

Studies on the Asian Staphylininae (Coleoptera, Staphylinidae)

III. The Characteristics of the Xanthopygini

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Abstract Characteristics of the tribe Xanthopygini and the genus *Xanthopygus* KRAATZ are reviewed, with redescriptions of *Xanthopygus xanthopygus* (NORDMANN) and *Xanthopygus cognatus* SHARP. The tribe is considered different from the Staphylinini and to bear a closer affinity to the Philonthini.

Introduction

The tribe Xanthopygini is a peculiar and important group of the subfamily Staphylininae. It comprises many genera, each consisting of rather a small number of species, and is distributed widely in the world; viz., many genera have been known in Central and South Americas, several in the Oriental Region, a few in the Far East, North America, Africa and Australia, respectively, and only one genus, *Creophilus*, is distributed worldwide.

The status of the Xanthopygini as a natural group is not sufficiently clear. It was SHARP (1885) who originally established Xanthopygina (=Xanthopygini) on the basis of several South American genera. Since then, however, most taxonomic knowledge of the Xanthopygini has been obtained from studies of Asian genera, and the Neotropical representatives have not been carefully scrutinized. Though about 20 staphylinid genera have hitherto been attributed to the Xanthopygini, most of them do not belong to that tribe but to the subtribe Anisolinina (HAYASHI, 1994). This confusion was caused from some ambiguity in SHARP's original description of the Xanthopygina and his later comment (1889) on the genus *Agelosus* SHARP.

For correct recognition of the Xanthopygini, it is indispensable to scrutinize its type genus *Xanthopygus*, on the basis of its type species, *Xanthopygus xanthopygus* (NORDMANN). Fortunately, I was able to make a close investigation of the morphological features of *Xanthopygus cognatus* SHARP through the courtesy of Dr. A. SMETANA, and recently I had an opportunity to re-examine 21 specimens of *Xanthopygus xanthopygus* (NORDMANN) and 1 specimen of *X. cognatus* SHARP in SHARP's collection preserved in the Natural History Museum, London. As the result, I can now clarify the true characteristics of the tribe Xanthopygini, which will be the subject of the present

paper.

In the first place I am going to summarize a historical review of the Xanthopygini with comment on its type species. Secondly, I will redescribe *Xanthopygus xanthopygus* (NORDMANN), *X. cognatus* SHARP, and the genus *Xanthopygus* KRAATZ. Finally, I will delimit the tribe Xanthopygini and the genera to be included in it.

Before going into further details, I wish to express my deep gratitude to Dr. Aleš SMETANA of the Eastern Cereal and Oilseed Research Centre, Agriculture and Agri-Food Canada, for giving me the opportunity to examine some xanthopygine species, *Xanthopygus cognatus* (SHARP), *Thinopinus pictus* LECONTE, *Hadrotus crassus* (MANNERHEIM) and *Xenopygus analis* (ERICHSON), and to Dr. Shun-Ichi UENO, Emeritus Curator of the National Science Museum (Nat. Hist.), Tokyo, for his careful criticism on the manuscript of this paper. I am also much indebted to Prof. Yasuaki WATANABE (Tokyo University of Agriculture), Mr. Yasutoshi SHIBATA (Machida-shi) and Mr. TATEO ITO (Yawata-shi) for their kind help in consulting literature and materials, and Miss Emma DE BOISE for the loan of the above mentioned specimens from the collection of the Natural History Museum, London. I am also indebted to Dr. J. MUONA, Finnish Museum of Natural History, Helsingfors, and Dr. V. GUSAROV, Zoological Institute of the Academy of Sciences of Russia, St. Petersburg, for information on the whereabouts of the type specimen of *Xanthopygus xanthopygus* (NORDMANN).

Terminology The main terminology and the abbreviations used herein are the same as those explained in the previous parts of this series of papers, with some additional ones as follows: infragenal line (igl)=the line (on the ventral side of head) running forwards from inside of neck constriction to about eye-level; subgena (sg)=the space between infragenal line and gular suture.

A Historical Review

When the "Xanthopygina" is treated as a subtribe, it was always placed in the tribe Staphylinini. At present, concept of the Xanthopygini supported by most researchers of the Staphylinidae is mainly based on SHARP's (1885), BERNHAUER's, SCHUBERT's (1914), SCHEERPELTZ's (1933) and CAMERON's (1932) opinions.

