

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 UÉNO 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).

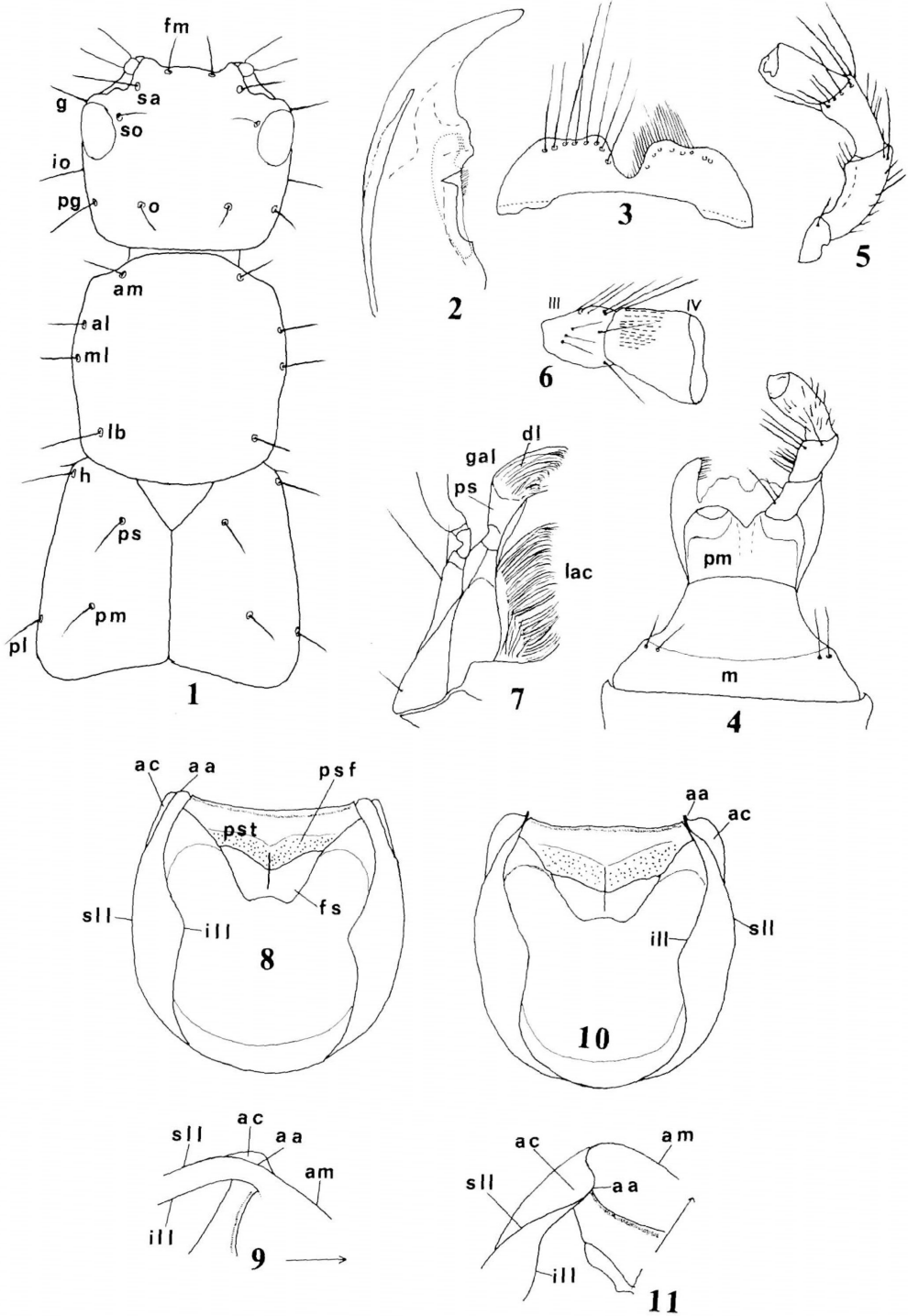
Terminal seta (ts) of galea (absent in the genus *Agelosus*)=one or some setae inserted at latero-apical corner of the proximal sclerite (sensu SAWADA 1972).

