is moderately constricted at the middle, and the apico-median sclerotized area is more developed, and the apico-median part is more strongly pointed. This new species is very similar in appearance of the aedeagus to *S. aoi* sp. nov., but the apico-median part of the median lobe is much more produced posteriorly and pointed; the former is also separable from the latter by the larger body, and the paler color of pronotum. The new species also resembles closely *S. (Parastenus) uneme* NAOMI, 1989 a, from which it is distinguished by the totally absent lateral margination of abdomen, different outline of the median lobe and totally different arrangement of the setae of the parameres.

Etymology. This species is named in honor of the late Dr. H. COIFFAIT, who is the collector of this new species, and whose treatises on the Staphylinidae are important basis for the systematics of the family.

***Stenus (Hypostenus) aoi* NAOMI et PUTHZ, sp. nov.**

Stenus rufescens: NAOMI, 1989 a, 1 (*falsus*).

Male. Body length: 2.3–2.6 mm (fore-parts: 1.4–1.5 mm).

Head black and shining, with dark reddish brown clypeo-frontal area; pronotum and abdomen dark reddish brown to brown, shining; elytra reddish brown to yellowish brown, moderately shining; maxillary palpi and antennae pale yellow; labrum reddish brown; legs reddish brown to yellowish brown.

Body small and very cylindrical.

Head shorter than (0.82: 1) and broader than (1.35: 1) pronotum, 1.70 times as broad as long, broadest at about posterior 1/3; labrum very sparsely pubescent; clypeo-frontal area with sparse setae and punctures; interocular area with small basi-antennal tubercles, a pair of longitudinal depressions which are relatively shallow and broad, median part between the depressions broadly elevated; punctures round, distinct, regular, dense and somewhat umbilicate, diameter of punctures about as large as cross-section of 4th antennal segment, interstices often slightly larger than half the diameter of punctures, distinctly sculptured and very shining, neck area with very sparse and fine punctures. Antennae slender, reaching posterior 1/3 of pronotum, 3rd to 8th segments thin, 9th to 11th forming a loose club, with relative lengths of segments from base to apex as 10: 8: 16: 10: 9: 6: 5: 4: 5: 6: 10.

Pronotum shorter than (0.94: 1) and narrower than (0.81: 1) elytra, well convex

above, broadest a little before the middle, constricted at base; surface almost even, with an elongate longitudinal depression near center; punctures very dense, round to elliptical, and slightly rough, somewhat coarser than on head, interstices very indistinctly sculptured and shining. Mesoscutellum with a few small punctures.

Elytra broader than long (1.19: 1), well convex above, side margins much rounded, hind margins together forming a very shallow emargination; surface even, with sutural area slightly elevated; punctures very dense, slightly larger than those on pronotum, round to elliptical, diameter of punctures nearly as large as apical cross-section of 2nd antennal segment, interstices very indistinctly sculptured and shining.

Legs moderate in length; femora more or less thick.

Abdomen without paratergites and tergosternal sutures; transverse depression on each tergite relatively shallow; punctures on 3rd tergite round, moderate in size, distinct, regular and dense, each with a short seta, the interstices indistinctly sculptured and shining; 8th sternite with a broad and shallow emargination in about posterior 1/37; 9th sternite with a pair of postero-lateral projections, the projections acutely pointed and moderate in length, posterior margin between the projections straight and very minutely serrate, some long setae at each base of the projection. Aedeagus as in fig. 1 A (NAOMI, 1989 a, p. 5).

Female. Unknown.

Holotype, male (Type No., CBM-ZI 52413), Masudani, Imajô, Fukui Pref., 28-XI-1982, H. SASAJI coll.

Distribution. Japan (Honshu).

Remarks. *Stenus aoi* sp. nov. was first recorded as *S. rufescens* SHARP, 1874, in NAOMI (1989 a), but this is clearly separable from the latter by the broader apical part of aedeagus.

This new species is allied to *S. coiffaitiellus* sp. nov., but the body is smaller and more convex, and the pronotum is dark reddish brown to brown. General shapes of their aedeagi are very similar to each other, but *S. aoi* is separable from *S. coiffaitiellus* by the following points: the median lobe is almost truncate, with a very minutely pointed projection at the middle, and the apical sclerotized area is less developed.

Etymology. The specific name is derived from the Japanese noun *aoi*, which is a name of ancient Japanese crest.

***Stenus (Hypostenus) maiko* NAOMI et PUTHZ, sp. nov.**

(Fig. 1 B)

Male. Body length: 2.0–2.5 mm (fore-parts: 1.3 mm).

Head and abdomen dark yellowish brown through brown to yellowish brown; pronotum and elytra yellowish brown; maxillary palpi, labrum, antennae and legs yellowish brown to pale yellow in the somewhat immature type specimen.

Body small, cylindrical, and somewhat robust.

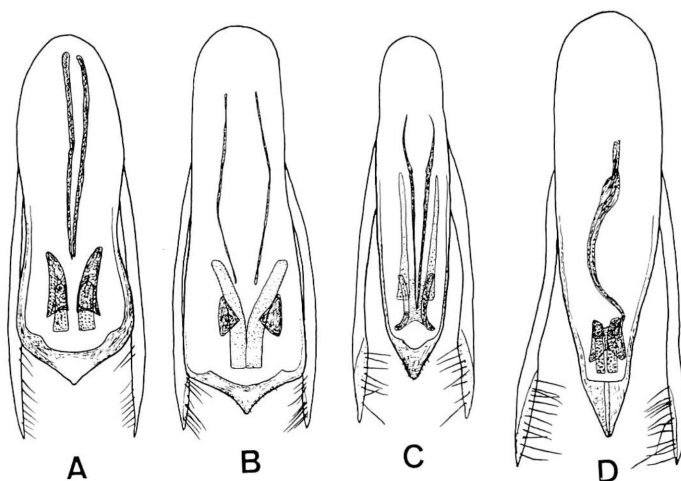


Fig. 1. A, *Stenus coiffaitiellus* sp. nov.; B, *S. maiko* sp. nov.; C, *S. kagura* sp. nov.; D, *S. daigonis* sp. nov. A–D, Aedeagi in ventral view.

Head shorter than (0.87: 1) and broader than (1.32: 1) pronotum, 1.67 times as broad as long, broadest at about posterior 1/3; labrum with sparse hairs; clypeo-frontal area with sparse punctures and pubescence; interocular area with basiantennal tubercles distinct and a short distinct sulcus at the internal side of each tubercle, a pair of longitudinal depressions which are deep and broad, median part between the depressions weakly elevated, with median longitudinal impunctate area; punctation moderately coarse, distinct, moderately dense, regular and somewhat umbilicate, diameter of punctures about as large as median diameter of 3rd antennal segment, interstices with faint ground sculpture, shining, neck with sparse punctures. Antennae reaching a little before posterior margin of pronotum, 2nd segment broad and constricted at base, 8th smallest, fusiform, 9th and 10th each elongate oval, with relative lengths of segments from base to apex as 10: 7: 15: 9: 8: 7: 6: 4: 5: 6: 8.

Pronotum short and robust, shorter than (0.94: 1) and narrower than (0.92: 1) elytra, well convex above, broadest a little before the middle, constricted at base; surface weakly uneven, with a vague and shallow longitudinal furrow at the middle; punctation very dense, rough and slightly coarser than on head, interstices indistinctly sculptured and shining. Mesoscutellum invisible in the specimen examined.

Elytra broader than long (1.12: 1), convex above, constricted at base, side margins much rounded, hind margins together forming a shallow V-shaped emargination; surface weakly uneven, with surtural area distinctly elevated; punctation moderately coarse and very dense, diameter of punctures well as large as widest cross-section of 3rd antennal segment, interstices very indistinctly sculptured and shining.

Legs with tibiae long; 4th tarsal segments deeply but narrowly bilobed.

Abdomen robust; 3rd to 6th segments each weakly constricted at base, with a

shallow transverse depression on the base of tergite, without paratergites and tergosternal sutures; 7th segment subparallel-sided, with distinct tergosternal suture; punctures on 3rd tergite round to elliptical, dense, distinct, the interstices indistinctly sculptured and shining, punctures becoming smaller posteriorly from 3rd to 7th tergites, but punctures on 3rd tergite are as dense as those on 7th tergite; 7th sternite with a shallow depression at postero-median part, and a very shallow and arcuate emargination at posterior margin; 8th sternite with a broad and shallow emargination in about posterior 1/15. Aedeagus (Fig. 1 B) with median lobe narrow at base, gradually broadened apically, broadest at apico-lateral corners, then abruptly narrowed to apico-median projection which is acutely pointed, apico-marginal sclerotized area moderately developed, with a pair of short and pointed internal projections, internal armatures as in Fig. 1 B; parameres slender and weakly curved internally, extending a little beyond the apex of apico-median projection, each with numerous long setae at apico-internal part.

Female. Unknown.

Holotype, male (PUTHZ collection), Mt. Ibuki, Shiga Pref, 1–XI–1973, K. SAWADA coll.

Distribution. Japan (Honshu).

Remarks. *Stenus maiko* sp. nov. is allied to *S. amma* NAOMI et NOMURA, 1990, but the median lobe of aedeagus is narrower at the base and broadest at the apico-lateral corners. This new species is similar in the general appearance of aedeagus to *S. okamotoi* NAOMI, 1989 a, and *S. himiko* NAOMI, 1989 a, but is separable from *S. okamotoi* by the smaller body, the broader median lobe of aedeagus, and the slenderer parameres, and from *S. himiko* by the coarser abdominal punctation, the shallower microsculpture on the fore parts, the apico-marginal sclerotized area of the median lobe more developed, the apical tip more acute, and the parameres distinctly extending beyond the median lobe.

Etymology. The specific name is derived from the Japanese noun maiko, which means a dancer of Kabuki, a classic Japanese play.

***Stenus (Hypostenus) kagura* NAOMI et PUTHZ, sp. nov.**

(Fig. 1 C)

Male and female. Body length: 2.9–3.7 mm (fore-parts: 1.6–1.7 mm).

Head black and moderately shining, with dark red clypeo-frontal area; pronotum and elytra brown to reddish brown, shining; abdomen dark reddish brown to dark red, shining; maxillary palpi, antennae and legs pale brownish yellow to reddish yellow.

Body cylindrical and slender.

Head shorter than (0.82: 1) and broader than (1.36: 1) pronotum, 1.67 times as broad as long, broadest at about posterior 1/3; labrum with sparse pubescence; clypeo-frontal area with sparse pubescence and punctures; interocular area with basi-

antennal tubercles distinct, and distinct short sulcus at the internal side of each tubercle, a pair of longitudinal depressions which are distinct and convergent anteriorly, median part between the depressions elongate triangular in shape and moderately elevated; punctation moderately fine and moderately dense, distinct, regular and somewhat umbilicate, diameter of punctures about as large as basal cross-section of 3rd antennal segment, interstices often as wide as or nearly as wide as diameter of punctures, distinctly sculptured and shining. Antennae reaching posterior 1/4 of pronotum, 3rd to 7th segments thin, 8th much longer than broad, 9th and 10th each almost elongate oval, with relative lengths of segments from base to apex as 10: 7: 14: 9: 8: 7: 6: 5: 6: 6: 8.

Pronotum about as long as and narrower than (0.85: 1) elytra, convex above, broadest a little before the middle, constricted at base; surface very weakly uneven, with a distinct and moderately narrow longitudinal median furrow, some more impressions at lateral sides; punctation moderately coarse, very dense, but not confluent, diameter of punctures nearly as large as apical cross-section of 2nd antennal segment, interstices moderately shining because of distinct reticulation. Mesoscutellum with a few small punctures.

Elytra broader than long (1.18: 1), convex above, side margins much rounded, hind margins together forming an arcuate and shallow emargination; surface even; punctation slightly coarser than on pronotum, very dense, almost round, distinct, rough and regular, interstices indistinctly sculptured and shining.

Legs moderate in length; 4th tarsal segments deeply but narrowly bilobed.

Abdomen without paratergites and tergosternal sutures; 3rd to 6th segments each with a transverse depression; punctures on 3rd tergite composed of different sizes, dense, round and distinct, the interstices indistinctly sculptured and shining, punctures becoming smaller and sparser posteriorly from 3rd to 8th tergites, punctures on 8th tergite very sparse and fine.

Male. Abdomen gradually narrowed posteriorly; 8th sternite with a broad and very shallow emargination in about posterior 1/20; 9th sternite with a pair of pointed postero-lateral projections, some setae at each base of the projection, posterior margin between the projections very weakly arcuate and serrate. Aedeagus (Fig. 1 C) with median lobe slender, narrow and moderately narrowly rounded at apex, apical sclerotized area developed, with its internal margin arcuately emarginate, internal armatures as in Fig. 1 C; parameres somewhat robust, extending much beyond the apex of median lobe, each with 8 setae at apico-internal part.

Female. Abdomen subparallel-sided, 8th sternite rounded, distinctly but slightly projected in the postero-median part; spermatheca consisting of a complex of crowded tube, which is about 3/4 as long as the valvifer, the strongly sclerotized distal piece with its length being about 1/4 of the valvifer.

Holotype, male (PUTHZ collection), Mitsuishi, Okayama Pref., 21-V-1973, K. SAWADA coll. Paratypes, 1 male and 1 female, same data as holotype.

Distribution. Japan (Honshu).

Remarks. *Stenus kagura* sp. nov. is allied to *S. rufescens* SHARP, 1874, but the

head is black, and the aedeagus is narrower. This new species is also allied to *S. jukata* HROMÁDKA, 1982, but the body is larger, and the median lobe of aedeagus is broader in apical half.

Etymology. The specific name is derived from the Japanese noun *kagura* which means a court dance and music of Japan.

Stenus (Hypostenus) daigoni NAOMI et PUTHZ, sp. nov.

(Fig. 1 D)

Male and (teneral) female. Body length: 2.8–3.7 mm (fore-parts: 1.6–1.7 mm).

Body pale yellowish brown to yellow and moderately shining, but the abdomen is a little more reddish than the anterior part of body.

Body slender and cylindrical.

Head shorter than (0.77: 1) and broader than (1.29: 1) pronotum, 1.67 times as broad as long, broadest at about posterior 1/3; labrum with hairs of moderate length, clypeo-frontal area with sparse punctures and setae; interocular area with basiantennal tubercles distinct, a pair of longitudinal depressions which are relatively deep, distinct and broad, median area between the depressions elongate triangular in shape, moderately elevated; punctation moderately fine and moderately dense, somewhat umbilicate, diameter of punctures about as large as median cross-section of 3rd antennal segment, interstices mostly somewhat larger than half the diameter of punctures, sometimes becoming larger on elevated median part than on bottoms of depressions, moderately sculptured and shining. Antennae when reflexed extending to about posterior margin of pronotum, 3rd to 7th segments thin, 8th smallest, but much longer than broad, 9th to 10th each oval, 11th pointed, with relative lengths of segments from base to apex as 10: 8: 18: 10: 9: 7: 6: 5: 6: 7: 9.

Pronotum a little shorter than (0.95: 1) and narrower than (0.83: 1) elytra, gently convex above, broadest a little before the middle, constricted at base; surface almost even, with a distinct median longitudinal depression, which is about 2/3 times as long as pronotum, some more depressions at lateral sides; punctation moderately coarse, very dense, a little rough, diameter of punctures larger than widest cross-section of 3rd antennal segment but narrower than apical across-section of 2nd antennal segment, interstices deeply sculptured and moderately shining. Mesoscutellum almost invisible in the specimens examined.

Elytra broader than long (1.14: 1), moderately convex above, side margins weakly rounded (or weakly divergent posteriorly), hind margins together forming a shallow and V-shaped emargination; surface even; punctation slightly coarser than on pronotum, very dense, almost round and regular, interstices distinctly sculptured and shining.

Legs moderate in length; 4th tarsal segments distinctly and deeply bilobed.

Abdomen without paratergites and tergo-sternal sutures in 3rd to 6th segments; transverse depression shallow in each tergite; punctures on 3rd tergite elliptical, dis-

tinct, dense and regular, interstices sculptured and very shining, punctures becoming sparser and smaller posteriorly from 3rd to 8th tergites; punctures on 8th tergite fine and sparse, interstices broader than diameters of punctures.

Male. Abdomen subparallel-sided; 4th sternite very shallowly impressed in postero-median part; 5th sternite broadly and shallowly impressed in postero-median part; 6th sternite with a distinct, horseshoe-like impression in postero-median part, which is very finely and densely punctured and pubescent; 7th sternite with a deep and broad longitudinal impression at the middle, of which the posterior sides are more or less sharply elevated and slightly prominent posteriorly, posterior margin broadly emarginate, punctation on impression very fine and dense; 8th sternite with a moderately broad and rounded apical notch in about posterior 1/13; 9th sternite with a pair of pointed postero-lateral projections and a few long setae at each base of the projection, posterior margin between the projections arcuately emarginate and minutely serrate. Aedeagus (Fig. 1 D) slender, weakly bulbous at base, narrowed into a very narrowly rounded apex, without apico-lateral corners, apical sclerotized area triangular in shape, internal armatures as in Fig. 1 D; parameres extending much beyond apex of median lobe, somewhat thick at apices, with numerous long setae at apico-internal parts.

Female. Abdomen broader than in male; 8th sternite rounded at posterior margin, with an almost indistinct apico-marginal tip.

Holotype, male (PUTHZ collection), Daigo, Kyoto-fu, 21-V-1973, K. SAWADA coll. Paratype, 1 female, same data as holotype.

Distribution. Japan (Honshu).

Remarks. *Stenus daigonis* sp. nov. is allied to *S. jukata* HROMÁDKA, 1982, but the head is paler (yellow) in color, and the median lobe of aedeagus is broader, especially in the apical part. This new species is also allied to *S. akome* NAOMI, 1989 b, but the head is paler (yellow) in color, the median lobe of aedeagus is narrower in the apical half, its expulsion-hooks are simple distally, and the parameres are shorter and more slender at apices (not spoon-shaped).

The spermatheca is not described here, since dissection of the somewhat immature specimen did not lead to exact result.

Etymology. The specific name is derived from Daigo, the type locality of this new species.

Acknowledgements

We would like to thank the late Dr. H. COIFFAIT, Dr. H. SASAJI (Fukui Univ., Fukui), and Dr. K. SAWADA (Takatsuki City, Osaka) for their kindness in offering valuable stenine specimens used in this paper.

要 約

直海俊一郎・フォルケール プッツ: 日本産メダカハネカクシ属 *Hypostenus* 亜属の 5 新種の記

載。——本論文において、*Hypostenus* 亜属に属する以下のメダカハネカクシ 5 新種を、本州から新種として記載した。

Stenus coffaitiellus NAOMI et PUTHZ は三重県から発見された種で、*S. toshiharui* に似ているが、雄交尾器の中央片は中央部でおだやかにくびれ、その先端部にある硬化部はより尖ることで区別がつく。*Stenus aoi* NAOMI et PUTHZ は福井県から発見された種で、*S. coffaitiellus* に似ているが、体がより小さくより凸型で、前胸背板が黒みをおびた赤褐色であることで区別がつく。*Stenus maiko* NAOMI et PUTHZ は滋賀県から発見された種で、*S. amma* NAOMI et NOMURA に似ているが、雄交尾器の中央片は基部がより狭く、先端側部の角ばった部分でもっとも幅広くなる点で区別がつく。*Stenus kagura* NAOMI et PUTHZ は岡山県から発見された種で、*S. rufescens* SHARP に似ているが、頭部が黒色で、雄交尾器がより細いことで区別がつく。*Stenus daigonis* は京都の醍醐から発見された種で、*S. jukata* HROMÁDKA に似ているが、頭部が黄色く、雄交尾器の中央片がとくに先端部でより幅広い。

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

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Abstract A new staphylinid beetle of the genus *Coprophilus* hitherto unrecorded from Taiwan is described and illustrated under the name of *C. formosanus*. It is closely related to *C. impressus* SHARP from Japan, but is readily distinguished by its larger size, much wider pronotum strongly convergent behind the widest part and differently shaped male genitalia.

The genus *Coprophilus* LATREILLE is a small group of the subfamily Oxytelinae and is known to contain about twenty-two species mainly distributed in the temperate regions of the Northern Hemisphere. However, none of the species of this genus have been recorded from Taiwan.

In the present paper I am going to describe a new species collected from the temperate forest of the central and southern mountainous areas in Taiwan.

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 UENO of the National Science Museum (Nat. Hist.), Tokyo, for his kindness extended to me in various ways. Deep gratitude is also due to Mr. Akinori YOSHITANI for his assistance in preparing the illustration of the whole insect inserted in the present paper.

Coprophilus formosanus sp. nov.

(Figs. 1–4)

Body elongate and nearly parallel-sided. Colour black, shining, with mouthparts, legs and antennae dark reddish brown, except for five distal segments of antennae somewhat paler. Length 6.8–7.5 mm.

Head subquadrate, a little narrower than pronotum (greatest width of head, including eyes / greatest width of pronotum=0.80); disc with a pair of moderately deep elliptical impressions between antennal tubercles, and also with a small one at the middle just between the posterior margins of eyes; base of head provided with a shallow transverse sulcus but not forming a distinct neck; surface sparingly covered with rather fine punctures which are denser and coarser on the base of head than on fronto-clypeal area; eyes strongly convex and prominent, the longitudinal diameter slightly longer than postocular areas (longitudinal diameter of eyes / length of postocular areas=1.13); postocular areas straight, slightly converging posteriad. An-

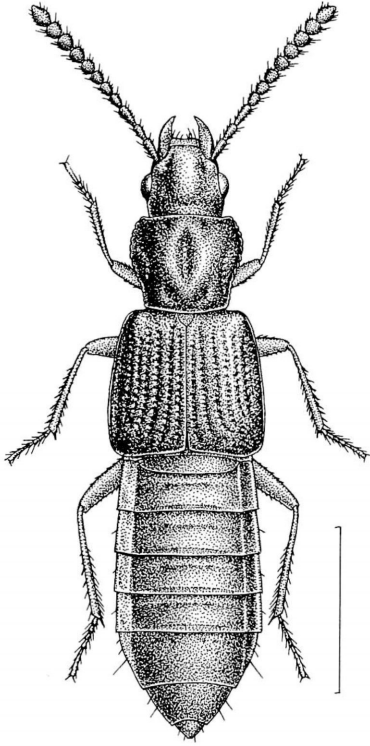
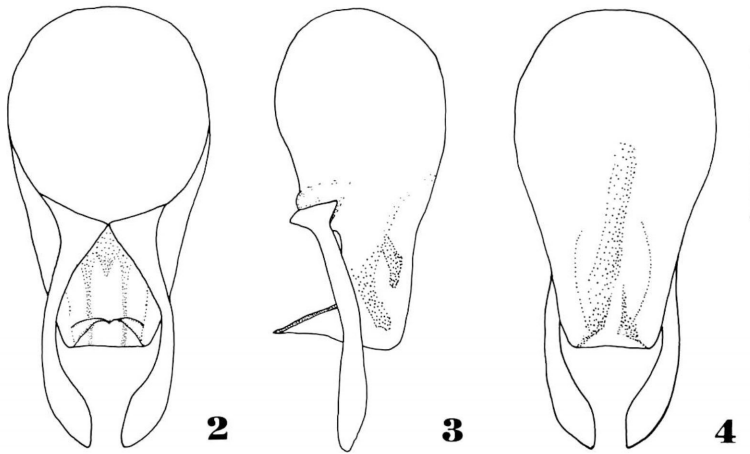


Fig. 1. *Coprophilus formosanus* sp. nov., ♂, from Sungchuankang in Taiwan. Scale: 2.0 mm.

tennae relatively long and extending to basal fifth of elytra, slightly thickened towards apex; basal six segments polished, the remainings opaque; 1st segment robust and dilated apicad, 2nd much shorter than 1st ($2\text{nd}/1\text{st}=0.55$), 3rd a little longer than 2nd ($3\text{rd}/2\text{nd}=1.33$) and moderately dilated apicad, 4th to 10th equal in both length and width to one another, each about 1.4 times as long as broad, 7th to 10th subequal in both length and width to one another, about 1.7 times as broad as proximal segment, each about as long as wide and slightly dilated apicad, apicalmost about 1.5 times as long as broad and distinctly longer than 10th ($\text{apicalmost}/10\text{th}=1.64$), subacuminate at the tip.

Pronotum gently convex medially and a little broader than long (greatest width of pronotum/length of pronotum=1.30), somewhat narrower than elytra (greatest width of pronotum/greatest width of elytra=0.72), and widest at anterior third, with the sides broadly rounded in front but slightly sinuate and strongly convergent posteriorly; lateral parts more or less deplanate just inside lateral margin, each lateral margin finely bordered, conspicuously crenulate at anterior two-thirds and slightly so in posterior third, anterior margin shallowly emarginate, nearly straight at the middle, posterior margin gently rounded but subtruncate at the middle, with a row of very short, evenly spaced setae; anterior angles rectangular though blunt at the corners,



Figs. 2-4. Male genital organ of *Coprophilus formosanus* sp. nov.; ventral view (2), lateral view (3), and dorsal view (4). Scale: 0.5 mm.

posterior ones somewhat obtuse; disc with one median impression and six lateral impressions, an elongate, moderately deep one on the mid-line, a large, oval, moderately deep one on each side of mid-line near base, a very large, irregular, moderately deep one at middle near each lateral margin, and a small, shallow one on each side of mid-line near anterior margin; surface sparingly but rather coarsely punctate. Scutellum subtriangular, sparingly covered with rather coarse punctures.

Elytra subquadrate, slightly transverse (greatest width of elytra / greatest length of elytra=1.09), and considerably longer than pronotum (greatest length of elytra / greatest length of pronotum=1.65); lateral margins nearly straight, gradually diverging from base to broadly rounded posterior angles; each elytron with six rows of punctures in impressed striae, none of which reach the posterior margin; apical portion of elytra with relatively short, irregularly impressed striae; surface slightly rugose, practically impunctate, but elytral epipleuron bears fine sparse punctures somewhat irregularly ranged in a longitudinal row.