The genus *Xanthopygus* was established by KRAATZ (1858) for "*Staphylinus* Fam. VII ERICHSON, 1840" and *Philonthus* ERICHSON, 1840, *pro parte*. SHARP (1885) established the group Xanthopygina (=Xanthopygini) for the Neotropical genus-group and arranged it with *Quediina* (=Quediini) and *Staphylinina* (=Staphylinini). The genera included were arranged in the following order: *Tympanophorus* NORDMANN, *Selma* SHARP, *Xanthopygus* KRAATZ, *Lampropygus* SHARP, *Brachydirus* NORDMANN, *Plociopterus* KRAATZ, *Philothalpus* KRAATZ, *Gastrisus* SHARP, *Isanops* SHARP, *Styngetus* SHARP, *Ocyolinus* SHARP, *Phanolinus* KRAATZ, *Nausicotus* SHARP and *Glenus* KRAATZ. BERNHAUER and SCHUBERT (1914) added the following genera to the tribe after an analysis of earlier publications: *Pammegus* FAUVEL, *Agacerus* FAUVEL, *Dysanellus* BERNHAUER, *Hasuminus* FAIRMAIRE, *Triacrus* NORDMANN, *Colonia* OL-

LIFFIS, *Polyphemus* BERNHAUER, *Creophilus* MANNERHEIM, *Thinopinus* J. LECONTE, *Hadropinus* SHARP, *Hadrotes* J. LECONTE, *Liusus* SHARP, *Craspedomerus* BERNHAUER, *Agelosus* SHARP, *Paraxenopygus* BERNHAUER, *Eugastus* SHARP, *Stenopsis* BERNHAUER, *Trigonopselaphus* GEMMINGER et HAROLD, *Xenopygus* BERNHAUER and *Eurycnemus* BERNHAUER.

After BERNHAUER and SCHUBERT (1914), several genera were added to the group by BERNHAUER, CAMERON and SCHEERPELTZ. It seems to me that CAMERON (1932) was the first who redescribed the Xanthopygi after SHARP. His redescription is somewhat different from SHARP's original one; however, he put too much stress on the condition of the "superior lateral line of pronotum", which is, according to him, "continued directly to the anterior angles without being united in any way with the inferior line in its course" (CAMERON, 1932). If we follow his concept, even *Philonthus cyanipennis* FABRICIUS must be included in the Xanthopygini.

SCHEERPELTZ (1940) described characteristics of the Palearctic Xanthopygi in his key to the Palearctic Staphylinidae and stated that "Epipleuron der Vorderbrust zwischen der oberen äußeren Seitenlandlinie des Haldschildes und der inneren unteren Seitenrandlinie der Epipleuren ohne Schräglinie, der Zwischenraum zwischen beiden Randlinien breiter oder schmaler, aber leer." This means that the superior lateral line of pronotum is more or less distant throughout from the inferior lateral line.

BLACKWELDER (1943) designated *Staphylinus xanthopygus* NORDMANN as the type species of the genus *Xanthopygus* KRAATZ, and pointed out that the Xanthopygina should be ranged on the same rank as the Staphylinina and the Quediina, though he did not clarify characteristics of the Xanthopygina as a subtribe or tribe. He (1952) also designated type species of all the xanthopygine genera and gave their systematic arrangement in a table.

Some more so-called xanthopygine genera were added to the group by SCHEERPELTZ, SMETANA, SAWADA and others. SAWADA (1961) transferred the genera *Anisolinus* SHARP and *Amichrotus* SHARP to the Xanthopygi without comment. SCHEERPELTZ (1964) gave a generic key to the Oriental Xanthopygi in his sense (1940), and added some new genera. MOORE and LEGNER (1974) summarized diagnostic characters of the Xanthopyginae in a key to the North American genera. COIFFAIT (1974) described characteristics of the West Palearctic Xanthopygi in the sense of CAMERON in a key and gave redescrptions. SMETANA (1977) discussed delimitation of the Quediini and transferred the genera *Algon* SHARP, *Rientis* SHARP and *Brachycamonthus* BERNHAUER to the Xanthopygi with some notes. He (1988) also pointed out that the genus *Barypalpus* CAMERON belongs to the Xanthopygi. NAOMI (1982-'83) reviewed the Japanese species of the Xanthopygina and published some opinions on their taxonomy. They are important and useful, but his Xanthopygina is a composite of heterogeneous groups. Though HAYASHI (1993) transferred some of them to the Anisolinina HAYASHI (*Philonthini*), several non-xanthopygine genera still remain in the tribe.