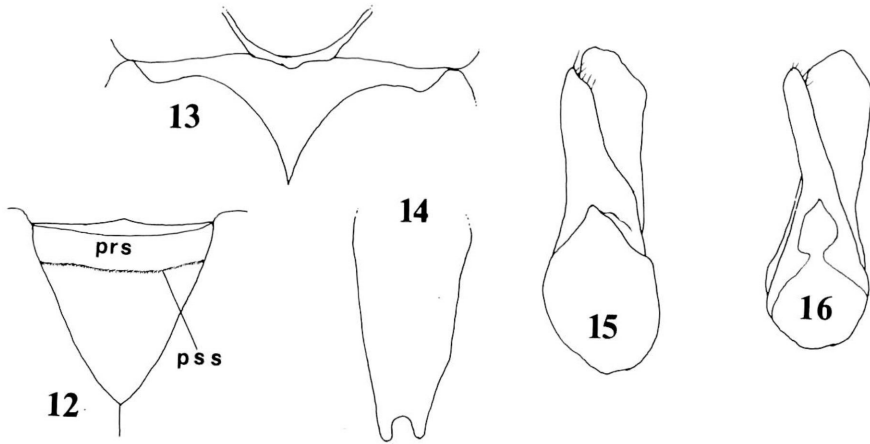
Large seta=characteristic large setae, mainly on each part of body.

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.

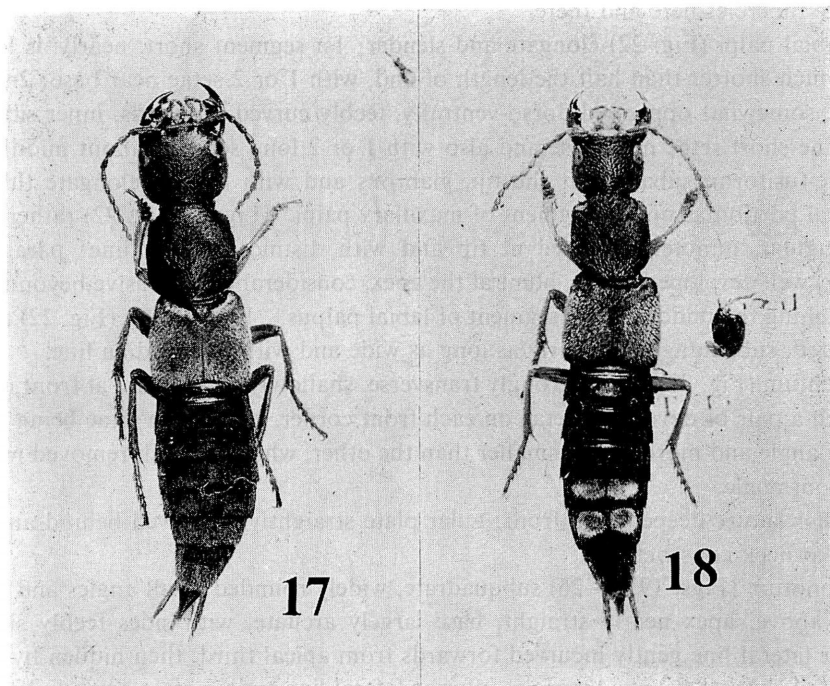
Anisolinus elegans SHARP (Figs. 19–32)

♂, 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.