Abdomen elongate, almost as broad as elytra, widest at the fourth visible segment, then gradually narrowed antieriad and more strongly so posteriad, basal five tergites each shallowly and transversely depressed along the base; surface covered with coarsely reticulate coriaceous ground sculpture, and sparsely scattered with small punctures, also bearing a transverse series of four distinct setiferous punctures in posterior margin of each transverse depression and two setiferous punctures in front of the posterior margin of each tergite; posterior margin of eighth sternite very shallowly concave medially in male, while strongly angulate medially in female. Legs relatively stout, protarsi simple in both sexes.

Male genital organ trilobed and almost symmetrical, moderately sclerotized. Basal piece large and oval. Median lobe, viewed ventrally, broad and slightly nar-

rowed apicad and suddenly truncated at apex, though distinctly pointed ventrad like a bird's beak in profile. Parameres moderately long and broad, remarkably longer than median lobe, spatulate, each slightly twisted and expanded inwards in the apical part.

Type series. Holotype: ♂, Sungchuankang, about 2,400 m alt., Nantou Hsien, Taiwan, 27-III-1986, Y. SHIBATA leg. Allotype: ♀, same data as for the holotype. Paratypes: 2 ♀♀, Kuanshan Yakou, about 2,500 m alt., Taitung Hsien, 21-VIII-1987, Y. SHIBATA leg.

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. The present new species resembles *C. impressus* SHARP from Japan in general appearance, but can be readily distinguished from the latter by the following characteristics: body larger and broader, much wider than pronotum, with side margins behind the widest part strongly convergent and slightly sinuate posteriad, shallower impressed punctate striae on elytra and different configuration of male genital organ.

The pair of the specimens from Sungchuankang were collected from under comparatively fresh dead body of a small mammal, together with many specimens of the Catopidae. The two female specimens from Kuanshan Yakou were found from heaps of fallen leaves accumulated at the edge of the water of a narrow mountain stream.

要 約

柴田泰利: 台湾産 *Coprophilus* の 1 新種. — *Coprophilus* 属はセスジハネカクシ亜科 Oxytelinae の小さい属で、既知の 22 種は主として温帯に分布している。そのうち日本からは 3 種、中国からは 1 種、ネパール、カシミール、ヒマラヤ、インドなどからは 4 種、残りの 14 種はシベリア、ヨーロッパなどから記録されている。

今回、台湾の南投県松泉崗 (標高 2,400 m) と台東県関山埡口 (標高 2,500 m) から採集された種が新種と判定されたので、*Coprophilus formosanus* と命名記載した。本種は、日本産の *C. impressus* SHARP キノカワハネカクシに体形、色彩ともに似ているが、より大型で幅広、前胸背板は幅広で、側縁は最大幅部後方で末端に向かって強く狭まり、上翅の点刻溝が浅く、雄交尾器の形状が異なっている、などの点で容易に識別できる。

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New Records of Staphylinid Beetles (Coleoptera) from Taiwan

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In the present short report, I am going to report eight unrecorded species of the Staphylinidae from Taiwan.

Thoracophorus certatus SHARP

Specimens examined. 5 exs., Koantauchi, Nantou Hsien, 26–VII–1971, Y. SHIBATA leg.; 1 ex., Kenting Park, Pingtung Hsien, 26–VI–1972, K. MATSUKI leg.

Distribution. Taiwan; Japan.

Oxytelus migrator FAUVEL

Specimens examined. 5 exs., Suchungchi, Pingtung Hsien, 10–VIII–1971, Y. SHIBATA leg.; 1 ex., Kenting Park, Pingtung Hsien, 12–VIII–1971, Y. SHIBATA leg., 2 exs., same locality, 13–VIII–1973, Y. SHIBATA leg.; 1 ex., Wulai, Taipei Hsien, 24–VIII–1971, Y. SHIBATA leg.

Distribution. Taiwan; Ceylon, Thailand, Malaysia, Singapore, Vietnam, Sumatra, Java, Japan.

Oxytelus varipennis KRAATZ

Specimens examined. 1 ex., Juisui Spa, Hualien Hsien, 25–VIII–1970, Y. SHIBATA

leg., 1 ex., same locality, 26-III-1980, Y. SHIBATA leg.; 2 exs., Nanshanchi, Nantou Hsien, 17-VIII-1970, Y. SHIBATA leg., 1 ex., same locality, 24-VII-1976, Y. SHIBATA leg.

Distribution. Taiwan; India, Ceylon, China, Japan.

Anotylus fraternus (CAMERON)

Specimen examined. 1 ex., Koantauchi, Nantou Hsien, 26-VII-1971, Y. SHIBATA leg.

Distribution. Taiwan; Sumatra, Malay Peninsula.

Anotylus glareosus (WOLLASTON)

Specimens examined. 1 ex., Waihsuangchi, Taipei Hsien, 4-I-1975, J. C. LIEN leg.; 1 ex., Neisuangchi, Taipei Hsien, 20-VII-1975, J. C. LIEN leg.; 1 ex., Wulai, Taipei Hsien, 28-VIII-1976, J. C. LIEN leg.

Distribution. Taiwan; Asia, Africa, Central America, West Indies, Islands on the Atlantic, Pacific and Indian Oceans.

Anotylus sparsus (FAUVEL)

Specimen examined. 1 ex., Nanshanchi, Nantou Hsien, 1-VIII-1977, Y. SHIBATA leg.

Distribution. Taiwan; Java.

Neobisnius praelongus (GEMMINGER et HAROLD)

Specimens examined. 13 exs., Lanyu Is., Taitung Hsien, 8~9-VIII-1977, J. C. LIEN leg.

Distribution. Taiwan; India, Assam, Penang, Singapore, Java, Philippines.

Gabronthus maritimus (MOTSCHULSKY)

Specimens examined. 3 exs., Nanshanchi, Nantou Hsien, 17-VIII-1970, Y. SHIBATA leg., 1 ex., same locality, 24-VIII-1977, Y. SHIBATA leg., 1 ex., same locality, 1-VIII-1977, Y. SHIBATA leg., 11 exs., same locality, 26-VII-1983, Y. SHIBATA leg.; 7 exs., Lushan Spa, Nantou Hsien, 3-VIII-1985, Y. SHIBATA leg.; 7 exs., Wenshan Spa, Hualien Hsien, 4-VIII-1983, Y. SHIBATA leg.; 1 ex., Tienhsiang, Hualien Hsien, 30-VIII-1977, Y. SHIBATA leg.; 31 exs., Juisui Spa, Hualien Hsien, 30-III-1987, Y. SHIBATA leg.; 2 exs., Chihpen Spa, Taitung Hsien, 29-VII-1970, Y. SHIBATA leg.; 1 ex., Paishawei, Lutaos Is., Taitung Hsien, 28-III-1988, Y. SHIBATA leg.; 1 ex., Suchungchi, Pingtung Hsien, 10-VIII-1977, Y. SHIBATA leg.; 4 exs., Kenting Park, Pingtung Hsien, 10-VIII-1977, Y. SHIBATA leg.

Distribution. Taiwan; Oriental Region, Mediterranean Subregion, Mauritius, Africa.

I express my sincere thanks to Mr P. M. HAMMOND for his advice on the determination of the *Anotylus* species, and to Dr. J. C. LIEN and Mr. K. MATSUKI for their kind supply of the specimens.

A New Species of the Genus *Laccobius* (Coleoptera, Hydrophilidae) from the Ryukyu Islands, Japan

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Abstract A new species of the hydrophilid genus *Laccobius* is described from the Ryukyu Islands, under the name *Laccobius yonaguniensis* MATSUI. It is related to *L. oscillans* SHARP, but is distinguished by the different shape of the median lobe of the male genitalia.

Introduction

Up to the present, two species of the hydrophilid genus *Laccobius* have been recorded from the Ryukyu Islands (GENTILI, 1982, 1989). The present paper contains a description of a new species, *Laccobius yonaguniensis* MATSUI. It was found in a very small stream at Thindabana of Yonaguni Island lying at the southwesternmost of the Ryukyu Islands, Japan.

Before going further, I wish to express my hearty thanks to Dr. T. NAKANE for his kind help extended to me during the course of this study.

Laccobius (Microlaccobius) yonaguniensis MATSUI, sp. nov.

(Fig. 1)

♂♀:— Head, pronotum and labrum fuscous or dark brown, with a pair of ante-ocular spots; sides of pronotum broadly yellow. Antennae and palpi also yellow, except for the club of the former and the apex of the terminal segment of the latter which are brown. Elytra yellow, with the punctures, humeral prominences and several obscure discal spots fuscous or dark brown. Under surface fuscous, with the sides of prothorax broadly and elytral epipleura yellow. Legs yellowish brown, with the basal halves of femora brown.

Short oval, convex, and shining above.

Head and pronotum neither micro-reticulate nor shagreened, sparsely and distinctly punctured. Front margin gently arcuate-emarginate on clypeus and nearly straight on labrum. Eyes broadly oval in shape, separated by about 3.3 times their width. First segment of antennae elongate and thickened to apex, 2nd nearly as wide as but about a half as long as 1st, 3rd and 4th very short and small, 5th and 6th glabrous and dilated to apex, and 7th to 9th densely pubescent and forming a loosely articulated oblong club. Second segment of maxillary palpus dilated to apex and

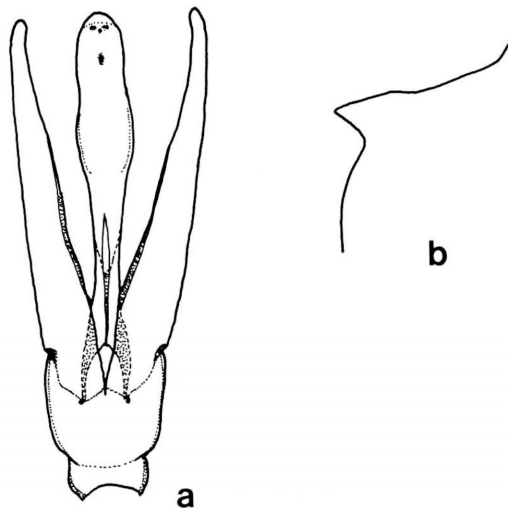


Fig. 1. *Laccobius yonaguniensis* MATSUI, sp. nov.; a, dorsal view of male genitalia; b, outline of the anterior end of mesosternal carina.

nearly twice as long as wide, 3rd also dilated to apex but shorter than 2nd, 4th (apical) moderately elongate and longer than 2nd and 3rd. Terminal segment of labial palpus as long as the preceding, with the outer margin arched and the inner sublinear.

Pronotum transverse, about 2.5 times as wide as long, narrowed from base to apex, front angles rounded and rather broadly but not markedly produced forwards, hind angles obtuse, all margins bordered with a row of fine punctures, which are set in a furrow along the base and just inside the fine outer edge at the sides. Scutellum triangular, nearly flat, about as long as wide, with several finer punctures.

Elytra about 1.2 times as long as wide, widest at anterior third, with the sides rounded, each elytron bearing some twenty-one rows of punctures, intervals without micro-reticulation.

Mentum wider than long, subquadrate, flat but somewhat uneven, not closely finely punctured. Front margin of mentum sinuate. Under surface of thoraces densely punctulate and pubescent. Prosternum with a sharp longitudinal carina at the middle. Mesosternum also bearing a longitudinal keel at the middle (Fig. 1 b), which is, when seen from side, angulate and minutely hooked before apex and bears some long yellow hairs just behind the hook. Front margin of mesosternum tuberculate at middle. Median part of mesosternum broadly but plainly convex, with a narrow longitudinal polished space on posterior half. Abdomen shining, with long hairs, sparsely punctured, but the punctuation is dense on apical segment. Femora of four hinder legs glabrous and sparsely punctate. Metatibia slender and slightly curved. Male genitalia as illustrated (Fig. 1 a). Parameres as long as median lobe. Median lobe dilated at posterior third. Parameres slightly curved inwards at apices.

Length of body: ♂, 2.5 mm; ♀, 2.5–2.7 mm. Width of body: ♂, 1.4 mm; ♀, 1.4–1.5 mm.

Holotype (♂), allotype (♀) and 3 paratypes: Thindabana, Yonaguni Is., Ryukyu Islands, 8–VIII–1989, E. MATSUI leg.

The holotype and allotype are preserved in the Entomological Laboratory, Kyushu University, Fukuoka. The paratypes are in the author's collection.

Distribution. Yonaguni Is. (Ryukyu Islands).

Remarks. This species is closely allied to *L. oscillans* SHARP, but differs from it in the median lobe of the male genitalia, which is dilated at the posterior third.

要 約

松井英司: 日本産シジミガムシ属 (ガムシ科) の 1 新種. — 琉球列島与那国島の極細流から *Laccobius* 属の 1 種を発見し, ヨナグニシジミガムシ *Laccobius yonaguniensis* MATSUI (Coleoptera, Hydrophilidae) と命名記載した. この種は, コモンシジミガムシに近縁であるが, 雄交尾器の中央片が端方 1/3 のあたりで拡がっていることにより区別できる.

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Notes on the Bembidiinae (Carabidae) of Japan

V. Records of Three Species from Yamagata Prefecture

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Very recently, I received from Mr. KUSAKARI several bembidiine carabids collected in Yamagata Prefecture, North Japan. Among them, three species are poorly known up to now. In this paper, I am going to record their collecting data below.

1) *Bembidion (Peryphus) umeyai* HABU

1 ♀, Riv. Bonji-gawa, Asahi-mura, 12-IX-1992, K. KUSAKARI leg.

A direct comparison between the holotype and the specimen was made by myself.

2) *B. (P.) ohkurai* MORITA

1 ♀, Arasawa, Nishikawa-machi, 16-IX-1992, K. KUSAKARI leg.

At the end of the last year, this species was described from Central Japan. Arasawa, its collecting site, is about 255 km distant to the northeast from the type locality.

3) *B. (Plataphus) shilenkovi* MORITA

1 ♀, Arasawa, Nishikawa-machi, 16-IX-1992, K. KUSAKARI leg.

This species was described by myself in 1989, as a species rather widely distributed in Tōhoku District, North Japan. Since the publication, nothing has been added to my knowledge concerning its distribution.

Finally, 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. My thanks are also due to Dr. Takeshi MATSUMURA and Dr. Shin-ichi YOSHIMATSU of the National Institute of Agro-environmental Sciences, Tsukuba, and to Mr. Kōichi KUSAKARI for their kind help.

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A New *Bradycellus* (Coleoptera, Carabidae) from the Tokara Islands, Southwest Japan

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Abstract A new harpaline carabid beetle, *Bradycellus* (*Tachycellus*) *insularis* sp. nov., is described from Southwest Japan. This new species is much isolated from all the members of the subgenus known from Asia by having larger body and lighter coloration.

In the present paper, I am going to describe a new *Bradycellus*, which was discovered on the Island of Takara-jima of the Tokara Islands, off southern Kyushu, Southwest Japan. This new species belongs to the subgenus *Tachycellus*, and is distinct from all the known members described or redescribed by various authors.

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 (PB value is approximate, as the hind angles are rounded); EW – greatest width of elytra; EL – greatest length of elytra; TI – length of segment I of metatarsus; TV – length of claw segment of metatarsus; M – arithmetic mean.

I wish to thank Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his kindness in reading the manuscript of this paper. My thanks are also due to Mr. Noboru ITO (Kawanishi-shi) for his kind help, and to Dr. Takeshi MATSUMURA and Dr. Shin-ichi YOSHIMATSU (National Institute of Agro-environmental Sciences, Tsukuba) for allowing me to re-examine HABU's type material.

Bradycellus (*Tachycellus*) *insularis* MORITA, sp. nov.

[Japanese name: Tokara-hime-gomokumushi]

(Figs. 1–8)

Length: 5.61–6.33 mm (from apical margin of clypeus to apices of elytra).

Body dark brown; elytral interval 1 brown; ventral side of fore body dark brown, though the sternites are more or less darker; antennae, palpi, legs and epipleura reddish brown.

Head convex, not large; PW/HW 1.40–1.48 (M 1.44) in 10 ♂♂, 1.39–1.53 (M 1.45) in 10 ♀♀; frontal furrows clearly impressed, sometimes becoming shallower or disappearing near lateral grooves; eyes moderately convex; supraorbital pores located at the post-eye level; apical margin of labrum usually very slightly produced, rarely

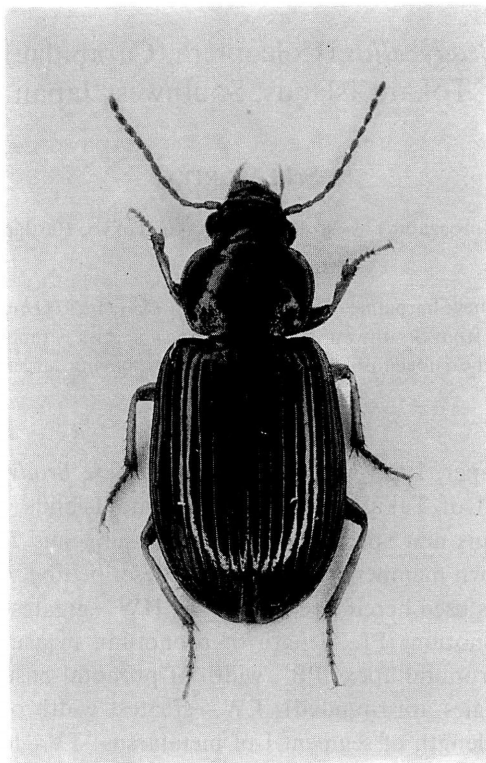
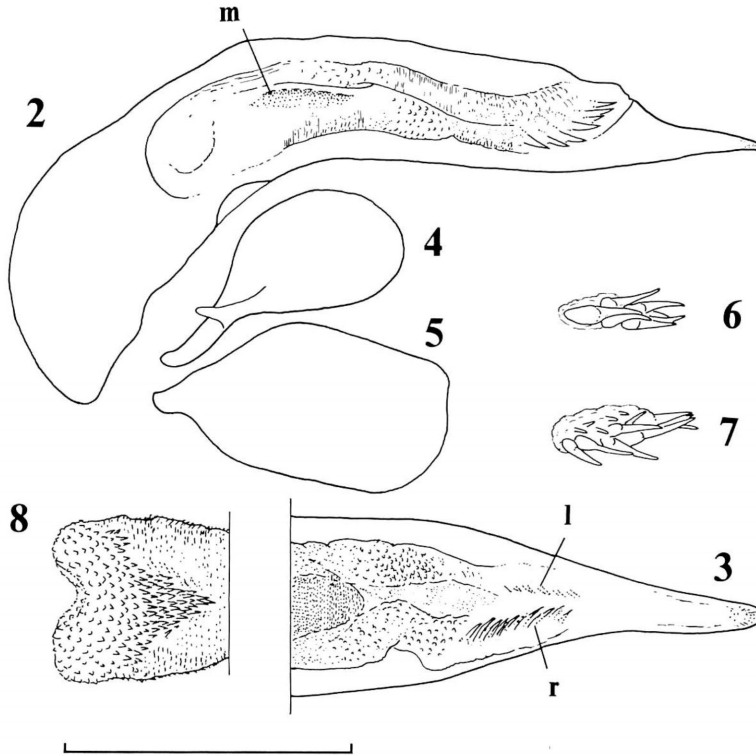


Fig. 1. *Bradycellus (Tachycellus) insularis* MORITA, sp. nov., from Takara-jima, Southwest Japan.

almost straight, and both corners rounded; mentum tooth simple; microsculpture obliterated, but partially visible as polygonal meshes, especially on the neck; antennae rather short, reaching basal 1/6 of elytra, and dilated towards apices; segment I about 1.77 times as long as wide; segment III about 2.25 times as long as wide, and pubescent at apex; segment IV about 2.28 times as long as wide, pubescent from basal third; segments VII–X each a little shorter than segment VI; relative lengths of antennal segments as follows:— I: II: III: IV: V: VI: XI: $\bar{1}$: 0.65: 0.88: 0.91: 0.87: 0.87: 1.02.

Pronotum transverse, PW/PL 1.31–1.42 (M 1.37) in 10 ♂♂, 1.37–1.49 (M 1.44) in 10 ♀♀, widest at about middle; apical margin slightly emarginate, rarely almost straight, and a little narrower than base, PA/PB 0.82–0.92 (M 0.87) in 10 ♂♂, 0.83–0.92 (M 0.86) in 10 ♀♀, PW/PA 1.43–1.51 (M 1.45) in 10 ♂♂, 1.41–1.48 (M 1.46) in 10 ♀♀; apical angles slightly produced, rounded at the tips, and without hairs; base almost straight or rarely slightly arcuate and with fine punctures at middle; PW/PB 1.22–1.32 (M 1.27) in 10 ♂♂, 1.19–1.30 (M 1.25) in 10 ♀♀; median line distinct, almost reaching both apex and base; apical transverse impression very shallow near median line, but obliterated at the sides; basal transverse impression nearly obliterated.



Figs. 2–8. Male genitalia of *Bradycellus* (*Tachycellus*) *insularis* MORITA, sp. nov. — 2, Aedeagus, left lateral view; 3, same, ventral view; 4, separated right style; 5, separated left style; 6, everted left teeth-patch; 7, everted right teeth-patch; 8, everted teeth-mat (l: left teeth-patch, r: right teeth-patch, m: teeth-mat). (Scale: 0.4 mm.)

ed, rarely very shallow; sides almost evenly arcuate; hind angles rounded at the tips; basal foveae usually small and very shallow with coarse or fine punctures; reflexed lateral borders very narrow, widest at about middle, usually narrowed towards bases and towards apices, and joining the bottom of basal fovea on each side; microsculpture composed of fine transverse meshes but partially disordered on the disc and of polygonal meshes on the basal part.

Elytra elongate ovate, moderately convex, widest at about middle; EW/PW 1.40–1.44 (M 1.41) in 10 ♂♂, 1.37–1.45 (M 1.41) in 10 ♀♀; EL/EW 1.38–1.49 (M 1.44) in 10 ♂♂, 1.40–1.49 (M 1.45) in 10 ♀♀; shoulders distinct, without hairs; sides gently arcuate and slightly emarginate before apices; striae entire, impunctate, but the striae I–III (rarely IV) become shallower at apices; dorsal pore on interval 3 and adjoining stria II, and situated at 7/11 from base; scutellar striole distinct and rather long, and with basal pore; apices separately rounded, with a re-entrant angle at suture; intervals slightly convex, though almost flat at apices; marginal series composed of 14 pores;

microsculpture composed of transverse meshes but partially of wide ones.

Prosternum very sparsely covered with pubescence; sternite I and sides of sternites II and III without pubescence in ♂ and ♀; in ♂, median part of sternites II and III depressed and densely ciliate; anal sternite (VI) with a seta in ♂ and two setae in ♀ on each side.

Legs short and stout; posterior margin of each metafemur with two setae; in ♂, each segment of mesotarsus not dilated; in ♂ and ♀, dorsal sides of all tarsi smooth, but 2 proximal segments of all tarsi with one or two seta(e) on the dorsal side; claw segment of metatarsus glabrous below and two pair of setae on lateral side; TV/TI 1.43 in 5 ♂♂, 1.30 in 5 ♀♀.

Aedeagus elongate with a large basal part; viewed dorsally, apical lobe gradually narrowed towards the tip which is simply rounded; apex rarely very slightly bent in lateral view. Inner sac covered with scales and armed with two teeth-patches and a mat of poorly sclerotized teeth; of the two teeth-patches, the right one is longer than the left, and composed of seven heavily sclerotized spines and nine poorly sclerotized spines; left teeth-patch composed of seven heavily sclerotized spines; teeth-mat subtriangular in ventral view and composed of minute teeth; styles fairly broad, though the left style is larger than the left.

Type series. Holotype: ♂, allotype: ♀, paratypes: 49 ♂♂, 44 ♀♀ (teneral), 29-III~6-IV-1976, S. MORITA leg.

The holo-, allo- and several paratypes are preserved in the collection of the National Science Museum (Nat. Hist.), Tokyo. The remaining paratypes are preserved in my collection.

Locality. Is. Takara-jima, the Tokara Islands, Kagoshima Prefecture, Japan.

Notes. The present new species can be easily distinguished from all the known members of the subgenus *Tachycellus* of Japan, Taiwan and China by larger body, lighter coloration and absence of microsculpture on head.

Judging from the conformation of male genital organ, this new species is closely allied to *B. (T.) glabratulus* LAFER (1989, pp. 199-200). However, it is distinguished from it by larger body, smaller head and presence of microsculpture on elytra in ♂. Besides, there is a wide geographical gap between Southwest Japan and southern Primorsky Territory.

要 約

森田誠司: トカラ列島で採集されたヒメゴモクムシの1新種。——トカラ列島の宝島で採集されたヒメゴモクムシの一種を新種と認め *Bradycellus (Tachycellus) insularis* MORITA, sp. nov. トカラヒメゴモクムシと命名した。わが国や台湾、中国から知られている種類とは、大型で体色が黒褐色、頭部に微細印刻を欠くことで容易に識別される。陰茎の内部構造から判断すると、ロシアから記載された *B. (T.) glabratulus* LAFER に類似するものと思われるが、頭部が大きくなり、雄の上翅にも微細印刻が認められることで識別される。

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Elytra, Tokyo, **21** (2): 327–328, Nov. 15, 1993

Records of Some Cicindelid and Carabid Beetles (Coleoptera, Cicindelidae and Carabidae) from Kyushu and the Ryukyus, Southern Japan

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In the summer of 1991, Drs. N. V. KURZENKO and A. S. LELEJ took part in a joint field survey in Kyushu and the Ryukyus with Dr. Sk. YAMANE, Prof. T. SAIGUSA and other Japanese entomologists. The main task was to collect any kind of wasps in different biotopes but a few beetles were also collected. In this paper the results of our study on the Cicindelidae and Carabidae are given. All the material mentioned was collected by A. S. LELEJ and is deposited in the collection of the Institute of Biology and Pedology, Vladivostok. The taxonomic part of this paper was prepared by G. Sh. LAFER.