In short, the Xanthopygini has been mainly studied on the Palearctic and Oriental genus-group after its establishment. The tribe is, however, originally based on a

Neotropical genus, and a careful review of the Neotropical genera is urgently needed for correct recognition of the Xanthopygini.

The Type Species of the Genus *Xanthopygus*

The genus *Xanthopygus* and its component species were not revised taxonomically until BLACKWELDER (1943) referred to them in his monograph of the West Indian staphylinids. He pointed out that the type species of the genus was fixed by KRAATZ with an absolute tautonymy. It is, therefore, very important to correctly recognize *Xanthopygus xanthopygus* (NORDMANN) for defining the Xanthopygini. On the other hand, SHARP (1885) indicated that *Xanthopygus xanthopygus* in the sense of ERICHSON (1840) is not true *X. xanthopygus* (NORDMANN), and treated it as a synonym of *Xanthopygus cognatus* SHARP. A comparison of *Philonthus xanthopygus* sensu ERICHSON (1840) with *Xanthopygus cognatus* SHARP proves that SHARP's synonymization may be reasonable. ERICHSON's "*Xanthopygus*" is apparently different from NORDMANN's species in the punctuation of pronotum.

According to Mr. J. MUONA (pers. comm.), the type specimen of *X. xanthopygus* (NORDMANN) should be deposited in the Finnish Museum of Natural History, Helsingfors, but it was not found there and seems to have gone to St. Petersburg together with most of NORDMANN's fossil insects. Dr. V. GUSAROV informed me that the type was not found in the Zoological Museum of St. Petersburg, and that he was unable to find it out in the Museum of Odessa, Ukraine, either (pers. comm.). Thus, the present whereabouts of the type specimen is unknown.

I agree with SHARP's opinion, however, since the concept of the tribe Xanthopygini does not change even if the whereabouts of the type specimen of *Staphylinus xanthopygus* NORDMANN becomes clear. I am therefore going to redescribe these two species in the present paper.

Xanthopygus xanthopygus (NORDMANN)

(Figs. 1-18)

Staphylinus xanthopygus NORDMANN, 1837, Symbolae, 45-46. (Type area: Oaxaca in reg., Mexico).

Lampropygus xanthopygus: SHARP, 1884, Biol. Centr.-Amer., 1 (2): 347. — BERNHAUER & SCHUBERT, 1914, Coleopt. Cat., (57): 407.

Xanthopygus xanthopygus: BLACKWELDER, 1943, Bull. U. S. natn. Mus., 182: 449-450.

Xanthopygus abdominalis GEMMINGER et HAROLD, 1868, Cat. Coleopt. 2: 597.

Male. Body robust, rather wide and flattened above, moderately shining; colour black, 7th to anal segments of abdomen clear orange yellow, mouth organs and legs pitchy black, base of 2nd antennal segment reddish, elytra with very weak violaceous lustre, and abdomen faintly iridescent; hair colour same as the ground coloration. Length: 13-21 mm.

Head (Figs. 2, 4-5) large, transversely subquadrate, slightly narrowed posteriad, a