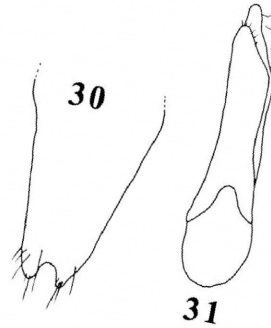
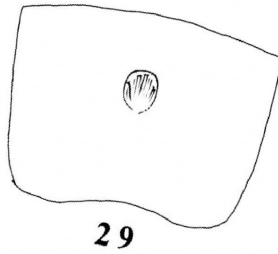
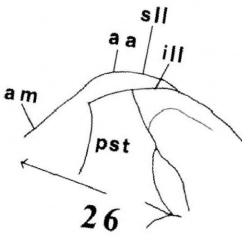
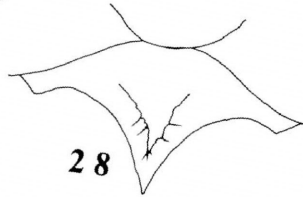
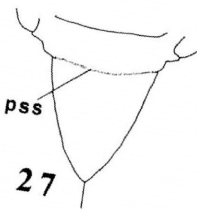
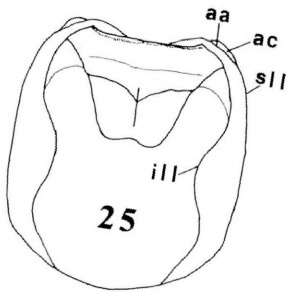
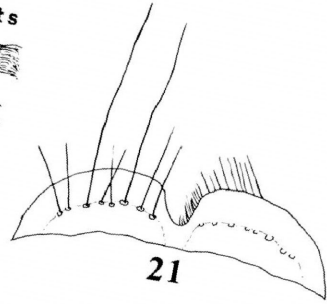
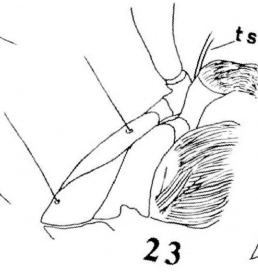
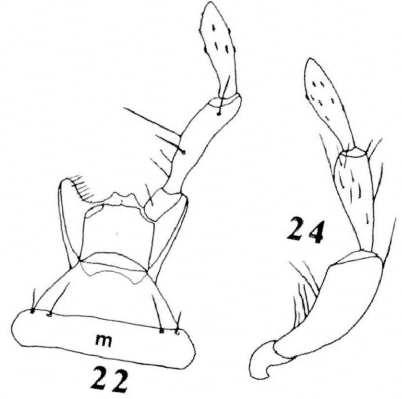
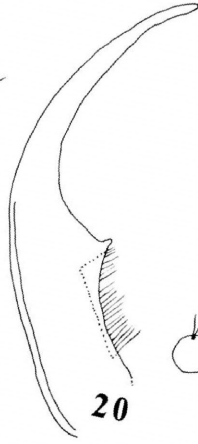
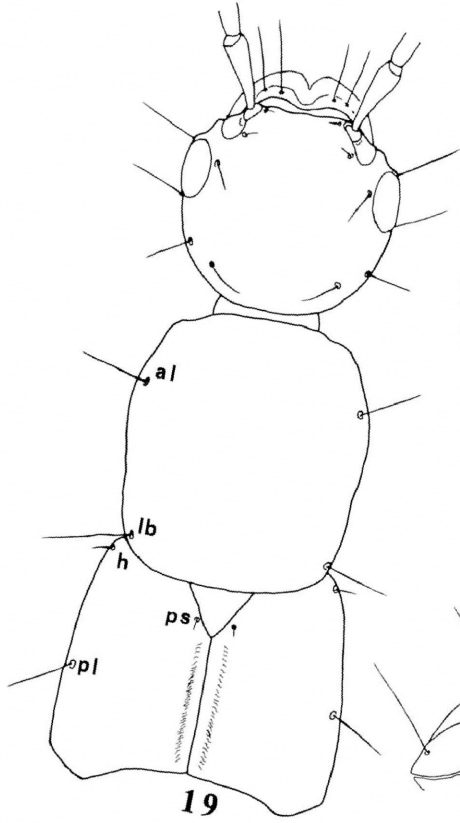
Scutellum (Fig. 27) subtriangular, blunt at the tip, punctured as on pronotum; prescutum well developed.

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)

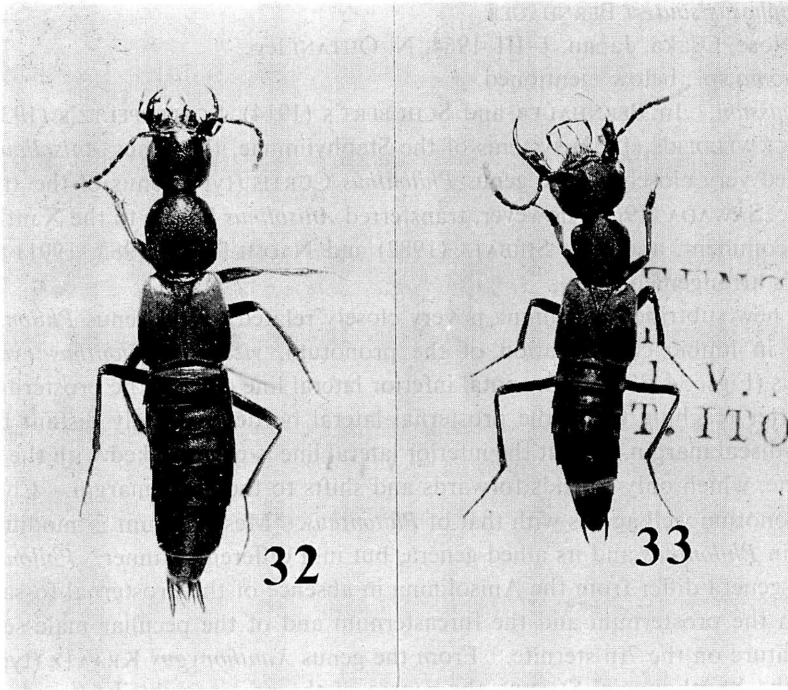
♂, Mailiru, Taiwan, 6–V–1966, N. ITO leg.

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 acutely 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, I-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.