Before going further, we wish to express our hearty thanks to Prof. A. SHIBATANI of Kyoto Seika University, Prof. Sk. YAMANE of Kagoshima University, Prof. T. SAIGUSA of

Kyushu University, and Prof. S. AZUMA and Dr. M. YAFUSO of the University of the Ryukyus for their kind help during the collecting trip in 1991 in Kyushu and the Ryukyus. We are deeply grateful to Dr. Shun-Ichi UENO of the National Science Museum (Nat. Hist.), Tokyo, for critically reading the manuscript of this paper and its publication.

Kyushu

1. *Cicindela (Sophiodela) chinensis japonica* THUNBERG
1 ♀, Kinpozan, Satsuma Pen., Kagoshima Pref., 10–VIII–1991; 1 ♀, Kitakyushu, Fukuoka Pref., 4–VIII–1991; 1 ♂, 1 ♀, Kokonoe-machi, 600 m in altitude, Ōita Pref., 6–VIII–1991.
2. *Cicindela (Ifasina) kaleea yedoensis* KANO
2 ♂♂, Kitakyushu, Fukuoka Pref., 4–VIII–1991.
3. *Anisodactylus (Anisodactylus) sadoensis* SCHAUBERGER
1 ♂, Seiwa-mura, Kyushu-sanchi, Kumamoto Pref., 7–VIII–1991.
4. *Diplocheila zeelandica* (REDTENBACHER)
1 ♂, Kitakyushu, Fukuoka Pref., 4–VIII–1991.

Ryukyus

Okinawa Island

1. *Cicindela (Sophiodela) chinensis okinawana* NAKANE
3 ♂♂, Yona, Kunigami-son, 12–VIII–1991.
2. *Cicindela (Spilodia) striolata dorsolineolata* CHEVROLAT
1 ♂, Yona, Kunigami-son, 14–VIII–1991.
3. *Platymetopus flavilabris* (FABRICIUS)
1 ♀, Yona, Kunigami-son, 12–VIII–1991.
4. *Chlaenius hamifer* CHAUDOIR
2 ♂♂, Yona, Kunigami-son, 14–VIII–1991.

Ishigaki Island

1. *Cicindela (Myriochile) inspecularis* W. HORN
1 ♂, 1 ♀, Mt. Omoto-dake, 18–VIII–1991; 1 ♂, Kawara-yama, 21–VIII–1991.
2. *Cicindela (Spilodia) striolata dorsolineolata* CHEVROLAT
1 ♂, 1 ♀, Kawara-yama, 21–VIII–1991; 1 ♀, Mt. Omoto-dake, 22–VIII–1991.

Iriomote Island

1. *Cicindela (Callytron) yuasai* NAKANE
1 ♀, Funaura, 19–VIII–1991.
2. *Cicindela (Ifasina) psilica luchuensis* BROUERIUS VAN NIDEK
1 ♂, Funaura, 19–VIII–1991.
3. *Cicindela (Myriochile) inspecularis* W. HORN
1 ♂, Funaura, 20–VIII–1991.
4. *Cicindela (Spilodia) striolata dorsolineolata* CHEVROLAT
2 ♂♂, Funaura, 20–VIII–1991.

Discovery of a Highly Modified Species of *Jujiroa* (Coleoptera, Carabidae) on the Japan Sea Side of Central Honshu, Japan¹⁾

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Abstract A new species of the platynine genus *Jujiroa* is described from abandoned tuff mines lying on the southeastern outskirts of Kanazawa, Central Japan, under the name of *J. imunada*. It shows the highest morphological modification within the genus, and is the species first recorded from the Japan Sea side of Honshu.

It has been known for many years that a highly modified platynine of the genus *Jujiroa* occurs in several limestone caves of Gifu Prefecture, Central Japan. It has an elongate head, very long antennae and slender legs, showing the highest adaptation to the subterranean life. Unfortunately, it has not been properly described yet, mainly because of difficulty in obtaining adequate material from single caves. However, its occurrence in Gifu Prefecture situated midway between the Pacific Ocean and the Japan Sea is most interesting from the zoogeographical viewpoint, since all the other Japanese members of the genus, both described and undescribed, are distributed along the Pacific side of West Japan, from the Tenryû-gawa drainage area in the east to the Gotô Islands in the west (cf. UÉNO & SAITO, 1991, pp. 1–2).

Late in the spring of this year, two specimens of a *Jujiroa* were collected by Mr. Masayuki IMURA in an abandoned adit of a tuff mine lying on the southeastern outskirts of Kanazawa in Ishikawa Prefecture and were submitted to me for examination through the courtesy of Mr. Syôji TAKABA. It was evident at a glance that they belong to a species either identical with or very closely related to the undescribed one from Gifu Prefecture. At my request, IMURA and his fellows obtained a series of additional specimens from the same adit and two others nearby, which were sufficient for description of the new species. Early in the autumn, Professor Yoshiaki NISHIKAWA and I paid a hurried visit to the mine adits for examining the habitat condition and the mode of life of the platynine, and now I have gained full information about the beetle.

The discovery of this new species is very important for several reasons. It is important taxonomically because of the isolated status of the platynine; it is important biospeologically because of its striking modification adaptive to the hypogean existence; and it is important zoogeographically because no other species of the genus have ever

1) This study is supported by the Grant-in-aid No. 03640633 for Scientific Research from the Ministry of Education, Science and Culture, Japan.

been met with from the Japan Sea side of Honshu. Taking all these considerations into account, I am going to introduce the new species into science in the present paper under the name *Jujiroa imunada*, although systematic status of the Gifu populations still remains unclarified. The specific name *imunada* is formed from an arbitrary combination of letters taken from the names of the three collectors, IMU-RA, NAKANISHI and UE-DA, whose efforts led to the brilliant discovery of the new platynine. The abbreviations used herein are the same as those explained on page 3 of the paper by UÉNO and SAITO (1991) on the Taiwanese species of the genus.

Before going further, I wish to express my heartfelt thanks first of all to Messrs. Masayuki IMURA, Shigeo NAKANISHI and Noboru UEDA, without whose careful collectings this study could never have been taken up. Deep appreciation is also expressed to Mr. Syôji TAKABA, Dr. Ichiji TOGASHI and Professor Yoshiaki NISHIKAWA for giving kind support to my study.

Jujiroa imunada S. UÉNO, sp. nov.

[Japanese name: Higenaga-hora-hirata-gomimushi]

(Figs. 1–3)

Length: 9.8–11.7 mm (from apical margin of clypeus to apices of elytra).

Recognized at first sight on its slender facies, with elongate head, narrow prothorax, and very long slender appendages. Colour reddish brown, shiny; head except for the anterior half of dorsum, pronotal disc, elytra, venter of mesothorax, and epipleura usually infuscated; reflexed lateral parts of pronotum each with an irregular row (partially rows) of dark punctiform spots; appendages usually somewhat lighter than body. In freshly mature individuals, body concolorously reddish brown with somewhat paler appendages, except for head which is infuscated as in old ones. Inner wings absent.

Head elongate, usually about 1.35 times as long as wide, widest at the mid-eye level and gradually narrowed towards narrow neck which is almost cylindrical, genal parts either straight or only very slightly convex in dorsal view; neck constriction not sharply marked though continuous onto dorsum; dorsal surface well convex and smooth, with short wide frontal impressions subparallel to each other and hardly extending to the level of the anterior margins of eyes; two pair of supraorbital pores present on lines subparallel to each other; microsculpture fine but distinct, consisting mostly of wide meshes, partially of isodiametric ones and irregularly transverse lines; eyes small, usually flat though feebly convex in some individuals, $3/7$ – $4/7$ as long as genae in ♂, $2/5$ – $1/2$ as long as genae in ♀; labrum transversely oblong, with the apical margin either straight or slightly bisinuate; mandibles fairly long, sharply arcuate at the apical parts; mentum bisetose, with a pair of ante-basal foveoles which are fairly deep; mentum tooth stout, sharply bifid at the tip; palpi long and slender, with thin penultimate segments very gradually dilated towards apices; antennae long and thin, reaching apical tenth (sometimes apices) of elytra in ♂, usually somewhat shorter

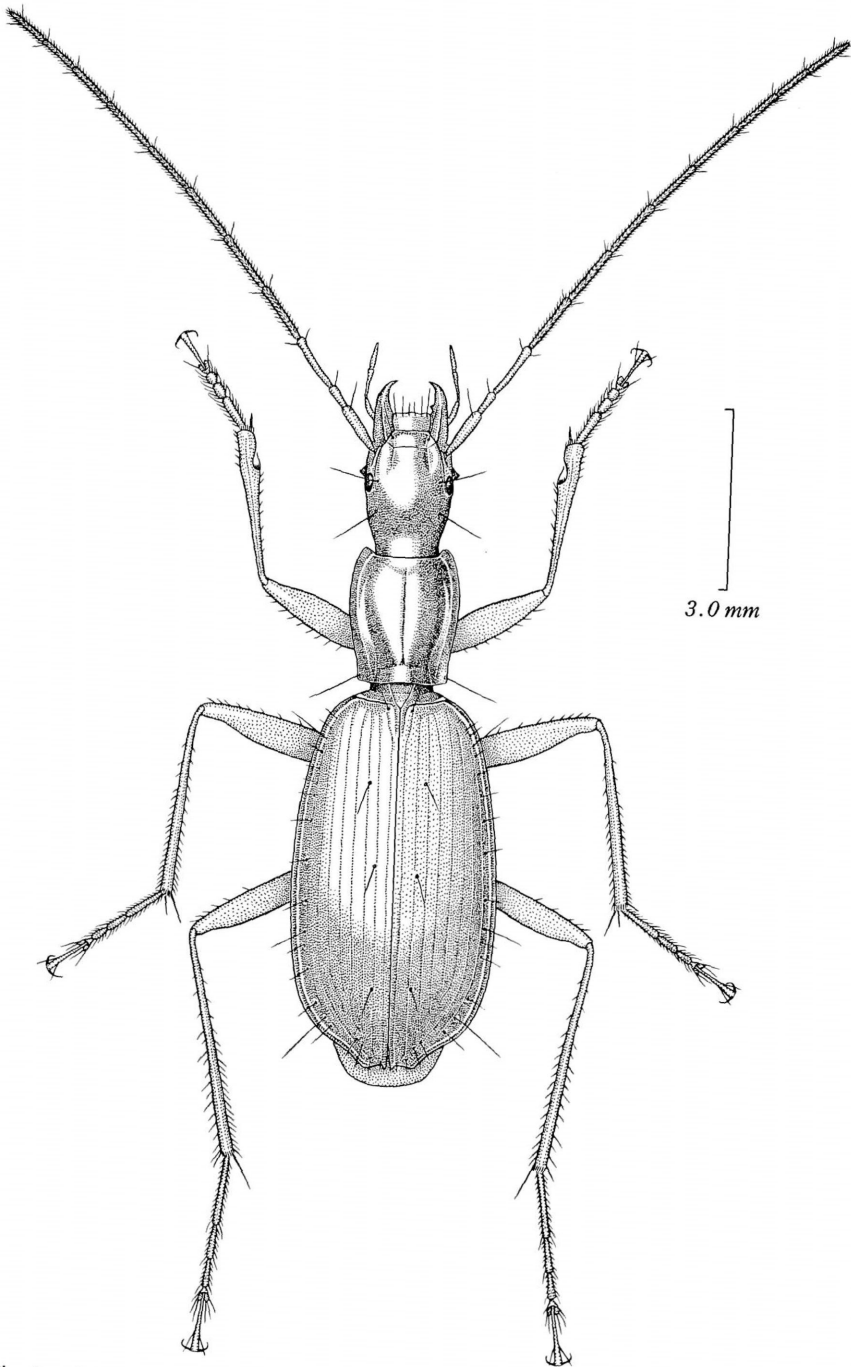
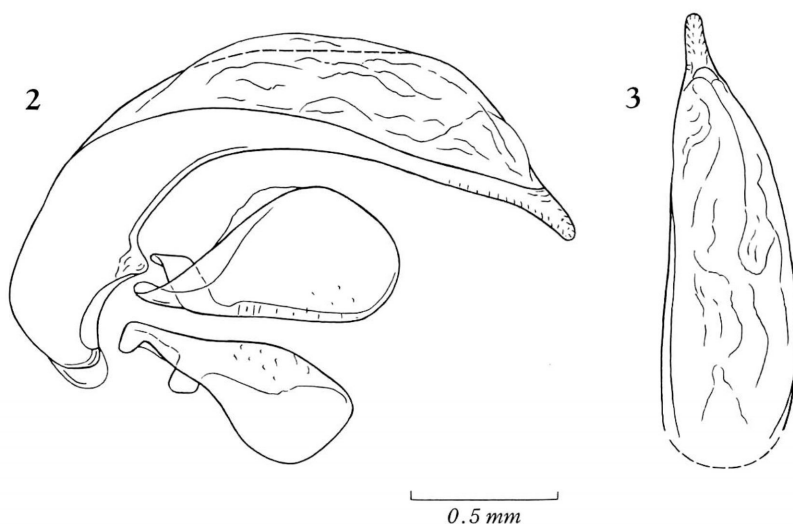


Fig. 1. *Jujiroa imunada* S. UÉNO, sp. nov., ♂, from an abandoned mine adit at Aodani in Kanazawa-shi.

than that in ♀, segment 4 the longest though obviously narrower than scape, fully 7 times as long as wide, segments 3, 5 and 6 subequal in length to one another, each slightly shorter than segment 4 and slightly longer than scape, segments 7–11 gradually decreasing in length and becoming about 2/3 the length of 4 at the terminal segment, segment 2 the shortest, a little more than a half as long as the terminal.

Pronotum variable to some extent in configuration though wider than head and always a little longer than wide, usually widest at about two-thirds from base, though the widest level varies from five-ninths to seven-tenths from base according to individuals; PW/HW 1.27–1.35 (M 1.32), PL/PW 1.03–1.14 (M 1.08), PW/PA 1.44–1.60 (M 1.52), PW/PB 1.21–1.36 (M 1.29); sides widely explanate and sharply reflexed throughout, especially in posterior third including hind angles, feebly arcuate from front angles to near base in many specimens examined, but in some individuals, the lateral sides are rather strongly arcuate before the widest part and almost straightly, though gradually, narrowed behind towards hind angles, ante-basal sinuation usually distinct though very shallow, lying between basal sixth and fifth, rarely rather deep and more rarely null, basal portions either subparallel to each other or slightly convergent posteriad in most specimens examined but rarely divergent towards hind angles; apex either straight or shallowly emarginate, always narrower than base though variable in width according to individuals, PB/PA 1.11–1.25 (M 1.18), with front angles triangularly produced forwards and narrowly rounded at the tips; base straightly truncated at middle and more or less oblique on each side inside hind angle, which is either obtuse or nearly rectangular and always narrowly rounded at the corner; postangular pair of marginal setae either inserted on hind angles or slightly removed forwards, anterior pair absent as usual; disc moderately convex, with vague transverse striations, median line distinct, not reaching apex but sometimes reaching base, apical transverse impression vague, basal transverse impression shallow and mal-defined, though continuous; basal foveae deep, extending anteriorly along marginal gutters as arcuate furrows, which are either continuous or interrupted at about basal third but always deeply impressed near the widest part and reach near front angles; basal area narrow and somewhat uneven; microsculpture distinct, consisting of fine transverse lines partially forming wide meshes.

Elytra elongate, much wider than prothorax, narrow at bases, gradually dilated towards the middle which is the widest, and ample in apical halves; EW/PW 1.81–2.01 (M 1.90), EL/EW 1.63–1.77 (M 1.70); shoulders effaced; basal border slightly arcuate, either roundly continuing to lateral border or meeting with the latter at a very obtuse angle at the base of interval 6, the latter widening posteriorly and rather widely explanate and reflexed, almost straight in front, and then very feebly arcuate to near preapical emargination which is very shallow; apices narrowly but distinctly truncate and sharply mucronate on each side of a narrow re-entrant angle at suture, the lateral angle of apical truncature usually distinct though obtuse, rarely rounded; dorsum rather flat though the sutural areas are usually raised in apical halves, each elytron usually depressed in basal area and frequently also before apex; striae clearly im-



Figs. 2-3. Male genitalia of *Jujiroa imunada* S. UENO, sp. nov., from an abandoned mine adit at Aodani in Kanazawa-shi; left lateral view (2), and apical part of aedeagus, dorso-apical view (3).

pressed throughout and often deepened apically, either smooth or very faintly crenulate, stria 8 always deepened in apical part; scutellar striole short but distinct; intervals flat; basal pore present at the base of interval 1; three dorsal pores present on interval 3, the proximal one adjoining stria 3 at $1/6-1/3$ from base, and the posterior two adjoining stria 2 at $1/2-5/8$ and $5/8-4/5$ from base, respectively, the proximal pore rather frequently and the middle pore rarely lacking on one elytron; apical pores usually four in number, one at the apex of interval 1 and the other three adjoining the apical part of stria 7; marginal series of umbilicate pores 14-18 (usually 16) in number; microsculpture distinct, mostly consisting of fine transverse lines.

Ventral surface smooth; anal sternite with the apical margin more regularly arcuate in ♂ than in ♀, bearing a pair of marginal setae in the former, two pair of them in the latter. Legs long and slender; tarsi thin, segments 1-4 deeply bisulcate and longitudinally striate between the lateral sulci, segment 1 obviously longer than segments 2-3 together in mesotarsus but as long as that in metatarsus, segment 4 deeply bilobed in pro- and mesotarsi, deeply emarginate at the apex in metatarsus, segment 5 provided with a pair of dorsal setae in addition to the ordinary pair; in ♂, protarsal segments 1-3 gently dilated and furnished beneath with adhesive appendages.

Male genital organ small though moderately sclerotized. Aedeagus about one-third as long as elytra, gently depressed, strongly arcuate in basal half, and widely membranous on the left dorsal side, with the left wall much reduced; basal part globular, moderately emarginate at the sides of rather small basal orifice, with a small hyaline sagittal aileron; apical lobe relatively short, rod-like and straight, slightly

curved ventrad at the base and blunt at the extremity; inner sac inerm. Left style conchoidal, widely rounded at the apex; right style relatively large though obviously smaller than the left.

Type series. Holotype: ♂, allotype: ♀, Aodani, 18-V-1993, M. IMURA & S. NAKANISHI leg. Paratypes: 2 ♀♀, Aodani, 6-V-1993, M. IMURA leg.; 1 ♂, 2 ♀♀, Aodani, 22-V-1993, M. IMURA & S. NAKANISHI leg.; 1 ♂, 1 ♀, Aodani, 3-VI-1993, M. IMURA leg.; 1 ♂, 3 ♀♀, Aodani, 23-IX-1993, S. UÉNO leg.; 1 ♀, Aodani, 26-IX-1993, S. TAKABA leg.; 2 ♂♂, 4 ♀♀, Seryô, 6-VI-1993, M. IMURA, S. NAKANISHI & N. UEDA leg.; 1 ♂, 3 ♀♀, Seryô, 19-VII-1993, S. TAKABA leg.; 1 ♂, 11 ♀♀, Seryô, 23-IX-1993, S. UÉNO leg. All deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo. Two of the paratypes collected in September are teneral specimens.

Localities. A mine adit at Aodani (110 m in altitude; type locality!), and two mine adits at Seryô (120 m and 130 m in altitude), both in Kanazawa-shi of Ishikawa Prefecture, on the Japan Sea side of central Honshu, Japan.

Notes. Of the four distinctive Japanese species of *Jujiroa* hitherto described (excluding *J. onoi* TAKAKURA, 1987, whose systematic status is problematical), *J. troglodytes* S. UÉNO (1955, p. 57, fig. 1, pl. 1, fig. b; HABU, 1978, pp. 268, 271, figs. 532, 535, 537, 540, 544, 546, pl. 25, fig. 2) may be nearest to *J. imunada*. The two species are identical not only in labial and tarsal conformation, but also in convex head, flattened hind body, and number of the dorsal and marginal pores of elytra. On the other hand, *J. imunada* differs from *J. troglodytes* in the presence of the basal pore and the number of the apical pores of elytra beside the striking modification of its facies adaptive to the hypogean existence. Perhaps it is not wise to recognize a species-group of its own for *J. imunada*, although inexperienced workers may be tempted to take such an action.

The present new species has so far been known from three abandoned adits of tuff mines excavated into the cliffs on both sides of the Sai-kawa River, one on the left side and two on the right, one above the other. These cliffs are located about 8 km southeast of the city centre of Kanazawa, near the threshold of mountainous areas. The beetle is not so rare as most other species of the genus, and is most easily met with by trapping in the lower adit at Seryô, which is on the right side of the valley. It is cursorial to a certain extent, since several individuals have been observed crawling on walls or even ceilings of the adit. It is also found from among rock debris, usually in wet places but sometimes in rather dry spots. It runs very quickly when disturbed and rushes for crevices or narrow spaces of the debris, to which fits its flattened body rather unusual for a highly specialized hypogean beetle.

As was mentioned in the introduction of this paper, a *Jujiroa* closely similar to the present species has been known from several limestone caves in Gifu Prefecture. It is different from the latter in some minor details and could be separated as a geographical race or even a species if those differences were proved stable. At the present moment, however, I prefer to refrain from proposing a new name for the Gifu popu-

lation, leaving a solution of the problem for future investigations.

要 約

上野俊一：本州中央部の日本海側におけるいちじるしく特殊化したホラアナヒラタゴミムシの発見。——金沢の南東に位置する犀川兩岸の崖には、緑色凝灰岩を採掘するために掘られた坑道の跡が残っている。これらの廃坑のひとつから、今年の5月に、地下生活へのいちじるしい形態的適応を示す、ホラアナヒラタゴミムシの1新種が発見された。この種は、体形が細く、長い頭部や幅の狭い前胸部、いちじるしく細長い触角や肢をもつことによって、既知の邦産種からひとめで区別できる。井村正行、中西重雄および上田 昇の3氏によるその後の調査で、ほかの2本の坑道にも同じ種の生息していることが確かめられた。ホラアナヒラタゴミムシ属の甲虫類は、主として西日本の太平洋側に分布し、本州の日本海側からは見つかったことがなかったので、今回の発見は、分類学的な観点からばかりでなく、生物地理学的にも洞窟生物学的にもきわめて重要なものである。それで、この新種にヒゲナガホラヒラタゴミムシ *Jujiroa imunada* S. UÉNO という新名を与え、本論文に記載した。

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Occurrence of *Trechiamia akinobui* (Coleoptera, Trechinae) on the Taishaku Mountains in Central Japan¹⁾

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In one of his previous papers, the senior author noted that no trechine beetles of the group of *Trechiamia oreas* had theretofore been found on the Taishaku Mountains and the Nasu Volcanoes stretching from southwest to northeast on the borders between Tochigi and Fukushima Prefectures (cf. UÉNO, 1992, p. 149). This comment was based upon the results of repeated investigations made by many entomologists in the past thirty years.

Early in the summer of this year, the junior author had an opportunity to make collecting on Mt. Taishaku-zan (2,060 m in height) lying at the centre of the Taishaku Mountains, though it is not the highest point of the range. There he was able to obtain four specimens of an oculate *Trechiamia*, which was later identified by the senior author with *T. (s. str.) akinobui* S. UÉNO (1986, p. 137, figs. 5-7). They are medium-sized for the species (4.85-5.00 mm in the length of body) and agree well with the type series from the Ozé area. Their collecting data are as follows:

3 ♂♂, 1 ♀, Mt. Taishaku-zan, ca. 1,700 m alt. on SSE slope, Kuriyama-mura, Tochigi Pref., C Japan, 26-VI-1993, H. OHKAWA, K. KUSANO & K. ONDA leg. All deposited in the National Science Museum (Nat. Hist.), Tokyo.

Mt. Taishaku-zan lies about 16 km east by north of Mt. Hiuchi-ga-také in the Ozé area, to which continue the Taishaku Mountains through a pass 1,790 m in height. It is therefore not surprising that the two mountains are inhabited by the same oculate species of *Trechiamia*. What has made it difficult to collect the trechine beetle on the Taishaku Mountains may be the fact that they are largely granitic and mostly unfavourable for existence of soil-living beetles of small size. The present discovery suggests that other localities of *Trechiamia akinobui* will be found on the mountain range if investigators luckily come across gullies with clayey (not sandy) beds near the sources of steep valleys.

In closing this short report, the authors wish to express their indebtedness to Messrs. Kazushige KUSANO and Kengo ONDA for their kind help extended to the junior author in the field survey.

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Two New Pterostichine Carabid Beetles Found on Low Mountains in Central Honshu, Japan

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Abstract Two new pterostichine carabid beetles, *Pterostichus (Nialoe) taoi* sp. nov. and *P. (N.) musashiensis* sp. nov., are described from central Honshu, Japan. The former belongs to the *latistylis* group and is found on the hilly district in Aichi Prefecture. The latter may be related to *P. (N.) tokejii* YOSHIDA et TANAKA and is distributed to the low altitude areas of the Kwantô Mountain Range.