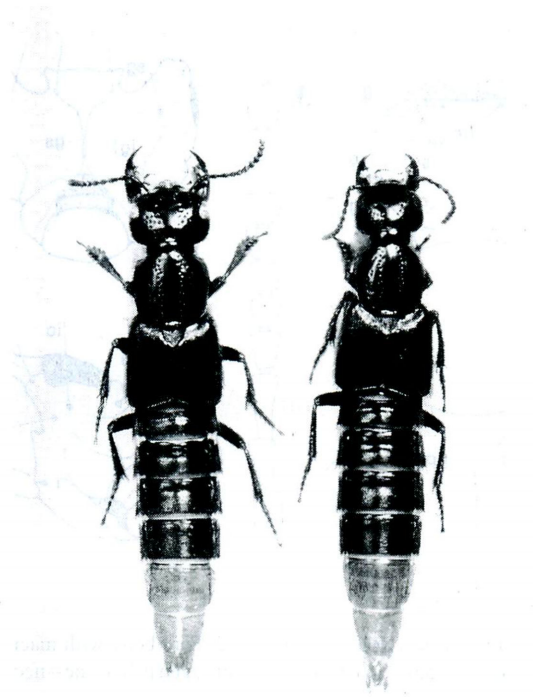
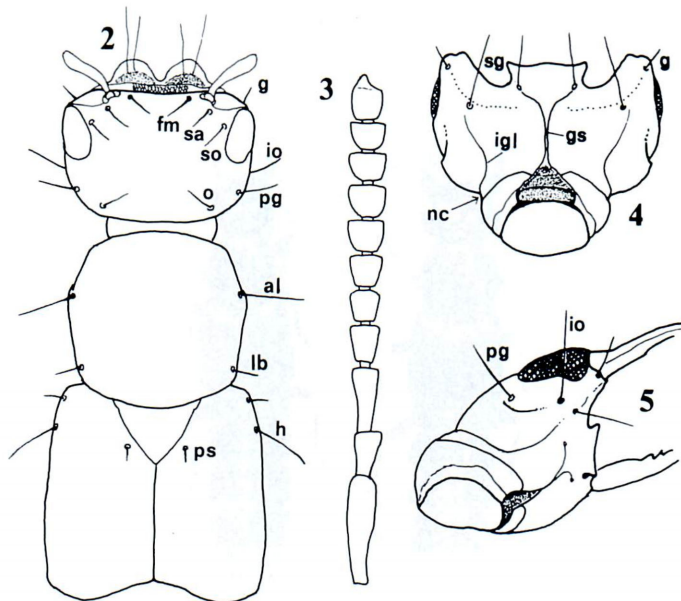


Fig. 1. *Xanthopygus xanthopygus* (NORDMANN). Left: male; right: female.

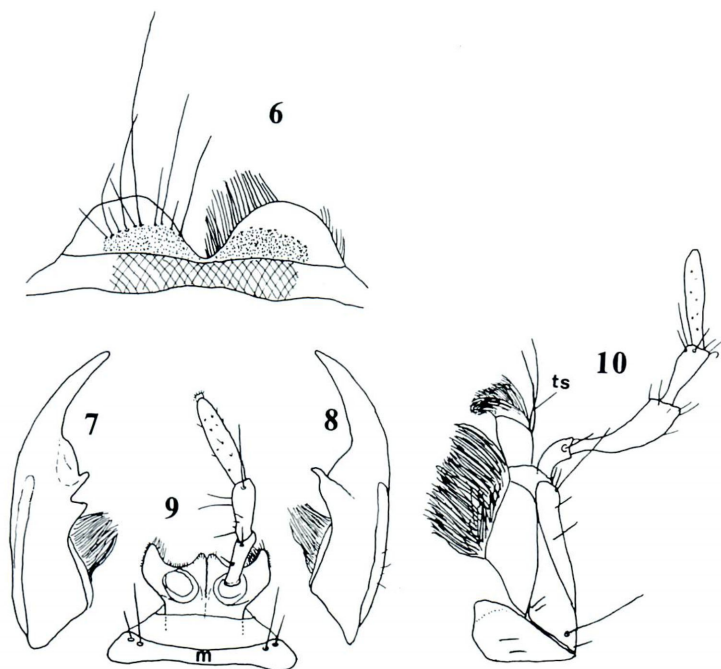
little more than 1.5 times as wide as long, slightly wider and much shorter than pronotum (57.0:54.0 & 36.0:52.0), feebly arcuate at sides, nearly straight at base and widely rounded at hind angles; upper surface weakly convex though nearly flattened or faintly depressed in frontal portion, coarsely and rather closely punctured on supraorbital, postgenal and occipital portions, frons and vertex very sparsely punctured, median region nearly impunctate, the punctures rather irregular in the size and distribution, the punctures on postgenae arranged in some loose oblique rows, and the interspace very sparsely and minutely punctured, with faint and fine linear microsculpture; postgena bearing a curved fine deep sulcus, convex beneath, clearly defined by a finely impressed infragenal line (the line well defined, reaching about the mid-eye level) from subgenae, which is finely and very sparsely punctured and covered with fine linear microsculpture; chaetotaxy consisting of 7 pairs of macrosetae, which are well developed except for mal-developed genal one, postgenal and occipital ones placed rather posteriorly. Eye moderate in size, located rather upwards, convex and a little shorter than postgena (15:18). Antennae (Fig. 3) moderate in length, reaching the middle of pronotum, thick and slightly thickened apicad; basal 3 segments polished and much longer than wide, 4th slightly longer than wide, 5th nearly as long as wide, 6th to 10th more