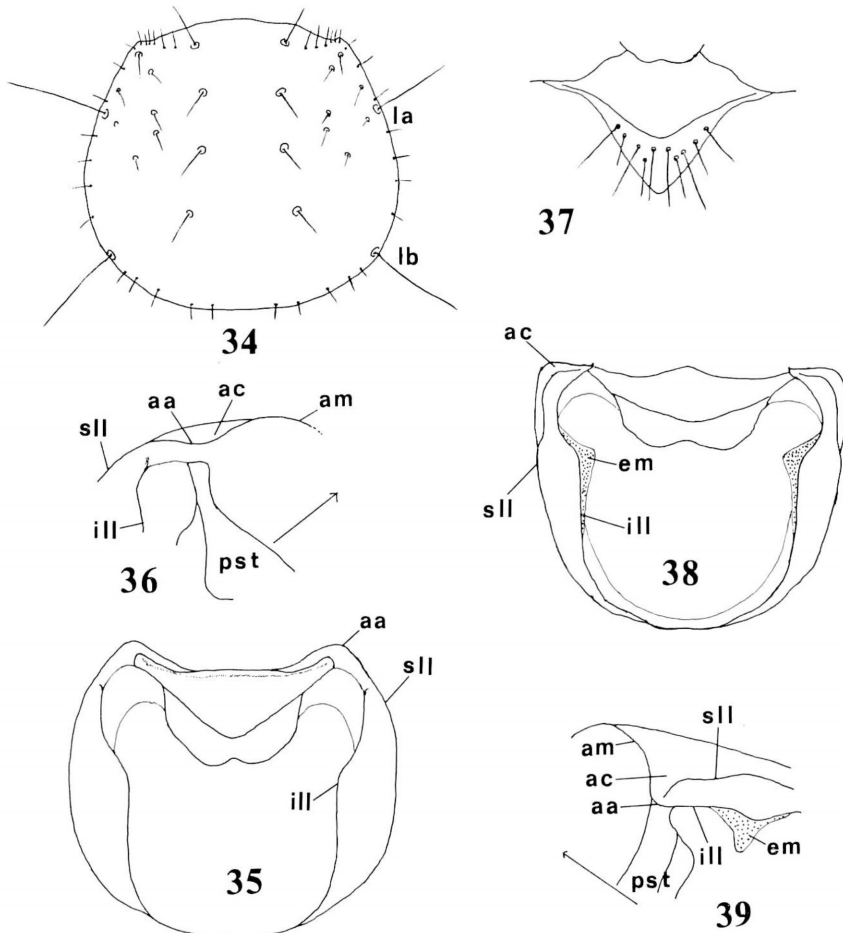
Paramichrotus NAOMI, 1982, Trans. Shikoku ent. Soc., 16: 37-39, figs. *Syn. nov.* (not *Paramichrotus* CAMERON, 1932).

Material examined:—

Hesperosoma miwai (BERNHAUER), 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.

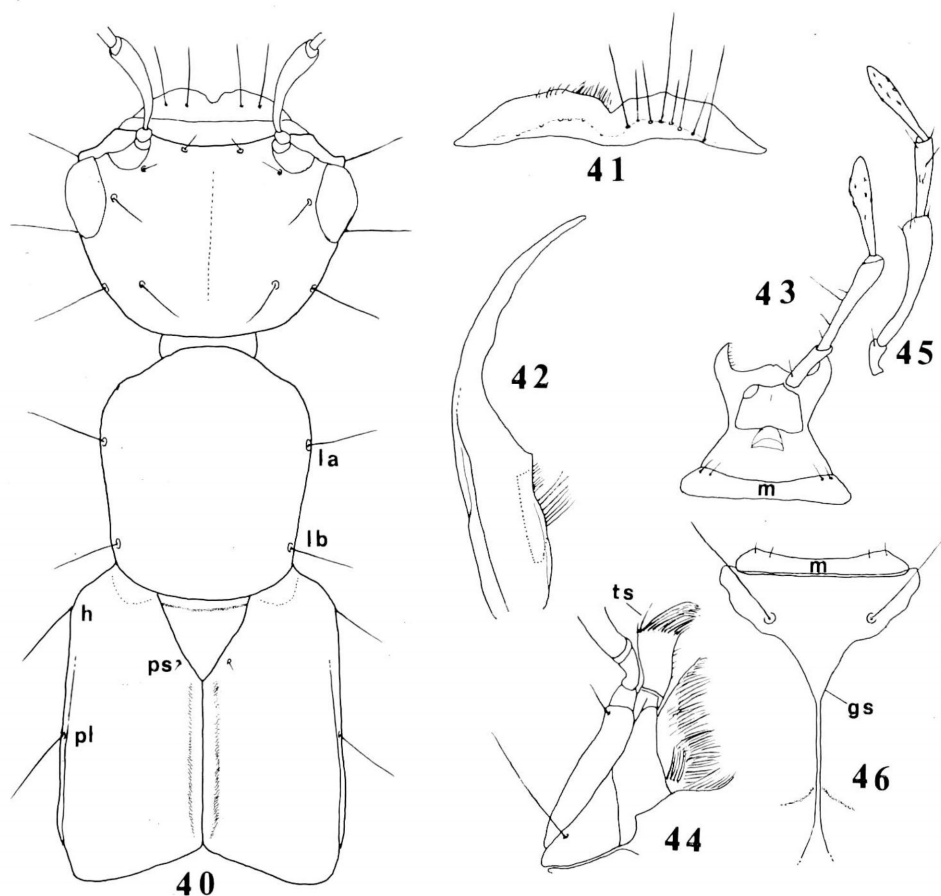
Galea (Fig. 44) thickened apicad; distal lobe with dense and incurved pubescence; proximal sclerite glabrous, with 2 fine and pale terminal setae. Lacinia (Fig. 44) moderately long and wide, densely pubescent, with several scanty long suberect pubescence near base. Maxillary palpus (Fig. 45) slender 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.