There occur two unnamed apterous pterostichine carabids belonging to the subgenus *Nialoe* TANAKA on the hills and low mountains in central Honshu, Japan. One of them was recently discovered by Mr. Minoru TAO in an environment exceptional for a habitat of pterostichines in Aichi Prefecture. The other was first collected by myself more than twenty years ago on low mountains in Saitama Prefecture. At a glance, it appeared to be an aberrant form of some pterostichines, but additional examples of the same species were later collected from various places, showing that the beetle in question is rather widely distributed to the low altitude areas of the Kwantô Mountain Range. Both are clearly separated from their relatives by having characteristic facies and must be new to science. I am describing herewith the former species under the name of *Pterostichus (Nialoe) taoi* sp. nov. and the latter under that of *P. (N.) musashiensis* sp. nov. The abbreviations used herein are the same as those explained in previous papers of mine. All the holo- and allotypes are preserved in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo. The paratypes are deposited in my collection.

Before going further, I wish to express my deep gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his advice and for reading the manuscript of this paper. Thanks are also due to Messrs. Terutsune ABE, Katsumi ISHIZUKA, Atsuo IZUMI, Masatoshi NISHIMURA, Akira NISHIYAMA, Shin-Ichi OHSHIMA, Masashi TAKEDA and Minoru TAO for their kindness in supplying with materials.

Pterostichus (Nialoe) taoi sp. nov.

[Japanese name: Seto-nagagomimushi]

(Figs. 1–4)

Description. Length (measured from apex of labrum to apices of elytra) 14.7–

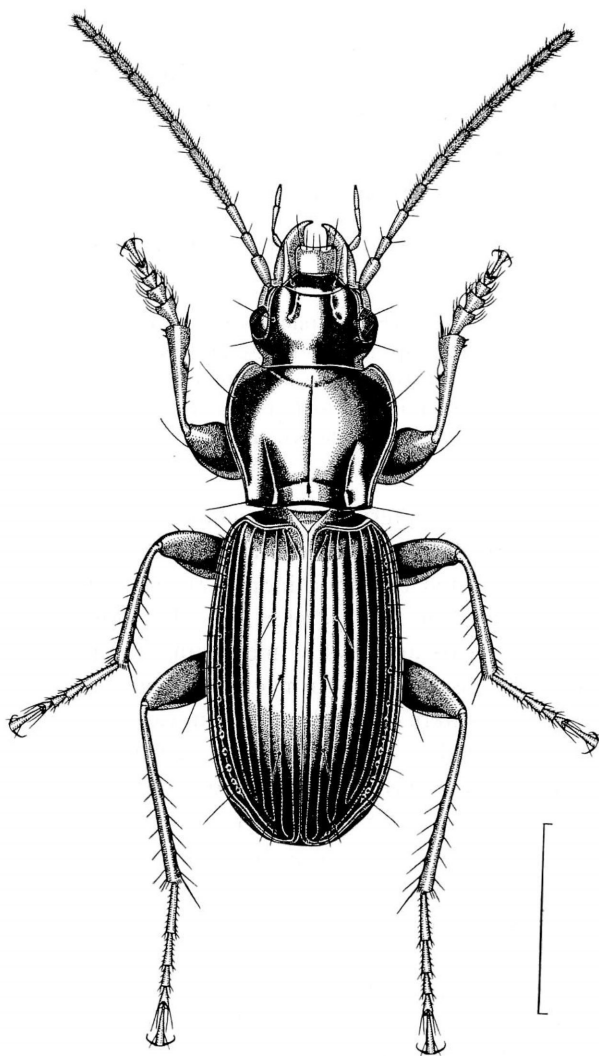


Fig. 1. *Pterostichus (Nialoe) taoi* sp. nov., ♂, from Misawa-chô, Seto-shi, Aichi Pref. Scale 5 mm.

15.1 mm; width 5.1–5.3 mm. Black, shiny; labrum, mandibles, antennae, femora and tibiae dark reddish brown; palpi and tarsi reddish brown.

Head moderately convex, shiny; labrum and mandibles normal; eyes convex; tempora shorter than eyes, hardly tumid, or slightly convex especially in the female; genae finely or vaguely rugose near buccal fissure; frontal furrows rather deep, divergent posteriad, and extending to the mid-eye level; clypeal suture fine, though distinct; supraorbital areas convex; lateral grooves deep, extending to behind the post-eye level; antennae relatively long, reaching the basal fifth of elytra; surface very

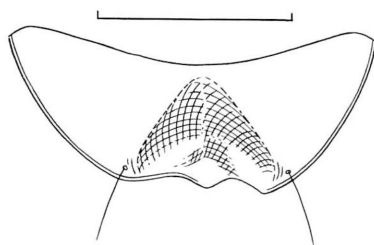


Fig. 2. Terminal sternite in the male of *Pterostichus (Nialoe) taoi* sp. nov., from Misawa-chô, Seto-shi, Aichi Pref. Scale 2 mm.

minutely and sparsely punctate; microsculpture hardly visible, formed by fine isodiametric meshes.

Pronotum quadrate-cordate, moderately convex, shiny, widest at apical third, ca. 1.4 times as wide as head (PW/HW 1.38–1.39, mean 1.38), as wide as base in almost the same proportion (PW/PBW 1.37–1.42, mean 1.39), ca. 1.3 times as wide as long (PW/PL 1.26–1.29, mean 1.27); lateral margins evenly well arcuate in apical halves, then distinctly convergent posteriad and sinuate before base; lateral reflexed borders relatively wide; apical margin almost straight, unbordered, apical angles produced, rounded at the tips; basal margin as wide as or a little wider than the apical, gently emarginate at median part, and more or less oblique on each side, unbordered, basal angles obtuse, blunt at the tips; basal foveae deep, almost smooth, divergent anteriad, linearly impressed at the bottoms; median line deep; both frontal and basal transverse depressions weak or obsolete; surface smooth, though sometimes with transverse wrinkles; microsculpture scarcely visible, formed by fine transverse meshes.

Apterous. Elytra oblong, moderately convex, shiny, and weakly iridescent, widest at the middle, ca. 1.2 times as wide as pronotum (EW/PW 1.16–1.19, mean 1.18), ca. 2.3 times as long as pronotum (EL/PL 2.29–2.38, mean 2.32), ca. 1.55 times as long as wide (EL/EW 1.54–1.57, mean 1.55); basal border complete, gently curved, obliquely extending to shoulder, and meeting with lateral border at an obtuse mal-defined angle; lateral margins weakly arcuate, preapical emarginations shallow, apices rounded though obtusely angulate at the suture; scutellar striole lying on interval 1, and connecting with basal border; striae deep, almost smooth, though weakly notched at the bottoms; intervals gently convex; interval 3 with three dorsal pores, anterior one adjoining stria 3 at basal fourth to third, while posterior two adjoin stria 2 at about middle and apical fourth, respectively; marginal series of pores 19–21 in number, widely spaced at middle; microsculpture scarcely visible on disc, formed by fine transverse meshes in both sexes.

Basal two segments of meso- and metatarsi externally sulcate. Venter shiny, impunctate; prosternal process furrowed at middle, unbordered; in the male, terminal sternite deeply and triangularly concave at middle, apical margin emarginate, and with an obtuse projection at middle. Aedeagus robust, strongly bent at basal two-

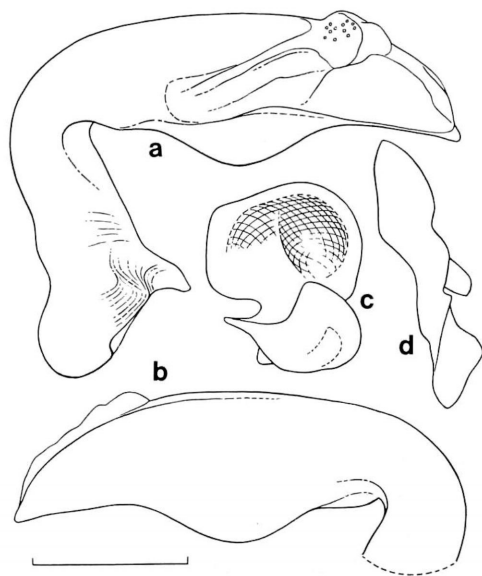


Fig. 3. Male genitalia of *Pterostichus (Nialoe) taoi* sp. nov., from Misawa-chô, Seto-shi, Aichi Pref.; a-b, aedeagus — a, left lateral view; b, right lateral view, basal part omitted; c, left paramere; d, right paramere. Scale 1 mm.



Fig. 4. Habitat of *Pterostichus (Nialoe) taoi* sp. nov., in Misawa-chô of Seto-shi, Aichi Prefecture.

thirds, widely and distinctly tumid on the right ventral side at apical third; left paramere wide, well arcuate at apex; right one almost straight, relatively wide in apical third, tapering towards apex, which is somewhat pointed.

Type series. Holotype: ♂; allotype: ♀, Misawa-chô (130 m alt.), Seto-shi, Aichi Pref., 28-IX-1992, M. TAO leg. Paratypes: 1 ♀, same data as for the holo- and allotypes; 1 ♂, 2 ♀♀, same locality, 2-IX-1992, M. TAO leg.; 1 ♀, same locality, 12-V-1993, M. TAO leg.; 1 ♀, same locality, 18-VI-1993, M. TAO leg.

Notes. Judging from the configuration of male genitalia, the present new species doubtless belongs to the *latistylis* group, but is clearly discriminated from the other members of the group by conspicuously larger body with wider pronotum and differently shaped terminal sternite in the male. All the other members of the *latistylis* group are usually found under stones by mountain streams, while the present new species dwells under heaps of dead leaves by a small reservoir lying on a low altitude hillside. It seems rare.

Pterostichus (Nialoe) musashiensis sp. nov.

[Japanese name: Musashi-nagagomimushi]

(Figs. 5-7)

Description. Length (measured as in the preceding species) 16.0-17.6 mm; width 6.1-6.8 mm. Robust and convex, black, shiny; labrum, mandibles, antennae, femora and tibiae dark reddish brown; palpi and tarsi reddish brown.

Head moderately convex, shiny; labrum, mandibles and palpi normal; eyes convex; temporae shorter than eyes, strongly contracted behind, gently swollen; genae finely, sometimes strongly rugose near buccal fissure; clypeal suture fine, though distinct; frontal furrows distinct and wide, divergent in posterior halves, and widening at each extremity; supraorbital areas convex; lateral grooves deep, extending to behind the post-eye level; antennae relatively short, extending a little beyond elytral shoulder; surface minutely punctate, microsculpture scarcely visible, formed by fine isodiametric meshes.

Pronotum cordate, well convex, shiny, widest at apical fourth, ca. 1.37 times as wide as head (PW/HW 1.29-1.41, mean 1.37), as wide as long in almost the same proportion (PW/PL 1.32-1.42, mean 1.36), ca. 1.4 times as wide as base (PW/PBW 1.35-1.47, mean 1.41); lateral margins evenly well arcuate in apical two-thirds, then strongly convergent posteriad and sinuate before base, basal parts parallel or somewhat convergent posteriad; apical margin gently emarginate, very finely and vaguely bordered on each side, apical angles produced, rounded at the tips; basal margin a little narrower than the apical, weakly emarginate, very finely bordered throughout; basal angles nearly rectangular, often a little produced laterad, though blunt at the tips; basal foveae distinct, rather deeply and longitudinally concave in basal halves, though shallowly or vaguely impressed and divergent anteriad in apical halves; median line deep; frontal transverse depression obsolete, basal one vaguely impressed or obsolete; surface smooth, though sometimes very minutely punctate and often with transverse wrinkles; microsculpture slightly visible, formed by fine transverse meshes.

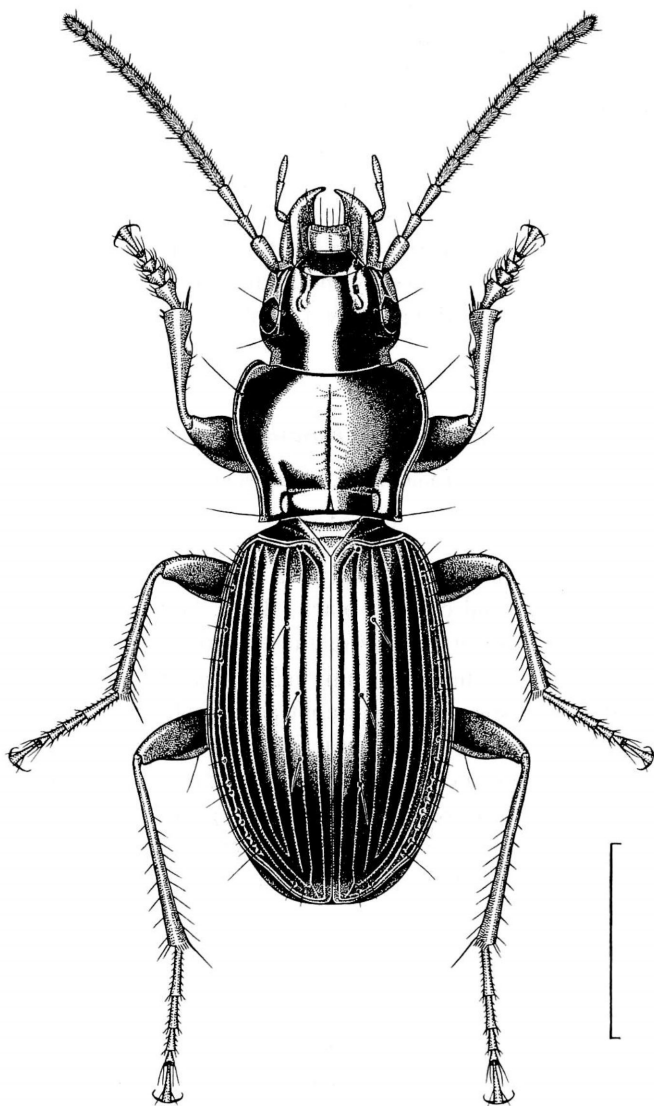


Fig. 5. *Pterostichus (Nialoe) musashiensis* sp. nov., ♂, from Kamiyôzawa, Itsukaichi-machi, Tokyo. Scale 5 mm.

Apterous. Elytra subovate, well convex, shiny, widest at the middle or a little behind middle, ca. 1.3 times as wide as pronotum (EW/PW 1.26–1.36, mean 1.31), ca. 2.5 times as long as pronotum (EL/PL 2.47–2.61, mean 2.52), ca. 1.4 times as long as wide (EL/EW 1.35–1.46, mean 1.42); basal border complete, gently curved, and obliquely extending to shoulder and meeting with lateral border at an obtuse but distinct angle; shoulders rounded; lateral margins gently arcuate from behind shoulders

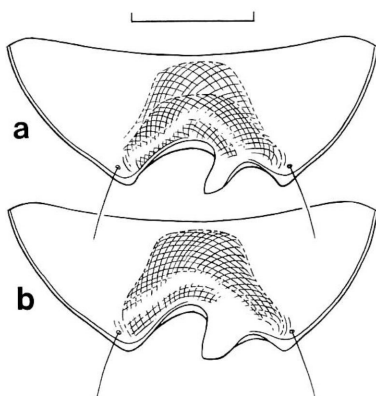


Fig. 6. Terminal sternite in the male of *Pterostichus (Nialoe) musashiensis* sp. nov.; a, from Kamiyôzawa, Itsukaichi-machi, Tokyo; b, from Kabasaka-tôge, Hannô-shi, Saitama Pref. Scale 2 mm.

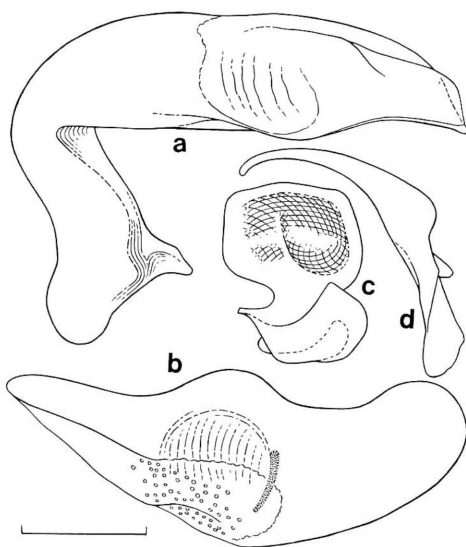


Fig. 7. Male genitalia of *Pterostichus (Nialoe) musashiensis* sp. nov., from Kamiyôzawa, Itsukaichi-machi, Tokyo; a-b, aedeagus — a, left lateral view; b, ventral view, basal part omitted; c, left paramere; d, right paramere. Scale 1 mm.

to preapical emarginations, which are shallow though distinct, apices rounded; sutural angles variable, sometimes obtusely angulate, though often rounded; scutellar striole short, lying on interval 1 and connecting with basal border; striae deep, smooth, though weakly notched at the bottoms; intervals convex; interval 3 generally with three dorsal pores, anterior one adjoining stria 3 at basal fourth, while posterior two

adjoin stria 2 before the middle and at apical fourth, but often irregularly arranged; marginal series of pores 16–18 in number, rather widely spaced at middle; micro-sculpture formed by transverse meshes, more distinct in the female than in the male.

Basal two or three segments of meso- and metatarsi externally sulcate. Venter smooth, though mesepisterna and apical halves of abdominal sternites 2–3 are often punctate; prosternal process almost flat, though vaguely furrowed at middle; in the male, terminal sternite trapezoidally and deeply concave at middle, apical margin deeply emarginate, and with an asymmetrical projection, which is obliquely produced leftwards from the right side of the emargination in ventral view.

Aedeagus strongly bent at more than 90 degrees at basal third, then almost straightly extending to apex in lateral view, apical two-thirds gently bent rightwards, and with a distinct tumour on the right side at apical third in dorsal view; left paramere wide, square; right one slender, well arcuate in apical half, gently tapering towards apex, which is rounded.

Type series. Holotype: ♂, Kabasaka-tôge, Hannô-shi, Saitama Pref., 2–VI–1978, S. KASAHARA leg.; allotype: ♀, Shômaru, Hannô-shi, Saitama Pref., 20–IX–1969, S. KASAHARA leg. Paratypes: 1 ♀, same data as for the allotype; 2 ♀♀, Shômaru-tôge, Hannô-shi, Saitama Pref., 3–VII–1979, T. ABE leg.; 1 ♀, Ogawa-machi, Hiki-gun, Saitama Pref., 12–IX–1989, M. TAKEDA leg.; 1 ♂, Yorii-machi, Ohsato-gun, Saitama Pref., 3–VII–1993, M. TAO leg.; 1 ♀, Mt. Takao-san, Hachiôji-shi, Tokyo, 14~15–VIII–1976, A. IZUMI leg.; 2 ♂♂, Kusabana, Akikawa-shi, Tokyo, 22–IX–1990, K. ISHIZUKA leg.; 1 ♂, Kamiyôzawa, Itsukaichi-chô, Nishitama-gun, Tokyo, 22~24–X–1990, K. ISHIZUKA leg.; 1 ♂, 1 ♀, Matsuo, Hinode-machi, Nishitama-gun, Tokyo, 7~9–V–1990, K. ISHIZUKA leg.; 5 ♀♀, Fujino-machi, Tsukui-gun, Kanagawa Pref., 29–IX–1985, T. ABE leg.; 1 ♂, Uenohara-machi, Kitatsuru-gun, Yamanashi Pref., 5~7–X–1987, S. OHSHIMA leg.

Notes. The present new species is distinguished at a glance from the other known pterostichine species by its characteristic appearance. Judging from the configuration of male genitalia, it is probably related to *P. (N.) tokejii* YOSHIDA et TANAKA found on the Kwantô Mountain Range. SUDA (1988, pp. 818–819, fig. 79) reported from Minano-machi in Saitama Prefecture an unnamed *Pterostichus* species with a photograph. It seems almost identical with the present new species.

要 約

笠原須磨生：本州中部の低山地にみられるナガゴミムシ属の2新種。——本州中部の丘陵と低山に生息するナガゴミムシ属 *Pterostichus* の *Nialoe* 亜属に属する2新種を記載した。

1) セटनाガゴミムシ *P. (N.) taoi* は、愛知県瀬戸市の丘陵地で発見された。雄交尾器の形態的特徴からみて明らかにタナカナガゴミムシ種群 *latistylis* group に属するものであるが、同群中ではきわだって大型であり、雄腹板末端節の形態も特徴的である。また、生態的にも特異で、被検標本のすべてが丘陵地にある溜池のほとりに堆積した枯葉の下から得られている。

2) ムサシナガゴミムシ *P. (N.) musashiensis* は、東京都、埼玉、神奈川、山梨各県の低山地や山

腕部に分布し、短大で凸隆した体形はきわめて特徴的で、一見して同亜属の他種と識別できる。雄交尾器の形態の特徴から推して、本種とはほぼ同様の分布域をもちながら、より標高の高い地に生息するトケジナガゴミムシ *P. (N.) tokejii* YOSHIDA et TANAKA と類縁関係をもつものと考えられる。

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Elytra, Tokyo, 21 (2): 345-346, Nov. 15, 1993

Morionidius charon ANDREWES (Coleoptera, Carabidae) New to the Fauna of Thailand

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The morionine carabid beetle, *Morionidius charon* ANDREWES, 1921, was described from Tonkin and Laos, and known so far only from the type localities. Through the courtesy of Mr. Hiroshi MIYAMA, I have recently had an opportunity to examine a male specimen of this species collected in Thailand. Here I will report it as a new record from Thailand.

I wish to express my sincere thank to Mr. Hiroshi MIYAMA for his kind offering the material.

Morionidius charon ANDREWES

(Fig. 1)

Morionidius charon ANDREWES, 1921, Annls. Soc. ent. Belg., 61: 204-205 (Tonkin, Laos); 1930, Cat. Ind. Ins., (18): 222. — CSIKI, 1929, Coleopt. Cat., (104): 484. — KASAHARA & OHTANI, 1992, Elytra, Tokyo, 20: 161, 165.



Fig. 1. *Morionidius charon* ANDREWES, ♂, from Nan Province, Thailand.

Specimen examined. 1 ♂, Nan Prov., Thailand, 19-V-1991, obtained by native collector.

Notes. This species resembles in general appearance *M. insularis* KASAHARA et OHTANI, 1992, from Is. Yaku-shima, Southwest Japan, but the body is shorter, with elytral margins more rounded than in *M. insularis*. The aedeagus is more depressed and more strongly bent ventrad at the apical part than in *M. insularis*. The left paramere is pointed at the apex, though in *M. insularis*, it is rounded at the apex. Length 14 mm; width 5 mm.

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The Female of *Pterostichus gotoensis* (Coleoptera, Carabidae)

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Abstract The female of *Pterostichus* (*Pterostichus*) *gotoensis* KASAHARA et MATSUMOTO is described.

The insular pterostichine carabid beetle, *Pterostichus* (*Pterostichus*) *gotoensis* KASAHARA et MATSUMOTO, 1990, was described on the basis of a single male specimen from Wakamatsu-jima of the Gotô Islands off western Kyushu, Japan. However, its female has hitherto been unknown. Through the courtesy of Mr. Kôichi MATSUMOTO, I have recently examined a female specimen of the same species collected by himself just at the type locality. In the following lines, I will describe the female of this rare carabid.

I would like to thank Mr. Kôichi MATSUMOTO for his kindness in supplying with the valuable specimen.

Pterostichus (*Pterostichus*) *gotoensis* KASAHARA et MATSUMOTO

[Japanese name: Gotô-nagagomimushi]

(Fig. 1)

Pterostichus (*Pterostichus*) *gotoensis* KASAHARA et MATSUMOTO, 1990, *Elytra, Tokyo*, 18: 39–43, figs. 1–3.

Description. Female. Length (measured as in the original description) 20.0 mm; width 6.3 mm. Black, shiny in fore body, opaque on elytra; appendages almost of the same colour as in the male. Head moderately convex; eyes convex, somewhat prominent; temporae less swollen than in the male. Pronotum subcordate, convex, 1.3 times as wide as head, 1.41 times as wide as base, 1.24 times as wide as long.

Elytra oblong-subovate, rather flat on disc, widest behind the middle, shagreened, opaque, 1.21 times as wide as pronotum, 2.74 times as long as pronotum, 1.83 times as long as wide; sutural angles defined; right elytron in the specimen examined deformed, a little reduced, and with striae 4–5 obsolete except in apical third; microsculpture very strongly impressed, formed by isodiametric meshes. Venter shiny, though the abdominal sternite 3 is ruggedly punctate in basal half; terminal sternite shallowly depressed in apical half, apical margin evenly bordered throughout.

Specimen examined. 1 ♀, Wakamatsugoe, Wakamatsu-jima, Gotô Islands, Nagasaki Pref., 18–VIII–1990, K. MATSUMOTO leg. Preserved in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

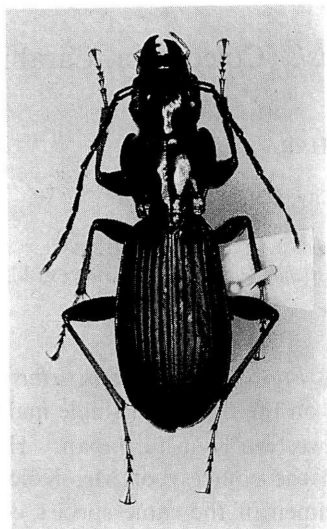


Fig. 1. The female of *Pterostichus* (*Pterostichus*) *gotoensis* KASAHARA et MATSUMOTO, from Wakamatsu-jima, Gotô Islands, Nagasaki Prefecture.

要 約

笠原須磨生：ゴトウナガゴミムシの雌。——ゴトウナガゴミムシ *Pterostichus* (*Pterostichus*) *gotoensis* KASAHARA et MATSUMOTO, 1990, は長崎県五島列島の若松島で発見された1頭の雄に基づいて記載されたが、雌については未知であった。最近、本種の雌が基産地で採集されたのでこれを記載した。雌の上翅は強い微細印刻のために光沢がなく、きわめて特徴的である。

Reference

- KASAHARA, S., & T. MATSUMOTO, 1990. A new *Pterostichus* (Coleoptera, Carabidae) from the Gotô Islands off western Kyushu, Southwest Japan. *Elytra, Tokyo*, **18**: 39–43.