Figs. 2-5. *Xanthopygus xanthopygus* (NORDMANN). — 2, Fore body with macrosetae; 3, right antenna; 4, head, ventral view (sg=subgenal macroseta; igl=infragenal line; nc=neck constriction); 5, ditto, oblique right ventral view.

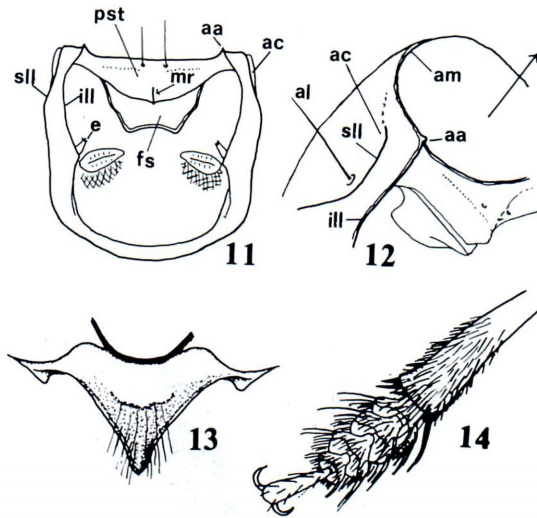
or less wider than long, 8th to 10th almost equal in width to one another and the thickest, and 11th a little longer than wide, subovate and obliquely emarginate at apex; respective segments with the following relative lengths: 25.0-10.0-14.5-8.0-7.0-7.0-7.0-7.0-6.5-6.0-11.0.

Labrum (Fig. 6) rather short, bilobed, widely and deeply emarginate at the middle; each lobe rounded in front, semitransparent in anterior half, bearing about 7 long setae on transverse middle line and densely pubescent at inner half of front margin, two of them much longer than the others; the space between labrum and front margin of head not wholly membranous but forming a distinctly leathery transverse soft plate. Mandibles (Figs. 7-8) thick, nearly 1.3 times as long as head, nearly straight in basal two-thirds and gently arcuate in apical third, the left mandible bearing 2 large blunt teeth at about the middle; prostheca unilobed, elongate and closely pubescent along inner margin. Maxillary palpi (Fig. 10) long and slender; 1st segment very short but a little longer than wide, gently curved, with 1 or 2 short fine setae near apex; 2nd long, distinctly longer and a little thicker than 3rd, gradually thickened apicad, feebly curved, with a few fine setae of various length mainly at about apex; 3rd subclavate, gently thickened apicad, straight, a little shorter than 4th, with a few fine setae mainly at about apex; 4th elongate, straight, subcylindrical, blunt at the tip, slightly slenderer than 3rd, a little shorter than 2nd, glabrous but bearing sparse elongate punctures and



Figs. 6–10. *Xanthopygus xanthopygus* (NORDMANN). — 6, Labrum; 7, left mandible; 8, right mandible; 9, labium; 10, maxilla.