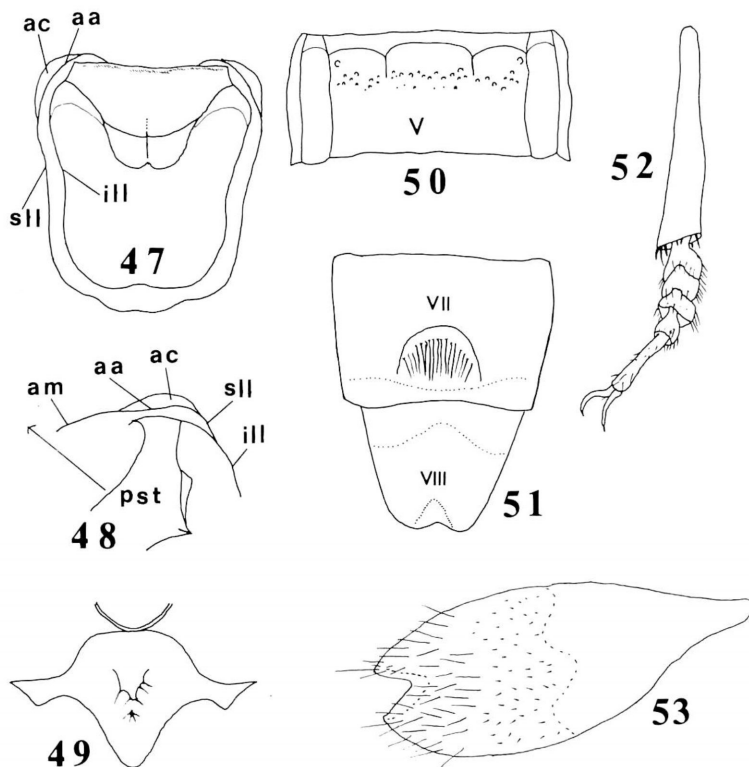
In the structure of the mouth organs and the chaetotaxy on the pronotum, this genus closely resembles the genus *Hesperus* FAUVEL. In the prothoracic configuration and the mesosternal structure, it is similar to the genus *Anisolinus* SHARP. In the peculiar structure of the male 7th sternite, it is similar 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 acicularly 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–

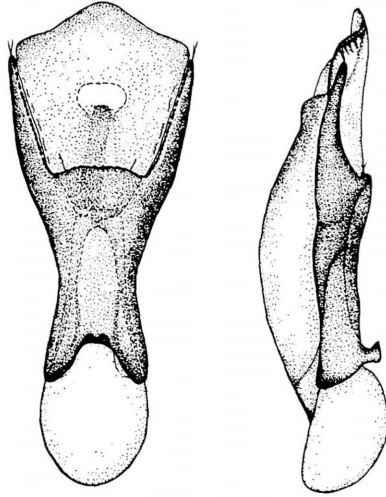


Fig. 54. *Hesperosoma miwai* (BERNHAUER); male genitalia (after SHIBATA, 1976).

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)

Ocypus 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.

Ocypus (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.

Ocypus lewisius SHARP has been treated as a species of the subgenus *Xanthocypus*, but it is neither a *Staphylinus* species nor an *Ocypus* 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 bidenticulate; 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 microsculpture, 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, acuminate 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ほぼ従っている。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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