Notes on the Bembidiinae (Carabidae) of Japan

VI. A New Species of the Subgenus *Neoemphanes*

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Abstract A new bembidiine carabid beetle, *Bembidion* (*Neoemphanes*) *satoi* sp. nov., is described from the Island of Iriomote-jima, Southwest Japan. It is related to *B. (N.) shimoyamai* HABU, but differs from it mainly in the body form, coloration and shape of aedeagus.

Recently, four specimens of the subgenus *Neoemphanes* were collected in the Island of Iriomote-jima, Southwest Japan, by Dr. Masataka SATÔ and submitted to me for study. Though all his specimens are females, they are different mainly in the body form and coloration from *B. shimoyamai*, the only described species of this subgenus (HABU, 1978, pp. 1–4). In this year, he revisited the same collecting site and was able to obtain some additional materials of the same species including six males. After a careful examination of the male genital organ, it has become evident that males are also considerably different in the shape of aedeagus, especially of the apical lobe. Thus, it must be a new species and will be described in this paper. The abbreviations used herein are the same as those explained in my previous papers.

Before going further, I wish to express my deep gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his kindness in reading the manuscript. My thanks are also due to Dr. Masataka SATÔ of Nagoya Women's University for kindly supplying me with important materials.

Bembidion (*Neoemphanes*) *satoi* MORITA, sp. nov.

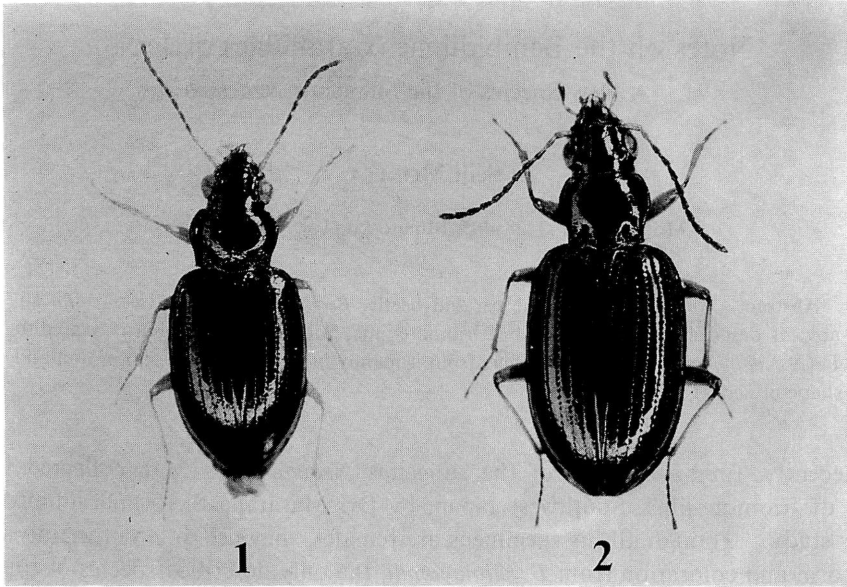
[Japanese name: Iriomote-mizugiwa-gomimushi]

(Figs. 1, 3–5)

Length: 3.41–3.77 mm (from apical margin of clypeus to apices of elytra).

Body rather convex and broad, with relatively slender antennae and legs. Black with greenish lustre, rarely bluish lustre especially on the fore body; ventral surface dark brown; palpi, segments 1–3 and basal parts of segment 4 of antennae, and legs pale yellowish brown to yellowish brown; labrum, mandibles and rest of antennal segments brown to dark brown.

Head convex above; frontal furrows deep, wide, and almost parallel or somewhat divergent posteriad, with coarse punctures near posterior supraorbital pores; eyes prominent; anterior supraorbital pore situated at the mid-eye level, the posterior one

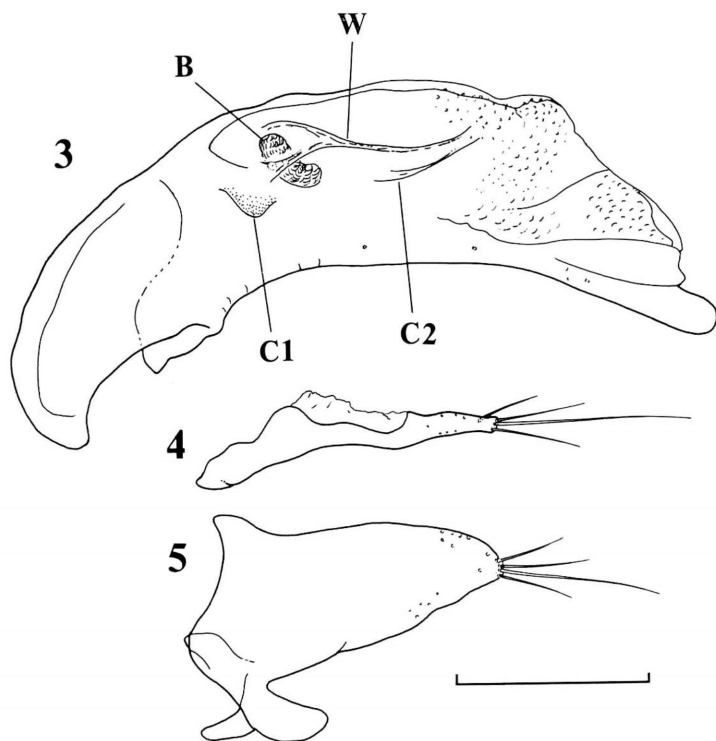


Figs. 1-2. — 1. *Bembidion (Neoemphanes) satoi* MORITA, sp. nov., from Iriomote-jima. — 2. *B. (N.) shimoyamai* HABU, from Gunma Prefecture.

situated a little before the post-eye level; neck wide; apex of labrum almost straight; antennae filiform but rather short, reaching basal fifth of elytra; relative lengths of antennal segments as follows:— I: II: III: IV: V: VI: XI = 1: 0.75: 1.13: 1.08: 1.05: 1.02: 1.35; microsculpture indistinct though consisting of wide meshes on the neck.

Pronotum transverse, convex and widest at about 3/5 from base; PW/HW 1.20–1.22 (M 1.21) in 3 ♂♂, 1.19–1.22 (M 1.21) in 5 ♀♀, PW/PL 1.41–1.46 (M 1.43) in 3 ♂♂, 1.40–1.54 (M 1.50) in 5 ♀♀, PW/PA 1.41–1.47 (M 1.43) in 3 ♂♂, 1.34–1.45 (M 1.40) in 5 ♀♀, PW/PB 1.18–1.19 (M 1.18) in 3 ♂♂, 1.18–1.24 (M 1.22) in 5 ♀♀; apex almost straight, rarely very slightly emarginate, narrower than base, PA/PB 0.80–0.85 (M 0.83) in 3 ♂♂, 0.81–0.90 (M 0.86) in 5 ♀♀; sides strongly arcuate in front, shallowly sinuate just before hind angles; reflexed lateral borders very narrow, usually becoming wider just before apical angles; median line clearly impressed on the disc, though reaching neither apex nor base; anterior transverse impression obliterated at middle, but slightly impressed, joining marginal gutter; apical angles widely rounded and hardly advanced; hind angles obtuse or nearly rectangular, and without carinae; base nearly straight at middle, very slightly oblique on each side; anterior marginal setae inserted at about a third from apex, posterior one inserted just inside each hind angle; basal foveae deep, usually with several coarse punctures and wrinkles; microsculpture composed of wide meshes partially forming transverse meshes.

Elytra elongate-ovate, widest at about middle; EW/PW 1.56–1.62 (M 1.59) in 3 ♂♂, 1.56–1.58 (M 1.57) in 5 ♀♀, EL/EW 1.50–1.55 (M 1.52) in 3 ♂♂, 1.46–1.55



Figs. 3–5. Male genital organ of *Bembidion (Neoemphanes) satoi* MORITA, sp. nov., from Iriomote-jima in left lateral view; 3, aedeagus; 4, right style; 5, left style. (Scale: 0.2 mm.)

(M 1.49) in 5 ♀♀; shoulders widely rounded; preapical sinuation shallow; stria 1 entire and very shallow, with fine punctures; stria 2 as in stria 1, but disappearing at the apex; striae 3–7 usually marked by rows of rather coarse punctures at basal parts, and disappearing at apical fourth; scutellar striole very shallow, with fine punctures; apical striole shallow, usually short, rarely vanished, without punctures; intervals almost flat; two dorsal pores on interval 3 and close to stria 3, situated at 3/10 and 3/5 from base, respectively; microsculpture composed of transverse meshes, but usually obliterated at apex or rarely partially disordered.

Ventral surface without punctures; metasternal process widely bordered at the median part; relative lengths of hind tarsal segments as follows:— I: II: III: IV: V \doteq 1: 0.43: 0.40: 0.33: 1.00.

Aedeagus rather elongate and poorly sclerotized; viewed laterally, apical lobe strongly produced and simply rounded at the extremity; apical part inclined to the right. Inner sac armed with four components of sclerites (W, B, C1 & C2); viewed dorsally, a whip-shaped piece (W) twisted, but rather short; bundle of fibres (B) situated at the right side of the proximal part of whip-shaped piece; a lamellar copulatory piece (C1) poorly sclerotized; a linear piece (C2) situated at the ventral side of apical part of

whip-shaped piece. Left style provided with a long seta and three short setae, right one provided with one long seta and two short setae at apex and with a short seta at subapical part.

Type series. Holotype: ♂, allotype: ♀, 13-III-1993, M. SATÔ leg. Paratypes: 4 ♀♀, 27-VIII-1989, M. SATÔ leg.; 5 ♂♂, 10 ♀♀, 13-III-1993, M. SATÔ leg.

The holo- and allotypes are preserved in the National Science Museum (Nat. Hist.), Tokyo. The paratypes are distributed to the private collections of the author and Dr. SATÔ.

Locality. Ohtomi-rindô, Iriomote-jima, Okinawa Prefecture, Japan.

Notes. This new bembidiine carabid can be distinguished from *B. shimoyamai* by the following key.

- 1 (2) Larger on an average (4.4–4.6 mm); colour black with dark bluish lustre or strongly bluish lustre on dorsal side; PW/HW ca. 1.18; PW/PL ca. 1.24; fore-body narrow, EW/PW ca. 1.75; aedeagus slender; viewed laterally, apical part of aedeagus produced into a very narrow beak. *B. (N.) shimoyamai* HABU.
- 2 (1) Smaller on an average (3.41–3.77 mm); colour black with greenish lustre, rarely bluish lustre on dorsal side; PW/HW ca. 1.21; PW/PL ca. 1.47; fore-body wide, EW/PW ca. 1.58; aedeagus relatively short; viewed laterally, apical part of aedeagus simply rounded at the extremity. *B. (N.) satoi* sp. nov.

As *B. shimoyamai* is distributed in Central and North Japan, this species may also be a member of northern origin. It is, therefore, interesting that this new bembidiine was discovered from the subtropical island.

This new species is dedicated to Dr. SATÔ, the only collector of the beetle.

要 約

森田誠司：日本産ミズギワゴミムシ類の知見。VI. 西表島で発見されたシモヤマミズギワゴミムシ亜属の 1 新種。——西表島で採集されたシモヤマミズギワゴミムシ亜属の 1 新種、イリオモテミズギワゴミムシ *Bembidion (Neoemphanes) satoi* を記載した。本種は、シモヤマミズギワゴミムシ *B. (N.) shimoyamai* HABU とは、外観のみならず、陰茎先端部の形が明らかに異なるので、識別はやさしい。シモヤマミズギワゴミムシが北日本に分布するため、北方系の一員とみなされてきたが、2 番目の種が亜熱帯の島から発見されたことは、ひじょうに興味深い。

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Notes on the Trechine Fauna (Coleoptera, Trechinae)
of the Diancang Shan Mountains in Western
Yunnan, Southwest China¹⁾

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Abstract Two species of trechine beetles are recorded from the Diancang Shan Mountains in western Yunnan, Southwest China. One of them is identified with *Trechus macrops* JEANNEL, a poorly known species tentatively revived from the synonymic list. The other one is a remarkable new species of the *Agonotrechus* series, for which a new genus is erected. The new name given is *Junnanotrechus microps*.

Participating in a second expedition of a Sino-Japanese joint party of entomologists to Yunnan, Southwest China, made in late August and September 1993, the authors had an opportunity to visit the Dali area in the western part of the province and to collect many samples of soil-living animals. Unfortunately, their activities were much hindered by bad weather quite unusual for that season, and were limited to the Diancang Shan Mountains stretching from north to south at the western side of Dali. Even on this range of mountains, the alpine zone above 3,000 m in altitude was always enveloped in heavy cloud, which prevented investigators from climbing up to the tops of peaks. In spite of such an unfavourable condition, a few members including UÉNO once succeeded in attaining to a height of 3,600 m and collected samples in shrubberies of rhododendrons and *Abies*. Thus, the authors were able to obtain two different species of trechine beetles on these mountains.

One of the two species is fully winged and widely distributed in the Dali area. It accords well with *Trechus macrops* JEANNEL described from Yun-Nan, and though it was synonymized by the French author himself with *T. indicus* PUTZEYS, the present authors tentatively regarded it as a full species. The other species obtained by the expedition is an apterous member of the *Agonotrechus* series and looks like a small

1) This study is supported by the Grant-in-aid No. 04041042 for Field Research of the Monbusho International Scientific Research Program, Japan.

species of *Stevensius*. It is, however, peculiar in the elytral chaetotaxy and conformation of the male genitalia. It should belong to a new genus, which will be described in the present paper. The abbreviations used herein are the same as those explained in previous papers of UÉNO's. The specimens examined are preserved in the collection of the Shanghai Institute of Entomology, Academia Sinica, and of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

The authors are deeply indebted to the members of the expedition for their help extended to them during the survey, above all to Professor Yasuaki WATANABE and Messrs. ZHAO Li-Jun and XIAO Ning-Nian for their kind assistance in the field.

Trechus (s. str.) *macrops* JEANNEL, 1927

Trechus (s. str.) *macrops* JEANNEL, 1927, Abeille, Paris, **33**, pp. 157, 160, figs. 533–536; type area: Yun-Nan. — CSIKI, 1928, Coleopt. Cat., (98), p. 246.

Trechus macrops: ANDREWES, 1935, Fn. Brit. Ind., Coleopt. Carab., **2**, pp. 63, 67, fig. 10 [*partim*].

Trechus (s. str.) *indicus*: JEANNEL, 1935, Rev. fr. Ent., **1**, p. 275 [*partim*].

Specimens examined. 2 ♂♂, 3 ♀♀, Mt. Zhonghe Feng, 2,500 m alt., Diancang Shan Mts., Dali Shi, Yunnan, 4–IX–1993, S. UÉNO & Y. WATANABE leg.; 7 ♂♂, Qingbi Xi, 2,290 m alt., Diancang Shan Mts., Dali Shi, Yunnan, 31–VIII–1993, S. UÉNO & Y. WATANABE leg.; 2 ♀♀, Guantong Si, 2,230 m alt., Diancang Shan Mts., Dali Shi, Yunnan, 31–VIII–1993, S. UÉNO leg.; 1 ♂, 1 ♀, Mt. Xiaojin Shan, 2,140 m alt., above Jingzai Zhuang, Diancang Shan Mts., Dali Shi, Yunnan, 3–IX–1993, S. UÉNO leg.; 1 ♀, Mt. Laohu Shan, 2,200 m alt., Dali Shi, Yunnan, 3–IX–1993, Y. WATANABE leg.; 2 ♂♂, 1 ♀, Mt. Laotai Shan, 1,810 m alt., Shazhi, Binchuan Xian, Yunnan, 30–VIII–1993, Y. WATANABE leg.

Notes. In the present paper, the name *macrops* is adopted with some reservation for the Yunnanese populations of the alate trechine. It was given by JEANNEL (1927) to a single male specimen from an unspecified locality in Yun-Nan, and later (1935) synonymized by himself with *T. indicus* PUTZEYS with comment that “le *T. macrops* Jeann., du Yun-Nan, correspond à de grands exemplaires, à yeux très développés, du *T. indicus*.” According to ANDREWES (1935, p. 68), JEANNEL was then “of opinion that the type [of *T. macrops*] was incorrectly labelled and that the species is an Indian one.” However, it now becomes evident that “Yun-Nan” is not a mislabelling and that the species occurs rather commonly in the Dali area. Our specimens perfectly agree with the type except that the aedeagus always bears a well developed sagittal aileron. UÉNO has seen many specimens of *T. indicus* from the Himalayas including Bhutan, and is satisfied at present that though rather subtle, the differences pointed out by JEANNEL (1927) between *T. indicus* and *T. macrops* are truly diagnostic. It is possible that the Yunnanese populations merely represent an eastern geographical race of *T. indicus*, but the materials now at our hands are not sufficient for drawing a final conclusion.

In the Dali area, *Trechus macrops* usually occurs in shrubberies along narrow streams from near the foot to middle altitude of mountains (1,800–2,500 m above sea-

level). It can be sifted out from heaps of dead leaves and is seldom found from beneath stones. Even in dry pine forests which prevail in the vicinities of Dali, the trechine beetle dwells in small wet spots covered with broadleaved undergrowths. It is not a quick runner, but appears to take wing at night. This is probably why it has been able to colonize in isolated spots within a seemingly unfavourable area.

Genus *Junnanotrechus* S. UÉNO et YIN, nov.

Type species: *Junnanotrechus microps* S. UÉNO et YIN, sp. nov.

Belonging to the *Agonotrechus* series and remotely related to *Lamprotrechus* S. UÉNO (1975, p. 144) and *Taiwanotrechus* S. UÉNO (1987, p. 335), but readily distinguished from them by the presence of one dorsal pore of the external series and of the preapical pore, the externally grooved protibiae devoid of pubescence on the anterior face, and the unique conformation of the male genitalia to be described later. Besides, it is different from *Taiwanotrechus* in the complete lateral borders of pronotum bearing two pair of marginal setae. From *Stevensius* JEANNEL (1923, p. 432; UÉNO, 1977, p. 246), it is discriminated by different chaetotaxy of the elytra, the free mentum, and the unique conformation of the male genitalia.

Somewhat myrmecoid in facies; body well constricted between pro- and mesothoraces, and with strongly convex hind part; surface glabrous and polished on both dorsum and venter, without microsculpture except on head, where vestiges of fine transverse lines are partially perceptible; colour brown to dark brown, with more or less lighter appendages; inner wings absent.

Head large and wide, with very small but distinct eyes and tumid genae sparsely covered with erect hairs; frontal furrows deep throughout, not angulate at middle though widely divergent behind towards deep neck constriction; two pair of supra-orbital pores present on lines subparallel to each other, the anterior pair being deeply foveolate; labrum rather deeply emarginate at apex; mandibles stout though fairly slender in arcuate apical parts, a distinct premolar tooth present on the right one; mentum free, with the tooth simply triangular; submentum quadrisetose, lacking in the median pair of setae; ligula and paraglossae as in *Taiwanotrechus*; palpi short and stout, structurally similar to those in *Taiwanotrechus*, but the penultimate segment is completely glabrous in maxillary palpus; antennae short and stout, subfiliform, segments 3–10 subequal in length to one another.

Pronotum subcordate and convex, completely bordered at the sides, and briefly subpedunculate at the base; front angles rounded off, hind angles obtuse and rounded at the corners; both lateral and postangular setae present, the latter being either on hind angle or slightly removed forwards; surface smooth, without discal setae; median line deeply impressed though reaching neither apex nor base; basal transverse impression sulciform and arcuate, basal foveae not sharply defined; basal area narrow and smooth.

Elytra oval, much wider than prothorax, and strongly convex though longitudi-

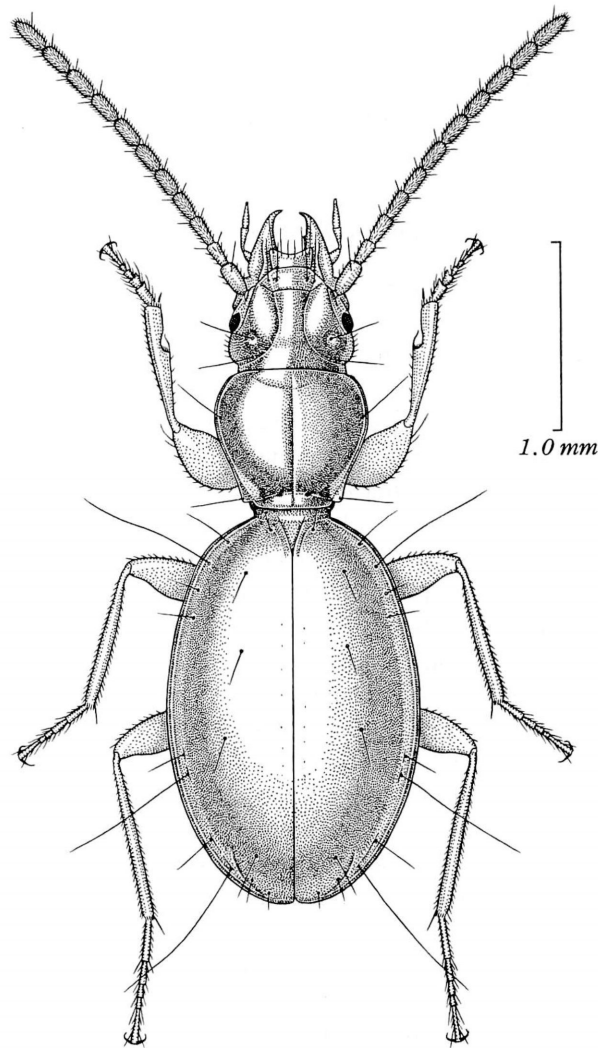


Fig. 1. *Junnanotrechus microps* S. UÉNO et YIN, gen. et sp. nov., ♂, from Mt. Zhonghe Feng of the Diancang Shan Mountains.

nally depressed on the disc along suture; sides narrowly bordered throughout, the border becoming narrower and finer before shoulder but complete to basal peduncle; shoulders widely rounded; striae evanescent altogether, though their sites are partially indicated by rows of fine indistinct punctures, stria 8 impressed only near the umbilicate pores of the middle and apical sets; scutellar striole clearly impressed along scutellum; apical striole short but distinct, widely curved and directed to the site of stria 7; apical carina very obtuse; two setiferous dorsal pores present on the site of stria 3 before middle, and one just behind middle on interval 5 close to the site of stria 4; preapical

pore present just before the level of the terminus of apical striole, evidently more distant from apex than from suture, and closer to apical striole than to suture; apical pores normal; marginal umbilicate pores nearly regular, but the four pores of the humeral set are not perfectly aggregated, rather widely spaced, sometimes equidistant but more frequently somewhat irregularly ranged.

Ventral surface smooth; anal sternite with the apical margin more strongly arcuate in ♂ than in ♀, anal setae normal as in *Taiwanotrechus*. Legs short and fairly stout; protibiae nearly straight, moderately dilated towards apices, longitudinally grooved on the external face, and glabrous on the anterior face even at the apical portion; tarsi fairly stout, segment 1 about as long as segments 2 and 3 together in mesotarsus, slightly longer than that in metatarsus, segment 4 with a hyaline ventral apophysis in pro- and mesotarsi; in ♂, two proximal segments of each protarsus moderately dilated, stoutly denticulate inwards at apices, and furnished beneath with sexual adhesive appendages.

Male genital organ rather short though tubular, obviously arcuate before middle, with short broad apical lobe whose tip is dorsally hooked; basal part flattened, widely open on the ventral side and devoid of sagittal aileron. Inner sac scaly though the scales are hardly sclerotized except for the left side; no differentiated copulatory piece. Styles small and strongly arcuate at middle, with unusually slender apical parts, which bear four short setae at each apex; ventral apophysis completely absent even in the left style.

Notes. This is an interesting genus most closely similar to *Stevensius* JEANNEL (1923, p. 432) of the Himalayas in general appearance, particularly in the characteristic configuration of the head, but is decisively different from it in the elytral chaetotaxy, above all in the presence of a setiferous dorsal pore of the external series. In *Junnanotrechus*, this pore is not yet settled on the fifth elytral stria; it lies on the fifth interval close to the fourth stria, a condition seldom found in the Trechinae. Although presence of dorsal pores on the fifth interval is quite exceptional for the members of the *Agonotrechus* series, it is known in the Japanese genus *Iga* S. UÉNO (1953, p. 30), in which a well-fixed setiferous pore exists on the site of the fifth stria near its base. As compared with external dorsal pores, the preapical pore has lesser importance from the taxonomic viewpoint. It is true that the preapical pore exists in *Junnanotrechus* and is generally absent in both *Stevensius* and *Iga*, but the pore asymmetrically appears on one elytron in certain aberrant individuals of *Stevensius* (cf. UÉNO, 1977, pp. 247, 252), which suggests that its absence is not definitely fixed as yet at least in the Himalayan genus.

Peculiarity of *Junnanotrechus* is more pronounced in the unique conformation of its male genitalia, not only in the absence of differentiated copulatory piece but also in the strangely shaped basal orifice, complete absence of the ventral apophysis on the left style, and the exceedingly thin apical parts of both the styles bearing unusually short apical setae. Male genitalia of similar type have not been known in other members of the *Agonotrechus* series, nor in any other genera of the Asian Trechinae.

This fact alone will suffice for erection of a new genus for the Yunnanese beetle.