much sparser minute punctures on basal half of dorsal side. Galea (Fig. 10) thick and subfusiform; distal lobe densely pubescent, bearing a few hard erect pubescence at the tip; proximal sclerite glabrous on ventral face, bearing 2 terminal setae at apex and fringed with sparse pubescence at inner dorsal edge; lacinia (Fig. 10) rather short, moderately wide, densely pubescent, with fine suberect setae at base. Labial palpi (Fig. 9) elongate; 1st segment straight, much longer than wide, gradually thickened apicad, with 2 fine setae, one of them being located near base and the other near apex; 2nd very similar in shape to 1st, nearly as long as but slightly thicker than 1st, with a few setae, one lying near base and the rest at apex; 3rd very elongate, nearly twice as long as and slightly slenderer than 2nd, subclavate, blunt at the tip, thickest at about apical third, very sparsely and minutely punctured with very fine and short hairs. Ligula (Fig. 9) short, wide, roundly produced, with a small excision at the tip. Paraglossa (Fig. 9) not long, wide, densely pubescent along inner margin. Prementum (Fig. 9) transverse, subtrapezoidal and longitudinally convex on both sides. Mentum (Fig. 9) short, very transverse, well sclerotized, feebly emarginate at well-defined front margin, with a pair of setae at each front corner, the outer one of the setae short, the inner one long, stout and widely separated from the former. Gular plate (Fig. 4) narrow, very narrow in posterior third like a sulcus, then abruptly widened posteriad, and forming a shallow triangular fovea behind neck constriction.



Figs. 11–14. *Xanthopygus xanthopygus* (NORDMANN).—11, Prothorax, ventral view (e=epimeron; mr=median ridge); 12, ditto, oblique right ventral view; 13, mesosternum; 14, protarsus.

Pronotum (Figs. 2, 11–12) subhexagonal, widest at about anterior two-fifths, straightly and much more strongly narrowed posteriad than anteriorly, slightly wider than long (54.0:52.0), a little narrower than (54.0:66.0) and as long as elytra (but much shorter than the maximum length of elytra as 49.0:63.0), apical margin nearly straight, basal one feebly arcuate, apical angles nearly rectangular, basal ones widely rounded; disc gently convex, covered with extremely fine linear microsculpture, bearing a pair of longitudinal series of setiferous punctures along the middle, each series consisting of about 20 coarse punctures (the punctures partly duplicate in arrangement) and lateral sides of the median series numerous, irregularly and coarsely punctured, front corners densely punctured, and all margins closely so, the punctures irregularly coarse; chaetotaxy composed of 2 pairs of well developed macrosetae, antero-lateral seta lying a little before the widest point of pronotum and a little distant from superior lateral line, and latero-basal one at hind angle; apical corner narrow, slightly protuberant laterad beyond superior lateral line; superior lateral line gently incurved forwards from the widest point of pronotum, then hidden by the apical corner, abruptly vanishing after arriving at the apical angle and never linked with inferior lateral line, so that the inferior lateral line only extends forwards and shifts to pronotal apical margin. Epimera (=hypomeran projection) present, small and finely ciliate at the tip. Scutellum flattened, very densely and coarsely punctured, with suberect pubescence; prescutum well developed.

Elytra (Fig. 2) subquadrate, slightly dilated posteriad, very feebly arcuate at sides, shallowly emarginate at apices, with latero-apical angles widely rounded; surface rather flattened, moderately coarsely, rather densely and roughly punctured, with faint

and very sparse linear microsculpture, the punctures a little smaller than those on scutellum and with rather long and recumbent fine setae; chaetotaxy consisting of 2 pairs of well developed macrosetae and a pair of large setae, humeral macroseta just behind tip of shoulder, parascutellar one just beside the middle of scutellum, and large seta at tip of shoulder; sutural space weakly convex but without distinct parasutural line.

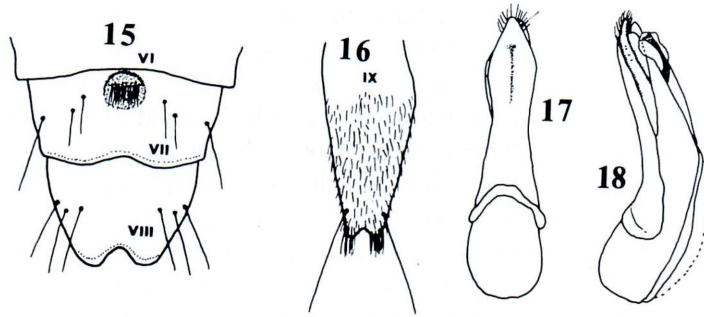
Prosternum (Figs. 11–12) rather strongly convex in middle, distinctly ridged medially and with a pair of large setae before the middle of the convexity, hind margin weakly ridged, and prosternal process aciculary protuberant; lateral borders short, completely united with pronotal inferior lateral line at the apical angles; prosternal fossae shallow, ill-defined anteriorly. Furcasternum rather short, not carinate medially. Ventral membrane of prothorax distinctly leathery just behind large stigmata.