When the genus *Taiwanotrechus* was erected by UÉNO (1987), genitalic features were unknown for two isolated species of the *Agonotrechus* series, that is, "*Stevensius*" *gregoryi* JEANNEL (1937, p. 87, fig. 8) and *Kozlovites caviceps* JEANNEL (1935, p. 280, fig. 9). Recently, an Yunnanese species related to the former was described by DEUVE (1992, pp. 171–172, figs. 1, 12) under the name of *Kozlovites yuae*, on the premise that the two species described by JEANNEL are congeneric. This opinion can be disputed, since "*S.*" *gregoryi* and *K. caviceps* seem generically different according to UÉNO's re-examination of their holotypes (cf. UÉNO, 1977, p. 246). JEANNEL (1962, p. 184) may have been right in considering that "le *S. Gregoryi* Jeann. doit très probablement être rapproché du *Kozlovites caviceps* Jeann. du Thibet," but he refrained from removing the former from *Stevensius* to *Kozlovites*, only stating that "la position systématique de *Kozlovites* restera mystérieuse tant que le mâle ne sera pas connu." Be that as it may, we have to thank DEUVE's deed in bringing the aedeagal features of "*K.*" *yuae* to light; the aedeagus is of the same basic type as that of *Stevensius*, though differing from the latter in the large hooked apical lobe and the long aciculate copulatory piece, and is utterly different from that of *Junnanotrechus*.

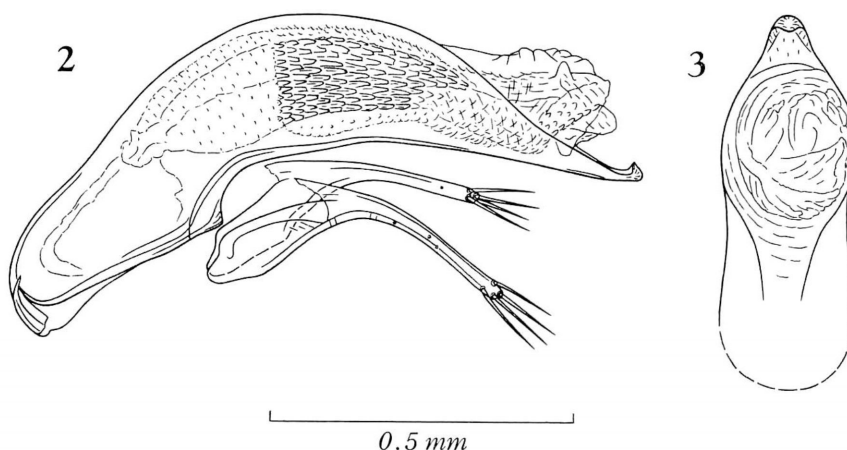
***Junnanotrechus microps* S. UÉNO et YIN, sp. nov.**

(Figs. 1–3)

Length: 3.30–3.75 mm (from apical margin of clypeus to apices of elytra).

Colour brown to dark brown, very shiny and faintly iridescent on elytra, which are infuscated with the basal areas sometimes reddish; buccal organs, apical halves of antennae, and ventral surface usually dark reddish brown; palpi and legs more or less lighter than other parts.

Head large, wide, and depressed above, evidently wider than long, widest at about basal fourth or at the level of the top of strong genal convexity; frontal furrows deep, nearest to each other at the level of the anterior margins of eyes; frons longitudinally raised, usually with short transverse wrinkles at the sides; supraorbital areas ample, moderately convex and smooth, though deeply foveolate at the roots of the anterior pair of supraorbital setae; microsculpture rudimentary, only perceptible on clypeus and at the anterior portion of frons as obscure lines, which are irregularly transverse; eyes very small though gently convex and rather coarsely faceted, about two-thirds as long as genae in ♂, about five-ninths as long as genae in ♀, the distance between their external margins being obviously smaller than that between the tops of genal convexities; neck very wide, with the anterior constriction sharply impressed at the sides; palpi short and stout, with penultimate segments widely dilated towards apices and surmounted by elongated subconical apical ones; antennae reaching basal third of elytra in ♂, slightly shorter than that in ♀, scape thick, obviously thicker than terminal segment though about as long as the latter and about 1.3 times as long as each of segments 3–10, segment 2 slightly shorter than the following segment, seg-



Figs. 2–3. Male genitalia of *Junnanotrechus microps* S. UENO et YIN, gen. et sp. nov., from Mt. Zhonghe Feng of the Diancang Shan Mountains; left lateral view (2), and apical part of aedeagus, dorso-apical view (3).

ments 6–10 each suboval and nearly twice as long as wide.

Pronotum subcordate, wider than head, a little wider than long, widest at about two-thirds from base or a little behind that level, and more gradually narrowed towards base than towards apex; PW/HW 1.20–1.25 (M 1.22), PW/PL 1.07–1.13 (M 1.11), PW/PA ca. 1.36–1.44 (M ca. 1.41), PW/PB ca. 1.51–1.60 (M ca. 1.55); sides rather strongly rounded before the widest part but only feebly arcuate behind middle, and very slightly and briefly sinuate just before hind angles, which are obtuse and narrowly rounded at the corners; side borders complete though narrow in median third and widely reflexed near hind angles; apex gently and widely arcuate, more or less wider than base, PA/PB ca. 1.07–1.15 (M ca. 1.10), with front angles rounded off and not advanced; base briefly subpedunculate, either straight or slightly arcuate at middle, and deeply emarginate on each side just inside hind angle; surface convex and smooth, though usually with vague transverse striations, median line deeply impressed on the disc, apical transverse impression obvious though superficial, linear and more or less uneven; basal transverse impression sulciform, gently arcuate, foveolate on each side of median line, and more or less uneven at the bottom; basal foveae not sharply defined though extending anteriad towards the sides.

Elytra oval, much wider than pronotum, and obviously longer than wide, widest at about middle, and equally narrowed towards bases and towards apices; EW/PW 1.58–1.66 (M 1.61), EL/EW 1.39–1.47 (M 1.43); shoulders widely rounded though not completely effaced, with prehumeral borders very slightly arcuate and not very oblique; sides moderately arcuate from shoulders to near apices, which are rather widely rounded and usually form a very obtuse re-entrant angle at suture, preapical emargination very slight; surface strongly convex, especially behind middle, though longitudinally

depressed along suture, with very steep apical declivity; striae evanescent as described under the genus, scutellar and apical striae distinct also as described under the genus; two setiferous dorsal pores of the internal series usually situated at about 1/10 and 1/3 from base, respectively, though their position varies to some extent according to individuals, a single setiferous dorsal pore of the external series usually situated at about 5/9 from base; preapical, apical and marginal pores as described under the genus.

Legs short and fairly stout, of the conformation as described under the genus.

Male genital organ lightly sclerotized. Aedeagus about two-fifths as long as elytra, rather short and robust, moderately arcuate before middle though the basal part is straightly produced, with the dorsal margin semicircularly rounded at middle in profile; basal part elongate, with large horizontal basal orifice, whose right wall is ventrally produced at the proximal part; viewed dorsally, apical lobe short and broad, gradually narrowed towards the extremity, which is rather widely rounded; viewed laterally, apical lobe narrow, gradually tapered towards the extremity, which forms a small recurved hook; ventral margin slightly emarginate behind middle. Inner sac wholly covered with scales, which form a large patch of heavily sclerotized teeth at the left side just behind middle. Styles extremely narrow in apical halves, which are straight though almost rectangularly bent from the basal parts, left style being obviously longer than the right, each bearing unusually short apical setae.

Type series. Holotype: ♂, allotype: ♀, paratypes: 2 ♂♂, 1 ♀, 4-IX-1993, S. UENO & Y. WATANABE leg. The holotype is deposited in the collection of the Shanghai Institute of Entomology, Academia Sinica.

Type locality. Mt. Zhonghe Feng, 2,620 m in altitude, of the Diancang Shan Mountains, in Dali Shi of Yunnan, Southwest China.

Notes. Because of its peculiar facies similar to the members of *Stevensius*, this new species looks like an inhabitant of rotten logs lying or standing in thick subalpine forests. Actually, however, it is humicolous and highly hygrophilous, dwelling under wet dead leaves of arrow-bamboos, thistles and ferns. All the specimens of the type series were found by either sifting or drowning those materials accumulated on a very steep slope at the side of a cascade. This spot lay just at the meeting point of the upper limit of the pine zone and the lower limit of the arrow-bamboo and rhododendron zone, so that the beetle can safely be said subalpine in nature. It is unusually hygrophilous and appears to have little tolerance for drying, since it was always the first to become languished when caught in an aspirator.

要 約

上野俊一・尹 文英：中国云南省大理白族自治州点苍山山地のチビゴミムシ相について。——中国云南省の西部、洱海の西側を南北に延びる点苍山山地からは、これまでにチビゴミムシ類の記録されることがなかった。わたしたちは、1993年の8月末から9月にかけて大理市に滞在し、この山地の土壤動物相を調査した。異常気象のために、高山帯の十分な調査はできなかったが、チビゴミムシ類については、低山性の有翅の1種と、亜高山性の無翅の1新種とを採集することができたので、こ

に記録しておく。

有翅種は、JEANNEL が 1927 年に *Trechus macrops* という名を与えて記載したもので、その後ふたび採集されることがなく、ヒマラヤ産の種の同物異名として整理されてきた。しかし、今回の調査でかなり多くの標本がえられた結果、いちおう独立種と認めておいてよからうという結論になった。無翅種のほうは、ハバビロチビゴミムシ群の一種で、上翅の剛毛式や雄交尾器の構造が、既知のどの属の場合とも大きく異なっている。それで、この種は新属を形成するものと認め、*Junnanotrechus microps* S. UÉNO et YIN と命名記載した。

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新 刊 紹 介

L'abdomen et les genitalia des femelles de Coléoptères Adephaga. Par Thierry DEUVE. *Mém. Mus. Hist. nat. Paris*, 155: 1-184 (1993).

今からちょうど4年半前、本誌第17巻1号に掲載された「オサムシ亜目の新しい分類体系」と題する小文で、わたしは、DEUVEによって提唱されたオサムシ亜目の分類体系と、その根拠になった腹節の特徴を、やや詳しく紹介した。フランス昆虫学会の機関誌に掲載されたDEUVEの論説は、パリ第六大学に提出された学位論文から、もっとも重要な部分を抜き出して講演原稿にまとめ、それを一部手直して公表したものであった。学位論文そのものは出版されなかったが、マイクロフィッシュに作成されて関係研究者に配布されたので、1988年に版權を確立した形にはなっている。わたし自身も、このマイクロフィッシュで論文の全容を承知していたが、拡大読取り器で読むには大部にすぎ、全文を拡大して焼き付けるのも費用の点で一般向きではなく、しかるべき形で印刷公表されるのを待ち望んでいた。

ようやく今年の3月になって、この重要な論文がパリの国立自然史博物館から出版され、だれでも手にすることができるようになった。博物館紀要の一冊として刊行されているので、マイクロフィッシュとちがって読みやすく、豊富な挿図の見易さがとくにすばらしい。内容の大部分は原文のまま採用されているが、標題だけは「オサムシ亜目甲虫類の腹部と雌の外胚葉性生殖器官に関する形態学的ならびに系統学的研究」という長い原題から、上記の簡潔な形に変えられている。

ところで論文の内容だが、結論の重要な部分は、先に紹介したことでほぼ尽くされているといっても過言ではない。パリの博物館に所蔵されている老大な標本を駆使し、さまざまな角度から精細な研究を積み重ねた著者が、腹節構造の特徴に基づく系統論議だけを取りあげて先に公表した理由も、おそらくこのあたりにあるのだろう。もちろん、腹節構造以外の部分に関する研究が、無駄な結果に終わったというわけではない。それどころか、オサムシ亜目甲虫類の雌の内部生殖器を、これほど広汎かつ詳細に調べた研究はほかに例がなく、その一事だけでも著者の業績は刮目に値する。しかも、比較的「下等」な群では、著者の定義する科ごとに特徴が定まり、比較的「高等」な群では、全体を通じて基本的な構造が均一であること、マルクビゴミムシ類が、ムカシゴミムシ科やカワラゴミムシ科とともに、水生食肉類と共通の特徴をもち、狭義のオサムシ類を含むほかのゴミムシ類とは大きく異なっていることなどは、雌の内部生殖器の研究から導き出された重要な結論である。これが腹節構造の研究から導かれた結論と組み合わせられて、科の範囲を決定する基準になったのだろう。

甲虫類の雌の生殖器は、雄のものに比べて、これまでなおざりにされることが多かった。とくにオサムシ亜目では、同じ亜科のなかで分化の認められる例が、一部のものを除いてひじょうに少なく、ほとんど興味の対象にならなかったといってよいだろう。しかし、DEUVEの研究によると、亜目のなかの高次分類や系統論議には、雌生殖器も重要な特徴になることがわかる。カブトムシ亜目の甲虫類については、雌生殖器の研究を近年よく見掛けるようになった。日本でも、斉藤明子(1989-'93)によってカミキリムシ類の雌生殖器が詳しく研究されたが、その結論がある面でDEUVEの結論と似ているのは、単なる偶然の一致でもなさそうに思われる。

(上野俊一)

New or Little Known *Carabus* and *Cychrus* (Coleoptera,
Carabidae) from the Qinling Mountains in
Shaanxi Province, Central China

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Abstract Two new species and four new subspecies of the genus *Carabus* (s. lat.) and two new subspecies of the genus *Cychrus* are described from the Qinling Mountains in Shaanxi Province, Central China: *Carabus* (*Rhigocarabus*) *zhubajie* sp. nov., *C. (Hypsocarabus)* *latro qinlingensis* subsp. nov., *C. (Tomocarabus)* *shaheshang* sp. nov., *C. (Pagocarabus)* *crassesculptus qunqingicolor* subsp. nov., *C. (Pseudocranion)* *taibaishanicus fani* subsp. nov., *C. (Eccoptolabus)* *exiguus fanianus* subsp. nov., *Cychrus* *bispinosus baojiensis* subsp. nov., and *C. bispinosus huxianensis* subsp. nov.

The Qinling Mountains lie from east to west for about 400 km in the southern part of Shaanxi Province, Central China, with the highest point marked by Mt. Taibai Shan at the central part, which attains to a height of 3,767 m. Since the carabid fauna of this mountain range has not been intensively investigated as yet, our knowledge is no more than fragmentary even on the comparatively well-known genera *Carabus* (s. lat.) and *Cychrus*.

Recently, I had an opportunity to examine a long series of examples of carabid beetles collected from several localities on the Qinling Mountains including rather high altitudinal areas. The collection contains some unnamed forms of the genera *Carabus* (s. lat.) and *Cychrus*, and I am going to describe eight new taxa in the present paper.

The abbreviations employed herein are the same as those explained in my previous papers, and the holotypes of all the newly described taxa are preserved in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo, and the paratypes are deposited in my collection.

Before going further, I wish to express my hearty thanks to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for critically reading the manuscript of this paper. Thanks are also due to Drs. Olaf JÄGER and Rüdiger KRAUSE of the Staatliches Museum für Tierkunde, Dresden, who kindly took the trouble for loaning me the holotype of *Carabus rugosissimus* BREUNING, and to Messrs. Helmut SCHÜTZE, Gleichen, Satoshi KOIWAYA, Tokyo, and Pin-Jun FAN, Xi'an, who kindly supported this study in various ways.

1. *Carabus* (*Rhigocarabus*) *zhubajie* IMURA, sp. nov.

(Figs. 1, 7)

Length: 19.4–21.1 mm (from apical margin of clypeus to apices of elytra).

Coppery with faint red-purplish lustre. Elevated parts of elytra and venter black. Appendages also black, though the mandibles, buccal appendages and basal parts of antennae are reddish brown as well as tibiae and tarsi.

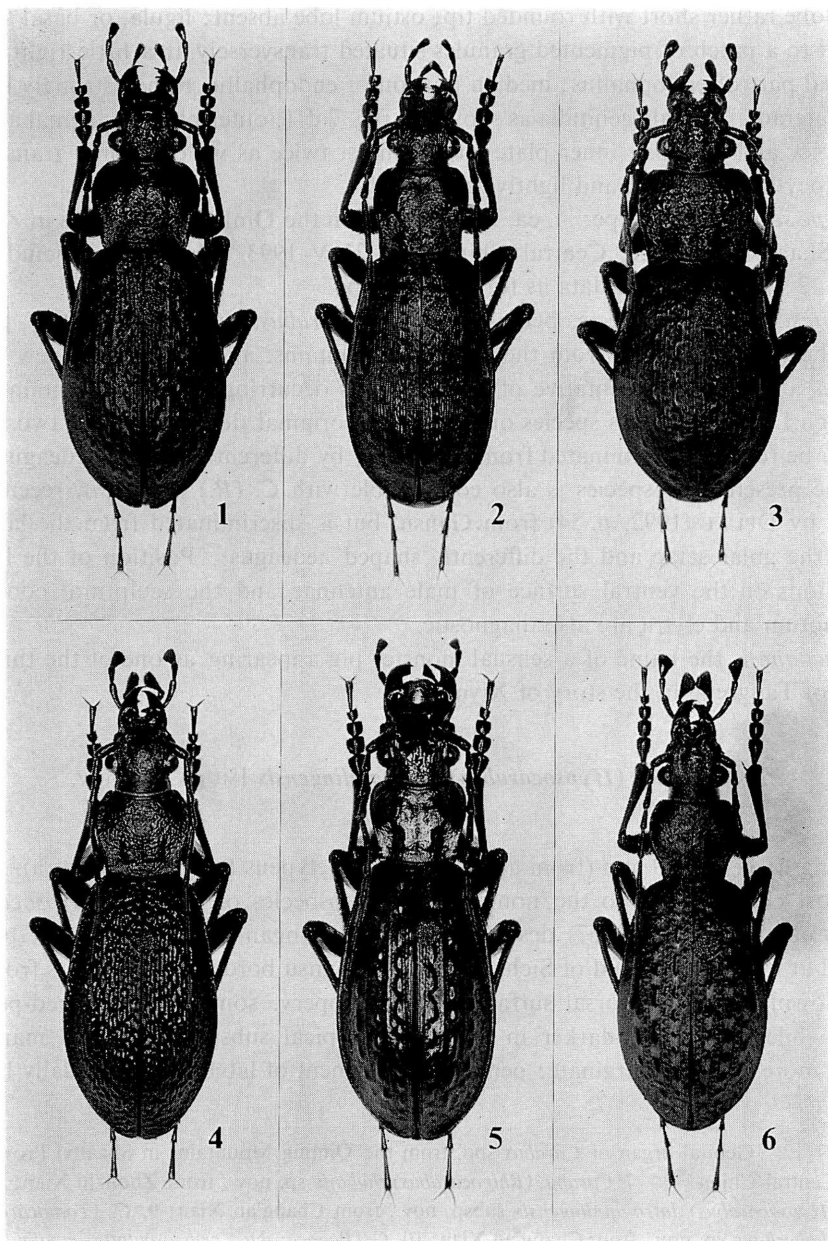
Head except for mandibles subquadrate, a little wider than long, with large and strongly protrudent eyes; apical margin of labrum slightly emarginate; clypeus subquadrate, a little narrower than labrum; frontal furrows shallow, with the surface weakly and irregularly rugulose; frons slightly convex above, with the surface weakly rugose and sparsely punctulate; mandibles short and stout, strongly arcuate inwards, and sharply pointed at the apices; retinaculum of mandible bidentate, the right one being a little smaller than the left; apical segments of palpi not so widely dilated in both sexes; penultimate segment of labial palpus bisetose; median tooth of mentum triangularly protrudent anteriad though a little shorter than lateral lobes, with the apex not sharply pointed; submentum bisetose, with the surface smooth; antennae filiform, reaching the middle of elytra in male and reaching basal two-fifths of them in female, pubescent from segment 5, with hairless ventral depressions from segment 7 to 9 in male; relative lengths of scape and segments 2–4 as follows:— 1: 0.56: 1: 0.68.

Pronotum subcordate, wider than long, widest at about the middle, more strongly narrowed towards apex than towards base; PW/HW 1.35–1.38 (M 1.37), PW/PL 1.28–1.31 (M 1.29), PW/PAW 1.56–1.66 (M 1.60), PW/PBW 1.42–1.52 (M 1.45), PBW/PAW 1.09–1.12 (M 1.10); apical margin feebly emarginate, front angles obtuse and barely produced anteriad; sides gently rounded in front and weakly sinuate behind the middle; hind angles subtriangularly protrudent posteriad though short, with the apices rounded and barely bent ventrad; disc slightly convex above and rather densely scattered with shallow punctures; median longitudinal line evidently impressed throughout though very narrow; basal foveae small and very shallow; four marginal setae inserted on either side of pronotal disc, three medio-anteriorly and one near hind angle.

Elytra elongate oval, widest behind the middle, more gradually narrowed towards bases than towards apices with the shoulders rather effaced; EW/PW 1.43–1.54 (M 1.49), EL/EW 1.53–1.60 (M 1.57); sculpture triploid or partly pentaploid, heterodynome; primaries the widest and most strongly raised, rather frequently and irregularly segmented by large foveoles to form rows of costae or of callosities in various lengths; primary foveoles shallowly concave and usually invading the adjacent tertiaries; secondaries a little weaker and narrower than primaries, composed of frequently interrupted low costae; tertiaries a little weaker than secondaries, composed of irregularly segmented ridges or rows of granules, each of which is sometimes split into two rows or partly disappeared; striae between intervals only partly remaining as irregularly set rows of punctures; umbilicate series indicated by rather an irregularly set row of granules, at the outside of which are recognised rather dense granules.

Pro- and mesepisterna smooth, metepisterna and sides of sternites partly scattered with vague punctures and wrinkles; metacoxa trisetose; sternal sulci absent; basal four segments of male foretarsus dilated, with hair pads on the ventral surface.

Male genitalia as shown in Fig. 7 a–c; aedeagus slender and gently curved ventrad;



Figs. 1-6. Holotypes (♂) of *Carabus* spp. from the Qinling Mountains in Shaanxi Province, Central China. — 1, *Carabus* (*Rhigocarabus*) *zhubajie* sp. nov., from Zhouzhi Xian; 2, *C. (Hypocarabus) latro qinlingensis* subsp. nov., from Chang'an Xian; 3, *C. (Tomocarabus) shaheshang* sp. nov., from Chang'an Xian; 4, *C. (Pagocarabus) crassesculptus qunqingicolor* subsp. nov., from Hu Xian; 5, *C. (Pseudocranion) taibaishanicus fani* subsp. nov., from Chang'an Xian; 6, *C. (Eccoptolabus) exiguus fanianus* subsp. nov., from Zhouzhi Xian.

apical lobe rather short with rounded tip; ostium lobe absent; ligula, or basal sclerite, reduced to a patch of pigmented granules situated transversely at a little right side of the basal part of endophallus; median portion of endophallus rather strongly inflated dorso-laterad. Female genitalia as shown in Fig. 7 d-f; outer plate of vaginal apophysis narrow and vestigial, inner plate large, almost twice as wide as long, transversely put kidney-like in shape, and lightly sclerotized.

Type series. Holotype: ♂, ca. 2,000 m alt., on the Qinling Mountains in Zhouzhi Xian, Shaanxi Province, Central China, 21~23-V-1993. Paratypes (including allotype): 2 ♂♂, 1 ♀, same data as for the holotype.

Notes. Only one species belonging to *Rhigocarabus*, *choui* DEUVE (1989, p. 228), has hitherto been known from the Qinling Mountains, and the present new species becomes a second representative of the subgenus occurring on this mountain range. Although I know DEUVE's species only from the original description, the two species seem to be readily discriminated from each other by differently shaped aedeagus.

The present new species is also comparable with *C. (R.) tewoensis*, recently described by DEUVE (1992, p. 54) from Gansu, but is discriminated from the latter by having the gular setae and the differently shaped aedeagus. Position of the hairless depressions on the ventral surface of male antennae and the sculptural conditions of pronotum and elytra are also diagnostic.

Zhubajie is the name of a sensual monster pig appearing as one of the three followers of Tangseng in the story of Xiyouji.

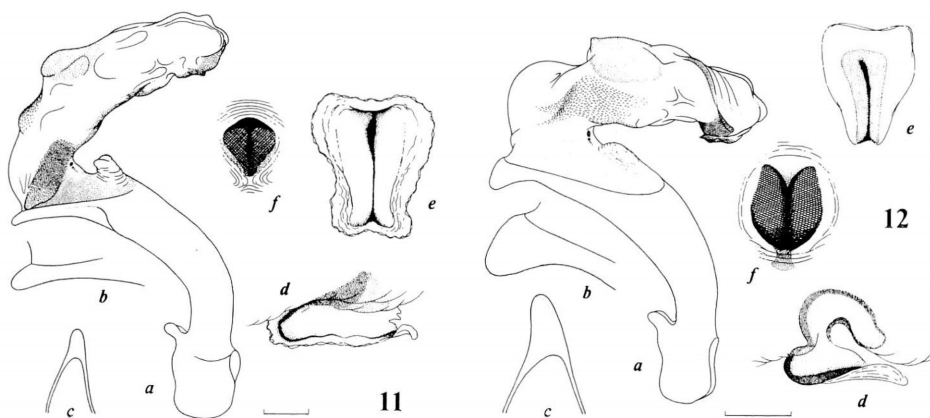
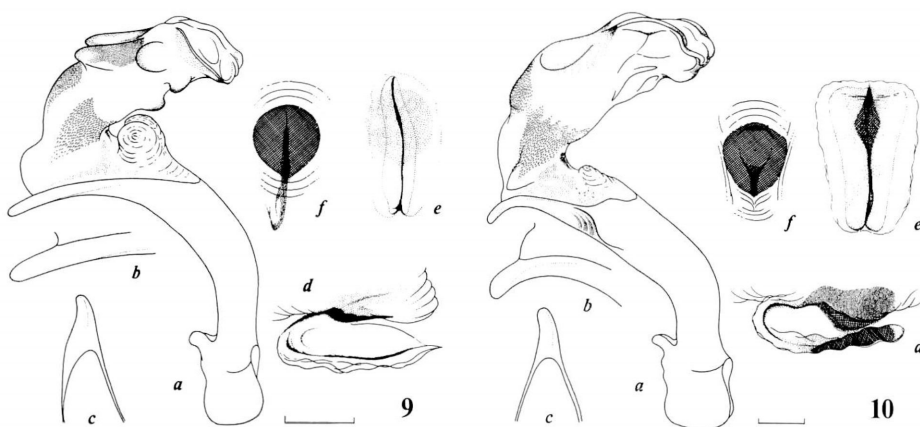
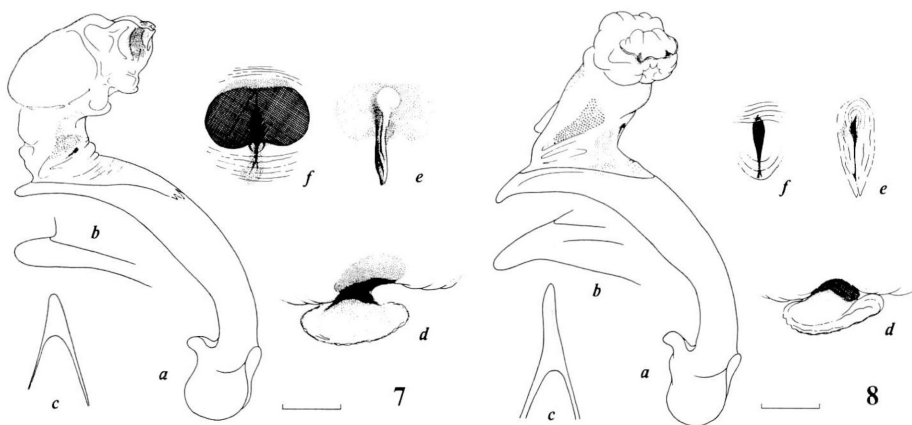
2. *Carabus (Hypsocarabus) latro qinlingensis* IMURA, sp. nov.

(Figs. 2, 8)

Length: 17.0–19.0 mm (from apical margin of clypeus to apices of elytra).

Most closely allied to the nominotypical subspecies of *Carabus (Hypsocarabus) latro* SEMENOW (1898, p. 367) described from “Lun-ngan-fu” (=Pingwu at present, situated at the northern end of Sichuan near the Gansu borders), but differs from it in the following respects: dorsal surface reddish coppery, sometimes with red-purplish lustre, while it is much darker in the nominotypical subspecies; apical margin of labrum more deeply emarginate; penultimate segment of labial palpus usually bearing

Figs. 7–12. Genital organ of *Carabus* spp. from the Qinling Mountains in Shaanxi Province, Central China. — 7, *Carabus (Rhigocarabus) zhubajie* sp. nov., from Zhouzhi Xian; 8, *C. (Hypsocarabus) latro qinlingensis* subsp. nov., from Chang'an Xian; 9, *C. (Tomocarabus) shaheshang* sp. nov., from Chang'an Xian; 10, *C. (Pagocarabus) crassesculptus qunqingicolor* subsp. nov., from Hu Xian; 11, *C. (Pseudocranion) taibaishanicus fani* subsp. nov., from Chang'an Xian; 12, *C. (Eccoitolabus) exiguus fanianus* subsp. nov., from Zhouzhi Xian. — a–c, Male genitalia; a, aedeagus with everted endophallus (right lateral view); b, apical part of aedeagus (right lateral view); c, ditto (dorsal view). — d–f, Female genitalia; d, vaginal apophysis (right lateral view); e, outer plate of vaginal apophysis (ventral view); f, inner plate of vaginal apophysis (dorsal view). Scale: 1 mm for a, 0.5 mm for b–f.



three setae, though one of them near the distal end is often absent; median tooth of mentum slightly but obviously bilobate at the apex; submentum asetose, while it is multisetose in the nominotypical subspecies; pronotum a little slenderer, with front angles obtuse and rounded, sides rather strongly contracted behind the middle, shallowly sinuate at about one-fourth from base, and then slightly but evidently divergent towards hind angles, which are subtriangularly protruded postero-laterad with the apices rather sharply pointed; elytral intervals less frequently segmented, and striae between the intervals more strongly impressed; apical lobe of aedeagus wider in lateral view, shallowly but obviously concave ventro-laterad at the right side near the base, slenderer and much more elongate in dorsal view; ostium lobe almost vestigial, and right basal lobe of endophallus being absent.

From subsp. *minshanensis* DEUVE and subsp. *huanglongensis* DEUVE, the present new subspecies is easily distinguished by the different configuration of pronotum, aedeagus and/or of elytra.

Type series. Holotype: ♂, 2,410 m alt., Chang'an Xian, 26-V-1993. Paratypes (including allotype): 7 ♂♂, 17 ♀♀, 2,410–2,650 m alt., Chang'an Xian, 25~29-V-1993. All from the Qinling Mountains in Shaanxi Province, Central China.

Notes. This is presumably the most specialised subspecies of *Carabus latro* characterised by loss or atrophy of such characters as gular setae, ostium lobe and right basal lobe of endophallus of male genitalia, which are reserved in all the other subspecies hitherto known. Both pronotum and aedeagus of the present subspecies are considerably different in shape from those of the others. In addition, it is the unique characteristic of the Qinling subspecies to have in high ratio the additional setae on the distal part of penultimate segment of labial palpus. It is possible that this race is distinct specifically from the Sichuanese ones, but here I provisionally describe it as a subspecies of the latter.

3. *Carabus (Tomocarabus) shaheshang* IMURA, sp. nov.

(Figs. 3, 9)

Length: 14.8–16.6 mm (from apical margin of clypeus to apices of elytra).

Black, mat, except for mandibles and tarsi which are reddish brown. Buccal appendages and antennae also reddish brown especially in the basal part of each segment.

Head except for mandibles subquadrate, a little wider than long, with large and strongly protrudent eyes; apical margin of labrum moderately emarginate; clypeus subquadrate, a little dilated posteriad, nearly as wide as or a little wider than labrum; frontal furrows shallowly concave, with the surface strongly and irregularly rugulose; frons gently convex above, with the surface weakly rugoso-punctate; mandibles short and stout, rather strongly arcuate inwards and sharply pointed at the apices; retinaculum of mandible bidentate, the right one being a little smaller than the left; apical segments of palpi slightly dilated in both sexes; penultimate segment of labial

palpus bisetose; median tooth of mentum triangularly protrudent anteriad, shorter than the lateral lobes, with the apex often a little re-entrant at the middle; submentum bisetose or sometimes bearing a single additional seta inside, with the surface irregularly rugulose; antennae filiform, reaching basal two-fifths of elytra in male and reaching basal quarter in female, entirely pubescent from segment 5, with hairless ventral depressions from segment 6 to 10 in male; relative lengths of scape and segments 2–4 as follows:— 1: 0.60: 1: 0.75.

Pronotum subquadrate, wider than long, and widest a little before the middle; PW/HW 1.43–1.48 (M 1.45), PW/PL 1.31–1.35 (M 1.33), PW/PAW 1.43–1.52 (M 1.48), PW/PBW 1.28–1.32 (M 1.29), PBW/PAW 1.11–1.19 (M 1.15); apical margin slightly emarginate, front angles obtuse and barely produced anteriad; sides widely and weakly arcuate in front, shallowly sinuate behind the middle, then subparallel towards hind angles which are weakly protrudent posteriad with the apices subtriangularly pointed: disc gently convex above, rather densely scattered with irregular wrinkles and large shallow punctures on the surface; median longitudinal line narrow and shallowly impressed, partly unclear; basal foveae rather deeply concave though small; six or seven marginal setae inserted on either side of pronotal disc, five or six medio-anteriorly, one near hind angle.

Elytra ovate and convex, widest at about the middle or slightly behind that level, more strongly contracted towards apices than towards bases, with the shoulders rather distinct; EW/PW 1.42–1.57 (M 1.51), EL/EW 1.35–1.41 (M 1.38); sculpture heptaploid heterodyname; primaries the most strongly prominent, composed of rather frequently segmented short costae or callosities in various lengths; primary foveoles rather deeply concave and usually invading the adjacent quarternaries; both secondaries and tertiaries narrower and more weakly convex than in primaries, composed of frequently and irregularly segmented rows of costae; quarternaries weaker than the other intervals, and usually reduced to rows of granules; striae between intervals only partly recognised as sparsely set rows of fine punctures; umbilicate series indicated by rather a regularly set row of granules, at the outside of which are recognised rather dense granules.

Pro- and mesepisterna smooth, metepisterna and sides of sternites vaguely punctate and finely wrinkled; metacoxa bisetose, proximal seta being absent; sternal sulci completely and prominently carved; basal four segments of male foretarsus dilated, with hair pads on the ventral surface.

Male genitalia as shown in Fig. 9 a–c; aedeagus widely and rather strongly arcuate ventrad; its apical lobe very slender, almost parallel-sided with rounded tip in lateral view, subtriangularly pointed and moderately sinuate on the right lateral margin in dorsal view; ostium lobe large and robust, with the apex bilobate. Female genitalia as shown in Fig. 9 d–f; outer plate of vaginal apophysis narrow and almost transparent except for the longitudinal mid-line which is pigmented and a little sclerotized; inner plate circular in outline, weakly sclerotized and somewhat cup-like.

Type series. Holotype: ♂, ca. 1,900 m alt., Chang'an Xian, 9–V–1993. Para-

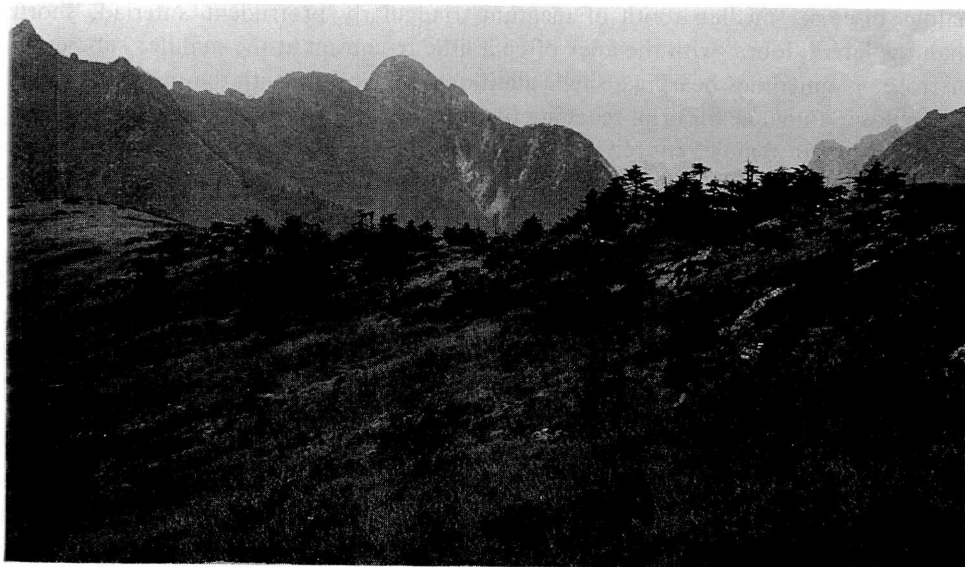


Fig. 13. The habitat of *Carabus* (*Hypsocarabus*) *latro qinlingensis* subsp. nov., *C. (Tomocarabus)* *shaheshang* sp. nov., *C. (Pagocarabus)* *crassesculptus qunqingicolor* subsp. nov., and *C. (Pseudocranion)* *taibaishanicus fani* subsp. nov. (subalpine zone of the Qinling Mountains in Chang'an Xian, ca. 2,500 m in altitude).

types (including allotype): 8 ♂♂, 3 ♀♀, same data as for the holotype; 3 ♀♀, ca. 2,000 m alt., Hu Xian, 11-V-1993; 1 ♀, ca. 1,850 m alt., Taibai Xian, 19-V-1993; 7 ♂♂, 1 ♀, ca. 2,000 m alt., Zhouzhi Xian, 21-V-1993. All from the Qinling Mountains in Shaanxi Province, Central China.

Notes. This new species is very similar in external features to *Carabus* (*Tomocarabus*) *fraterculus* REITTER distributed from Korea and the adjacent regions, but is easily distinguishable from it by less widely dilated terminal segments of buccal palpi and different configuration of aedeagus.

It may also be comparable with *C. (T.) shaanxiensis* recently described by DEUVE (1991, p. 105) from "Ankang Xian" situated in the southernmost part of Shaanxi Province near the Sichuan and the Hubei borders. Since the Ankang Xian species was described on the basis of a single female specimen without accompanying illustrations, careful consideration is necessary to determine its true taxonomic position. Judging from the original description, however, the Qinling species seems to be discriminated from the Ankang Xian one at least by the following five characters: 1) size a little smaller; 2) penultimate segment of labial palpus always with two setae, while it is trisetose in the latter; 3) antennae longer, reaching basal quarter of elytra in female, while they reach basal one-sixths in the latter; 4) pronotum with five to six marginal setae, whereas it bears three or four in the latter; 5) sternal sulci prominently carved, though finely so in the latter.

The name of this new species, *shaheshang*, comes from that of a water sprite who

appears as one of the three followers of Tangseng in the story of Xiyouji.

4. *Carabus (Pagocarabus) crassesculptus qunqingicolor* IMURA, subsp. nov.

(Figs. 4, 10)

Length: 21.8–26.0 mm (from apical margin of clypeus to apices of elytra).

Closely allied to subsp. *rugosissimus* BREUNING (1943, p. 110)¹⁾ described from “Peiling-Chan” (the name of a mountain range stretching from west to east between Minshan and Qinling, at the southern end of Gansu), and doubtless belongs to the same subspecies-group, but distinguished from it by the following respects: dorsal surface more light bluish and not so strongly purplish as in *rugosissimus*; pronotum slenderer, with the sides more weakly rounded in front, and hind angles more sharply pointed; elytral intervals more weakly raised, with the elevated parts less frequently fused with one another; preapical emargination of elytra shallower; aedeagus more strongly tumid bilaterad a little before the middle, with the apical lobe slenderer and more strongly arcuate ventrad.

Type series. Holotype: ♂, ca. 2,000 m alt., Hu Xian, 11–V–1993. Paratypes (including allotype): 2 ♂♂, 2 ♀♀, same data as for the holotype; 1 ♂, ca. 1,500 m alt., Baoji Xian, 13–V–1993; 11 ♂♂, 3 ♀♀, ca. 2,000 m alt., Zhouzhi Xian, 21–23–V–1993; 1 ♀, 2,410 m, alt., Chang’an Xian, 26–V–1993. All from the Qinling Mountains in Shaanxi Province, Central China.

Notes. This new subspecies is named after its unique coloration, “Qunqing”, which means purplish blue in Chinese.

5. *Carabus (Pseudocranion) taibaishanicus fani* IMURA, subsp. nov.

(Figs. 5, 11)

Length: 21.0–26.2 mm (from apical margin of clypeus to apices of elytra).

Distinguished from the nominotypical subspecies by the following characters: the second antennal segment obviously shorter than the fourth, though the former is longer than the latter in the nominotypical subspecies; pronotum a little slenderer (PW/PL 1.26–1.42, M 1.33, while it is 1.47 in the nominotypical subspecies); elytral sculpture not typically triploid as in the nominotypical subspecies, but is regarded to be penta- or heptaploid, i.e., tertiaries not clearly recognisable as a single row of granules, but usually split into three to five irregularly set rows of granules.

Male genitalia as shown in Fig. 11 a–c; aedeagus rather abruptly curved ventrad at the basal third, subcylindrical and almost parallel-sided in median portion, obviously

1) *Carabus (Pagocarabus) crassesculptus rugosissimus* BREUNING, stat. nov.

I was able to examine the holotype specimen of *C. rugosissimus* BREUNING in the course of the present study. Judging mainly from close similarity in the conformation of genitalia, BREUNING’s species is considered to be a local race of *C. crassesculptus* KRAATZ, though rather peculiar in external features. It is therefore downgraded to a subspecies of the latter.

protuberant right laterad at about apical quarter, then slightly concave latero-ventrad on the right side, with the apex short and rounded; ostium lobe rather slender, with the apex slightly bilobate. Female genitalia as shown in Fig. 11 d-f; outer plate of vaginal apophysis about 1.7 times as long as wide, widest near the apex, obviously sinuate behind the middle, with the anterior margin shallowly emarginate, the posterior being re-entrant at the middle; inner plate almost round-shaped or a little piriform, somewhat cup-like, and strongly pigmented and sclerotised along the anterior margin and the longitudinal mid-line.

Type series. Holotype: ♂, 2,410–2,760 m alt., on the Qinling Mountains in Chang'an Xian, Shaanxi Province, Central China, 25~29-V-1993. Paratypes (including allotype): 42 ♂♂, 36 ♀♀ same data as for the holotype.

Notes. Although I regarded the Chang'an Xian specimen as belonging to *Carabus* (*Pseudocranion*) *taibaishanicus* DEUVE described from the "Taibai Mountains", which mean either the Qinling Mountains or a part of them near Mt. Taibai Shan, specific determination of the former is not definitive at present, since the latter was described on the basis of a single female specimen. Discovery of males corresponding to DEUVE's form may solve the problem on the taxonomic relationship between these two races.

6. *Carabus* (*Eccoptolabrus*) *exiguus fanianus* IMURA, subsp. nov.

(Figs. 6, 12)

Length: 16.7–18.6 mm (from apical margin of clypeus to apices of elytra).

Reddish coppery to dark brown except for the elevated parts of elytra which are black; venter and appendages also black, though the antennae are a little reddish.

Head except for mandibles subquadrate and longer than wide; apical margin of labrum deeply emarginate; frontal furrows moderately or rather deeply concave, with the surface strongly rugoso-punctate as well as frons and dorsal surface of head behind eyes; retinaculum of right mandible bidentate, its anterior tooth much larger than the posterior; that of left mandible also bidentate, though the anterior tooth is subequal in length to the posterior which fuse to the basal inner tooth; apical segment of galea concave inwards, with the dorsal margin edged and slightly emarginate in apical half; apical segments of palpi triangularly dilated, more strongly so in male; penultimate segment of labial palpus bisetose; median tooth of mentum shorter than lateral lobes, with the apex triangularly pointed; submentum asetose, with the surface finely and transversely wrinkled; antennae nearly extending to the middle of elytra in male and reaching basal two-fifths of them in female; relative lengths of scape and segment 2–4 as follows:—1: 0.87: 1: 0.80.

Pronotum strongly cordate, widest a little before the middle, more strongly narrowed towards base than towards apex which is shallowly emarginate, with front angles obtuse and barely produced anteriorly; sides widely arcuate in front, strongly contracted posteriorly, shallowly sinuate at basal two-fifths, and then almost parallel-sided towards hind angles which are slightly protruded posteriorly and subtriangularly

pointed; PW/HW 1.24–1.33 (M 1.28), PW/PL 1.17–1.27 (M 1.21), PW/PAW 1.40–1.50 (M 1.46), PW/PBW 1.55–1.63 (M 1.60), PBW/PAW 0.88–0.94 (M 0.91); disc less strongly convex above, with the surface scabrous and not clearly punctate; three to four setae inserted on either side of discal margin, two or three medio-anteriorly and one near hind angles; median longitudinal line narrow but clearly impressed in the central part, unclear near apex and gradually fused to the longitudinally impressed short grooves near base; basal foveae longitudinally and rather deeply concave.

Elytra elongate oval and convex, widest a little behind the middle, more strongly contracted towards apices than towards bases; EW/PW 1.55–1.77 (M 1.63), EL/EW 1.55–1.67 (M 1.63); sculpture triploid heterodyname; primaries the widest and strongly raised, rather frequently segmented by large foveoles to form rows of callosities with various lengths; secondaries far more frequently segmented than primaries, indicated by rows of short costae; tertiaries reduced to rows of granules; elytral surface between intervals rather densely scattered with small granules.

Pro- and mesepisterna smooth, metepisterna and sides of sternites vaguely rugoso-punctate; metacoxa bisetose, proximal seta being absent; sternal sulci either very finely impressed or almost disappeared.

Male genitalia as shown in Fig. 12 a–c; aedeagus rather robust, widest at about the middle, gently arcuate, and rather acutely hooked ventrad near the apex; apical lobe short and subtriangular in shape, with broadly rounded tip in lateral view, and slightly arcuate right laterad in dorsal view; ostium lobe unilobate and not so strongly raised; aggonoporus subtriangularly produced and a little pigmented. Female genitalia as shown in Fig. 12 d–f; outer plate of vaginal apophysis nearly oblong, with marked pigmentation along the longitudinal mid-line; inner plate extraordinarily convex above, strongly sclerotized, almost round-shaped with the anterior margin deeply and triangularly re-entrant at the middle in dorsal view, and forming slightly deformed C in lateral view.

Type series. Holotype: ♂, ca. 2,000 m alt., on the Qinling Mountains in Zhouzhi Xian, Shaanxi Province, Central China, 21 ~ 23-V-1993. Paratypes (including allotype): 5 ♂♂, 3 ♀♀, same data as for the holotype.

Notes. The present subspecies seems most closely allied to the nominotypical one described from Sun-pan (=Songpan at present, situated at the northern part of Sichuan), but distinguished from it by having much coppery reddish coloration, longer antennae, multiple marginal setae of pronotum, and differently sculptured elytral surface. From subsp. *nivium* BREUNING described from “Mienning” of Sichuan, it is also discriminated by different coloration and longer antennae as well as differently shaped pronotum and more strongly raised elytral intervals. From the peculiar Gansu subspecies, *lanzhouicus* DEUVE, this new subspecies is easily separable by the distinctly different external features, though the aedeagal conformation of the latter bears a striking resemblance to that of the former.

The subgenus *Eccoptolabrus* was originally established by SEMENOW (1898, p. 397) for a peculiar Sichuan species, named *exiguus* at the same time. Although once

regarded as a synonym of *Pagocarabus* by BREUNING in his monograph (1934, p. 1020), this unique subgenus was recently revived by DEUVE as a distinct one, and was placed between *Leptoplesius* and *Pagocarabus* in his catalogue (1991, p. 120).

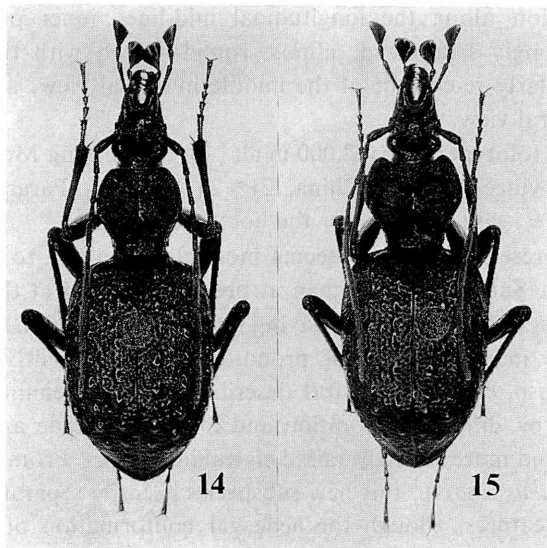
In my view, however, this subgenus has certain relationship with *Coptolabrus* as was already pointed out by SEMENOW in having several common characteristics, above all basic structure of the genital organ and peculiar conformation of the apical segment of galea, and should be placed at the side of the group of *Damaster*–*Coptolabrus*–*Acoptolabrus*. Also it has certain relationship with *Lasiocoptolabrus* IMURA recently described from the same mountain range, though the former is clearly separable from the latter by different configuration of the mandibular retinacula and smaller number of setae on the penultimate segment of labial palpus as well as atrophy of sternal sulci and unilobate ostium lobe of male genitalia.

At the southwestern part of Zhouzhi Xian, this new subspecies occurs almost sympatrically with *C. (Lasiocoptolabrus) sunwukong* IMURA, though the collecting site of the former is a little higher in altitude than that of the latter. It is worth noting that both the species from the above locality have a close resemblance to each other in the coloration and the conformation of elytral sculpture, which seems to suggest that they show a tendency of convergence in the external features.

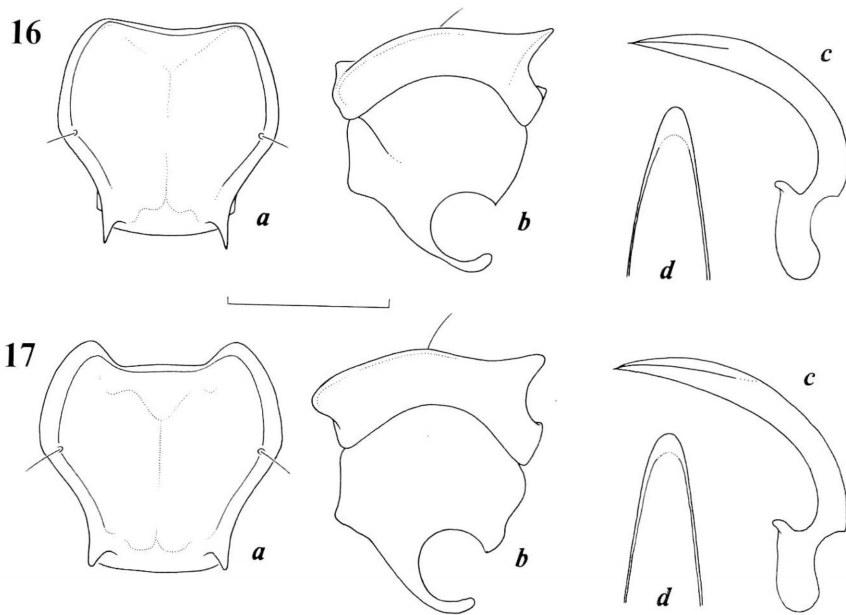
7. *Cychrus bispinosus baojiensis* IMURA, subsp. nov.

(Figs. 14, 16)

Length: 14.0–16.7 mm (from apical margin of clypeus to apices of elytra).



Figs. 14–15. Holotypes (♂) of *Cychrus bispinosus* subsp. from the Qinling Mountains in Shaanxi Province, Central China. — 14, *C. b. baojiensis* subsp. nov., from Baoji Xian; 15, *C. b. huxianensis* subsp. nov., from Hu Xian.



Figs. 16–17. Pronota and aedeagi of *Cychrus bispinosus* subspp. — 16, *C. b. baojiensis* subsp. nov., ♂, from Baoji Xian; 17, *C. b. huxianensis* subsp. nov., ♂, from Hu Xian; a, pronotum (dorsal view); b, ditto (left lateral view); c, aedeagus (right lateral view); d, apical part of aedeagus (dorsal view). Scale: 2.5 mm for a and b, 2 mm for c, 1 mm for d.

Distinguished from the nominotypical subspecies mainly by differently shaped prothorax: viewed dorsally, widest part of pronotum is situated more backwards than in the nominotypical subspecies, hind angles spine-like, strongly protrudent posteriad with sharply pointed apices which extend obviously to the basal margin of pronotum; viewed laterally, pronotal margin more strongly arcuate dorsad especially in apical half. According to the original description, the fourth antennal segment of the nominotypical subspecies is entirely glabrous, whereas it is pubescent at the distal end in the present new subspecies. The aedeagal apex is very sharply pointed at the tip in lateral view, and rather broadly rounded in dorsal view.

Type series. Holotype: ♂, ca. 1,280 m alt., on the Qinling Mountains in Baoji Xian, Shaanxi Province, Central China, 12–V–1993. Paratypes (including allotype): 4 ♂♂, 3 ♀♀, same locality as for the holotype, 12–19–V–1993.

8. *Cychrus bispinosus huxianensis* IMURA, subsp. nov.

(Figs. 15, 17)

Length: 14.2–16.7 mm (from apical margin of clypeus to apices of elytra).

Readily distinguished both from the nominotypical and the above subspecies by conspicuously different shape of prothorax: pronotum obviously wider than long,

widest at about or a little before the middle, with the widest part strongly protrudent laterad and subangulate; apical margin deeply and trapezoidally emarginate due to strongly produced front angles which are subtriangularly pointed though the apices are rather broadly rounded; hind angles robust and much less sharply pointed than in the other subspecies. Distal end of the fourth antennal segment is also pubescent as in the above subspecies. Aedeagal apex a little shorter and a little more broadly rounded in dorsal view than in the above subspecies.

Type series. Holotype: ♂, ca. 1,300 m alt., on the Qinling Mountains in Hu Xian, Shaanxi Province, Central China, 11-V-1993. Paratypes (including allotype): 1 ♂, 4 ♀♀, same data as for the holotype.

要 約

井村有希: 中国陝西省秦嶺山脈のオサムシ. — 中国陝西省南部の秦嶺山脈から, オサムシの2新種, 4新亜種とセダカオサムシの2新亜種を記載した. 1) 周至県の高所から *Carabus (Rhigocarabus) zhubajie* sp. nov. を記載した. 本亜属のなかでは比較的大型の種で, 秦嶺山脈からすでに知られている *C. (R.) choui* DEUVE とは陰茎の形態がまったく異なる. また, 甘肅省の *C. (R.) tewoensis* DEUVE にも近いが, 下唇亜基節に2本の剛毛を有し, ♂ 触角腹面の無毛凹陷部の位置が異なるほか, 前胸背板と上翅の彫刻, ならびに陰茎の形態にも差がみられる. 2) 長安県の高所から *C. (Hypsocarabus) latro* SEMENOW の新亜種 *qinlingensis* subsp. nov. を記載した. 既知の3亜種のなかでは, 四川省北部の平武付近から記載された基亜種に比較的近いが, 下唇亜基節の剛毛の欠如や, ♂ 交尾器葉片ならびに内袋基部右側膨隆部の萎縮, といった退化形質がいちじるしいうえ, 前胸背板と陰茎の形態が異なり, また下唇肢亜端節には通常3本の剛毛が認められるなど, 別種とみなしてもよいほどの顕著な形態的相違がみられる. 3) *C. (Tomocarabus) shaheshang* sp. nov. は, 朝鮮半島とその近隣に分布する *C. (T.) fraterculus* REITTER によく似ているが, 口肢末端節はあまりつよく拡がらず, 陰茎の形態もまったく異なるので識別はやさしい. 長安県から太白県にいたる地域の標高 2,000 m 付近に生息している. 本省からはほかに, 同亜属に属する種として, 安康県から記載された *C. (T.) shaanxiensis* DEUVE が知られている. この種は1♀のみの標本に基づいて記載されたうえ, 原記載に図が付けられていないので, 正確な比較は困難だが, 記載文から判断するかぎり秦嶺の種と同種であるとは考えにくい. 1) と 3) の新種名は, それぞれ猪八戒と沙和尚 (沙悟浄) を意味し, 筆者によりすでに同山脈から記載されている *C. (Lasiocoptolabrus) sunwukong* (孫悟空) とどうよう, いずれも西遊記に登場するキャラクターにちなむものである. 4) *C. (Pagocarabus) crassesculptus* KRAATZ の新亜種 *qunqingicolor* subsp. nov. を記載した. 甘肅省南部の亜種 *rugosissimus* BREUNING (これまで独立種として扱われてきたが, 正基準標本を検した結果, 交尾器の基本形態は *C. crassesculptus* のそれとほとんど変わりがないので, 本論文においてその1亜種に降格した) に近いが, 背面の色彩はよりつよく空色を帯び, 前胸背板と上翅彫刻, ならびに陰茎の形態が異なる. 長安県から宝鸡県にかけての標高 1,500 m 以上の地域に分布している. 5) 長安県の高所から *C. (Pseudocranion) taibaishanicus* DEUVE の新亜種 *fani* subsp. nov. を記載した. 基亜種は1♀のみの標本に基づいて記載されたものなので, しょうらい同種の ♂ に相当する標本が得られれば, 長安県の種の所属に関してあらたな見解が必要になるかもしれない. 6) 周至県の高所から *C. (Eccoptolabrus) exiguus* SEMENOW の新亜種 *fanius* subsp. nov. を記載した. 四川省の松潘か

ら記載された基亜種に比較的近いが、色彩はよりつよく赤銅色味を帯び、触角が長く、前胸背板側縁剛毛の数が多く、上翅の彫刻も異なる。本亜属はこれまで、*Pagocarabus*に近い位置に置かれることが多かったが、交尾器や小顎外葉末端節の形態などから、カブリモドキやクビナガオサムシなどのグループに類縁に近いものと思われる。周至県の南西部において、本新亜種は *C. (Lasiocoptolabrus) sunwukong* IMURA とほぼ同所的に生息しており、なおかつ両者の色彩や上翅彫刻はたがいによく似ていて、形態的に収斂現象を示しているとみられる点は興味深い。7) *Cychrus bispinosus* DEUVE のふたつの新亜種、*baojiensis* subsp. nov. と *huxianensis* subsp. nov. を、宝鸡県と戸県からそれぞれ記載した。いずれも前胸背板の形態に大きい特徴があるので、その識別は容易である。

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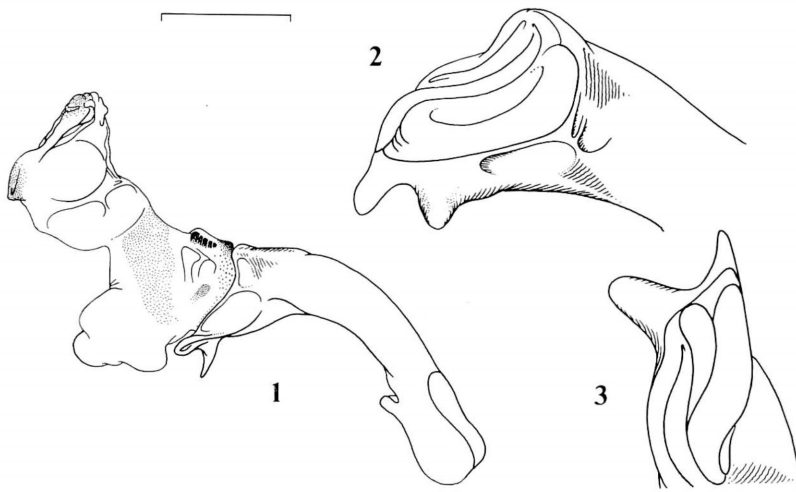
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Description of the Male Genitalia of *Carabus (Oreocarabus) titanus* BREUNING (Coleoptera, Carabidae)

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Carabus (Oreocarabus) titanus is the largest and one of the least known species of all the Chinese *Oreocarabus*, described by BREUNING (1933) on the basis of a single female specimen from Hubei Province. Although some specimens have been collected from Sichuan and Gansu in recent years, nothing seems to have been reported on the male of this species. Through the courtesy of Mr. Wakô KITAWAKI, I was recently able to examine a series of male specimens of this species collected on the Qinling Mountains in Shaanxi Province. Here I am going to illustrate and describe its very unique genitalia for the first time.



Figs. 1-3. Male genitalia of *Carabus (Oreocarabus) titanus* BREUNING, from Houzhenzi, Zhouzhi Xian, Shaanxi; 1, right basi-lateral view; 2, apical part in right lateral view; 3, ditto in dorsal view. Scale: 3 mm for 1, 1.5 mm for 2 & 3.

Description. Aedeagus with basal portion slender, apical portion conspicuously inflated; apical lobe very strange in shape, its right lateral margin strongly protuberant near apex to form a large tongue-shaped process, which give the appearance of aedeagal apex bifurcate, and reminds us of certain kind of malformation at first sight; its "true" apex rather short, subtriangularly pointed though gently rounded at tip, and a little depressed laterad; membranous ostium very narrow, and ostium lobe absent; ligula, or basal sclerite, well developed to form strongly raised rows of sclerites; paraligula strongly pigmented and rather well sclerotized with a number of pigmented granules inside; endophallus with basal vertical lobe strongly inflated, aggonoporus neither sclerotized nor pigmented.

A New *Oreocarabus* (Coleoptera, Carabidae) from the Qinling Mountains in Shaanxi Province, Central China

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Abstract A new species belonging to the subgenus *Oreocarabus* of the genus *Carabus* (s. lat.) is described from the Qinling Mountains under the name of *Carabus* (*Oreocarabus*) *kitawakianus* sp. nov.

After the completion of my previous paper on the Carabid Beetles of the Qinling Mountains (IMURA, 1993, *Elytra, Tokyo*, **21**: 363–377), I was able to examine some additional materials from the same mountain range through the courtesy of Mr. Wakô KITAWAKI. The collection contains a remarkable new species of the subgenus *Oreocarabus*, and I am going to describe it in the following lines. The abbreviations used herein are the same as those explained in my previous papers.

Before going further, I wish to express my gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for reading the manuscript of this paper. Special thanks are due to Mr. Wakô KITAWAKI, Osaka, who kindly submitted the specimens to me for study.

Carabus (*Oreocarabus*) *kitawakianus* IMURA, sp. nov.

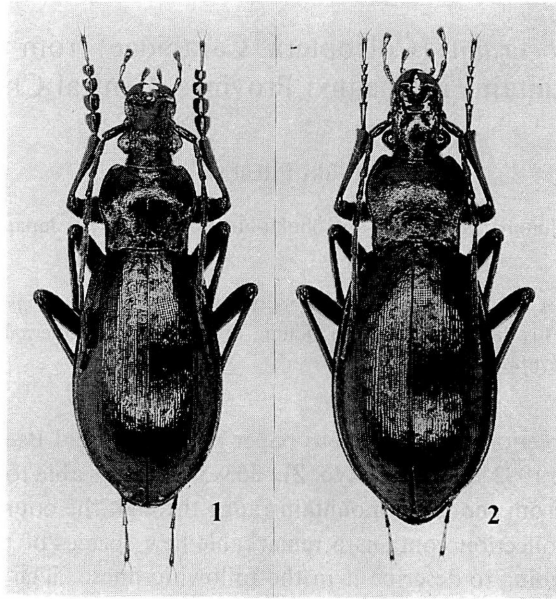
(Figs. 1–6)

Length: 24.6–29.2 mm (from apical margin of clypeus to apices of elytra).

Fairly large species with external features similar to those of *C. (O.) reitterianus* BREUNING, but markedly different from it in the structure of male genitalia.

Black with faint coppery lustre. Marginal areas of elytra sometimes with faint purplish lustre. Appendages black except for palpi and antennae which are a little reddish.

Head as in *C. reitterianus*, but the antennae are somewhat longer, always extending to the middle of elytra in male; hairless ventral depressions of male antennae recognised from segment 5 to 9, while they are recognised from segment 5 to 8 in *C. reitterianus*; median tooth of mentum longer and more sharply pointed at the apex than in *C. reitterianus*. Pronotum also as in *C. reitterianus*, but the basal foveae are usually more deeply concave though very small, and the hind angles are usually more sharply pointed; number of pronotal marginal setae is constantly two on each side, one near the widest part and the other slightly before hind angles; PW/HW 1.41–1.56 (M 1.47), PW/PL 1.19–1.34 (M 1.27), PW/PAW 1.38–1.55 (M 1.44), PW/PBW 1.19–

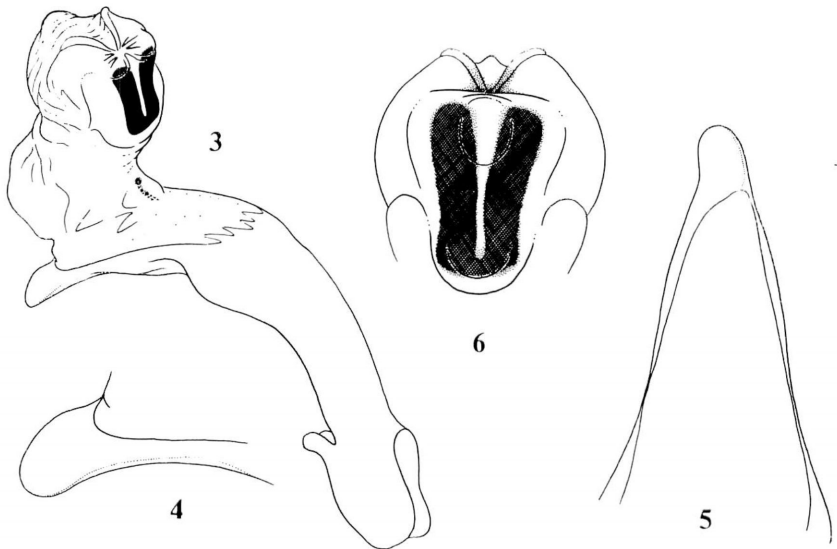


Figs. 1–2. *Carabus (Oreocarabus) kitawakianus* IMURA, sp. nov., from Zhouzhi Xian, Shaanxi Province, Central China; 1, ♂ (holotype); 2, ♀ (allotype).

1.34 (M 1.27), PBW/PAW 1.08–1.26 (M 1.14). Elytra slenderer, less strongly convex above, with the widest part situated a little more backwards (at about apical third), and with shoulders more effaced in comparison with *C. reitterianus*; EW/PW 1.43–1.65 (M 1.55), EL/EW 1.63–1.78 (M 1.72); sculpture very finely impressed though obviously recognised to be heptaploid homodyname, with each interval much more weakly raised than in *C. reitterianus*. Metacoxa trisetose. Sternal sulci completely and prominently carved. Legs a little longer than in *C. reitterianus*.

Male genital organ basically similar to that of *C. reitterianus*, but considerably different from the latter in details. Aedeagus rather small, about four-tenths as long as elytra, short, thick, and strongly arcuate at middle, with the right lateral margin strongly convex laterad at about the middle and rather strongly concave therefrom to apex in subdorsal view; apical lobe short, robust, and gently hooked ventrad with broadly rounded tip which is strongly depressed dorso-laterad; ostium lobe absent; ligula, or basal sclerite, a little larger than in *C. reitterianus*, forming a well developed patch of pigmented granules; aggonopori strikingly different from that of *C. reitterianus*, being strongly pigmented and sclerotized to form a pair of terminal plates, each of which is oblong in shape. Female genitalia less specialised, with outer plate of vaginal apophysis narrow and almost transparent except for the longitudinal mid-line which is pigmented and a little sclerotized, inner plate vestigial, not remarkably different from those of *C. reitterianus*.

Type series. Holotype: ♂, near Houzhenzi at the southwestern part of Zhouzhi



Figs. 3–6. Male genital organ of *Carabus (Oreocarabus) kitawakianus* IMURA, sp. nov., from Zhouzhi Xian, Shaanxi Province, Central China; 3, aedeagus with fully everted endophallus (right lateral view); 4, apical part of aedeagus (right lateral view); 5, ditto (dorsal view); 6, apical part of endophallus. Scale: 2 mm for 3, 1 mm for 4–5.

Xian, Shaanxi Province, Central China, V ~ VII–1993 (NSMT). Paratypes (including allotype): 6 ♂♂, 28 ♀♀, same data as for the holotype, in coll. Y. IMURA, K. MIZUSAWA, and W. KITAWAKI.

Notes. As was shown in the preceding lines, this new species is considered to be closely allied to *Carabus (Oreocarabus) reitterianus* hitherto known from Sichuan and Gansu. However, the latter has also been recorded from the Qinling Mountains very recently. The two female specimens known, which were considered to belong to the nominotypical subspecies from the external features, were obtained from rather high altitudinal area (ca. 2,000 m in height) of Baoji Xian, which is about 60 km distant to the north by west from the type locality of *C. kitawakianus* nov. Further investigation is needed to prove if these two species occur sympatrically or are segregated on the same mountain range.

Another species belonging presumably to the same species-group, namely, *C. (O.) ohshimaianus* DEUVE has been known from Hubei (Shennongjia, situated at the western part of the province near the Sichuan borders) and the present new species must be compared with it. Although I know the Hubei species only from literature, these species appear readily discriminated from each other by much differently shaped aedeagal apex. In addition, such characters as position of the hairless depressions on the ventral surface of male antennae (recognised from segment 5 to 8 in *C. ohshimaianus*, 5 to 9 in *C. kitawakianus*), number of marginal setae of pronotum (two or three medio-anteriorly in *C. ohshimaianus*, constantly one in *C. kitawakianus*), and sculptural condi-

tion of elytra (triploid! according to the original description in *C. ohshimaianus*, heptaploid in *C. kitawakianus*) seem to be diagnostic.

This new species was obtained, together with *Carabus titanus* BREUNING, by using bait traps.

要 約

井村有希: 秦岭山脈から発見されたミヤマオサムシ亜属の1新種。—— 中国陝西省南部の秦岭山脈から得られたミヤマオサムシ亜属 *Oreocarabus* の1種を新種と認め、*Carabus (Oreocarabus) kitawakianus* IMURA, sp. nov. と命名して記載した。四川省と甘肅省から知られている *C. (O.) reitterianus* BREUNING に近いが、やや大型で細長く、触角がより長く、上翅間室の隆起がはるかに弱いほか、陰茎の形態が大きく異なり、さらに内袋先端部の射精孔縁膜に強い硬化と色素沈着がみられ頂板を形成する、といった形態的相違を有するので識別は容易である。*C. reitterianus* のほうも最近になって宝鸡県の秦岭山脈高所から記録されているので、同山脈に近縁の2種が生息していることになる。本種はまた、湖北省神农架から記載されている *C. (O.) ohshimaianus* DEUVE にも近いと思われるが、両者は陰茎先端の形態において大きく異なり、♂触角腹面にある無毛凹陷部の位置や前胸背板側縁の剛毛数、さらに上翅彫刻の形態にも違いがみられる。本新種は、同亜属中の最大種、*C. (O.) titanus* BREUNING とともに、周至县南西部から得られたものである。

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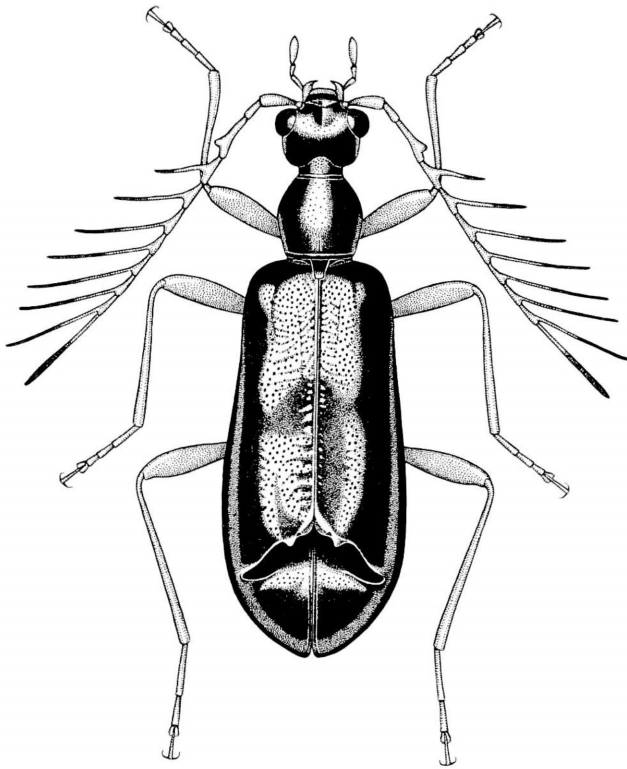
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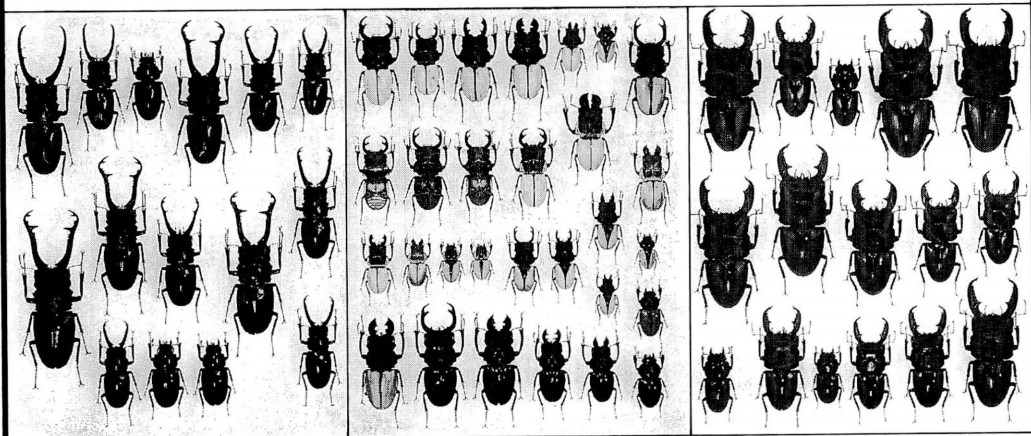
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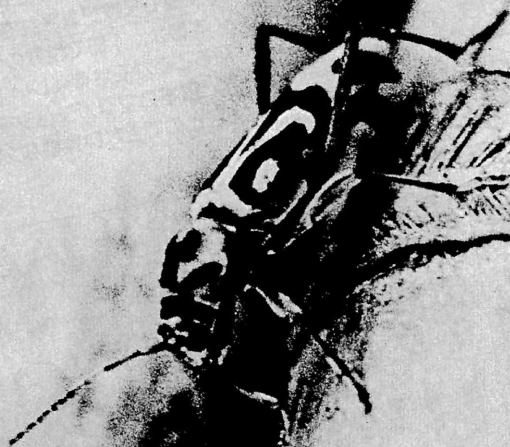
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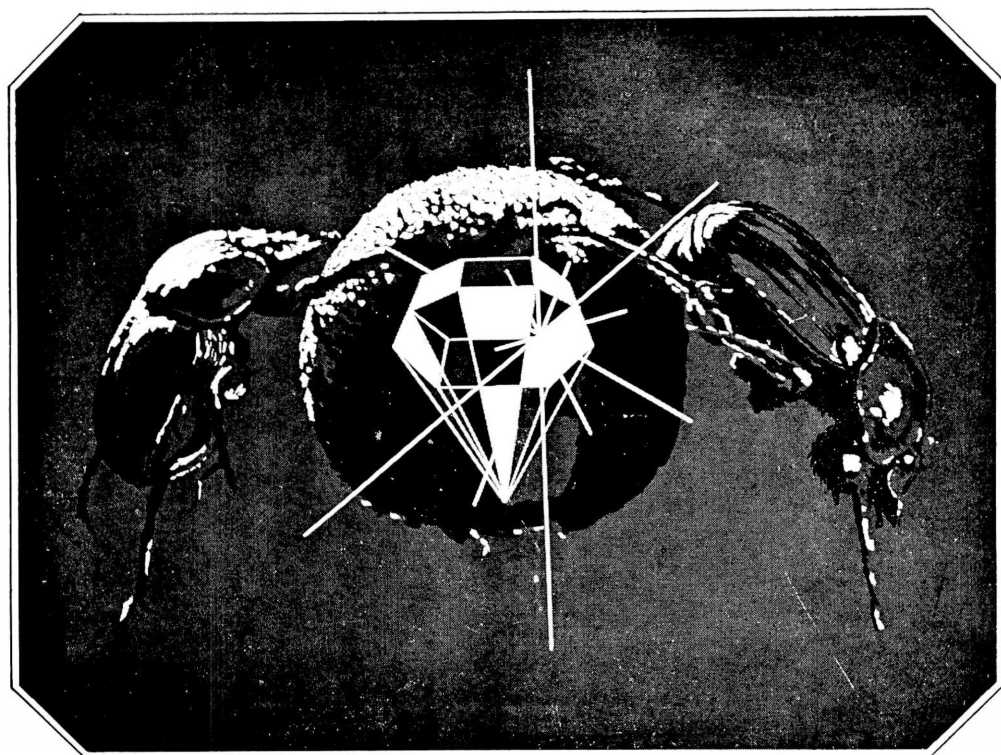
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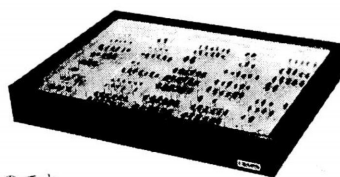
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