Mesosternum (Fig. 13) wide, nearly flattened, weakly convex in middle, without any transverse carinae, scattered with sparse and small tubercles on anterior half which is rough and undulate, smooth and covered with linear microsculpture on posterior half, the convexity fringed with several setiferous asperate punctures at the posterior margin; mesosternal process wide, not long, subacute at the tip and bearing medially a low and loose ridge; intersternal piece hardly sunken. Mesocoxae widely separated.

Abdomen nearly parallel-sided, rather finely and sparsely punctured, with stiff recumbent pubescence, the punctures much sparser on sternites, a little denser and smaller on 7th and 8th tergites; 3rd to 5th tergites each shallowly depressed at the base; 7th sternite (Fig. 15) bearing a large, circular and shallow fovea in middle, the fovea with a tuft of sparse long stiff suberect hairs, with 3 pairs of long stiff setae, and apical margin shallowly emarginate; 8th sternite (Fig. 15) widely, deeply and subtriangularly emarginate at apical margin and bearing 3 pairs of long, black and suberect setae; 9th sternite (Fig. 16) subfusiform, shallowly excised at apex and bearing a pair of conspicuously long, stiff and erect setae before apex; pleurites rather short, thick, blunt at apex and with 4 large setae just behind the middle; 10th tergite truncate at apex.

Legs moderately thick, stout and rather long; protibiae (Fig. 14) with very short and sparse spines except for apical ones; protarsi (Fig. 14) moderately dilated in basal 4 segments, slightly narrower than apex of protibia, with dense agar-like whitish pubescence on their plantars; mesotibiae numerous spinous; metatibiae sparsely spinous; 1st segment of metatarsus nearly equal in length to the following 3 segments together; empodial setae paired, fine, much shorter than claws, the inner seta somewhat longer than the outer one.

Male genitalia (Figs. 17–18) rather thick, gently curved ventrad, nearly symmetrical but somewhat curved and twisted to the left; penis not elongate, feebly emarginate in middle, gently tumid at base and apical third, apical portion subcylindrical and blunt at the tip, dorsal side weakly sclerotized, rather membranous; parameres unilobed, nearly as wide as penis, extending slightly beyond it, slightly dilated at base and apical third, gradually narrowed towards rounded tip, fringed with a few short fine setae at the tip and bearing about 5 short fine setae just before the tip, finely transversely rugose in apical portion and with a faint median impression in apical third, inner (dorsal) surface



Figs. 15–18. *Xanthopygus xanthopygus* (NORDMANN).— 15, Sixth to 8th abdominal sternites of male; 16, male 9th abdominal sternite; 17, male genitalia, ventral view; 18, ditto, lateral view.

bearing close peg setae (sensu SMETANA, 1977) in a row on the apical two-fifths of the margins and very sparsely so in middle.

Female. Head and pronotum relatively but distinctly smaller, head nearly 1.3 times as wide as long, as wide as and a little shorter than pronotum (36 : 49); eyes relatively large, nearly as long as postgenae; mandible rather short, slightly shorter than head; pronotum as long as wide, much narrower and a little shorter than elytra (49 : 66 & 49 : 52); 10th tergite shallowly sulcate medially in posterior third; 8th sternite feebly arcuate at apex; protarsus less widely dilated, slightly narrower than apex of protibia.

Specimens examined. 6 ♂♂, 7 ♀♀, Oaxaca, Mexico, HOEGE leg.; 1 ♂, Plandel Rio, Mexico, HOEGE leg.; 1 ♂, Mexico, HOEGE leg.; 1 ♀, Mexico; 1 ♂, 1 ♀, Guanajuato, Mexico, SALLE leg.; 1 ♂, 1 ♀, Ilohr, Mexico; 1 ♂, Cuernabeca, Mexico, SALLE leg. (All the specimens belong to SHARP's collection in the British Museum).

Notes. The materials examined are slightly different from the original description in the elytral colour which was described as "...; elytris nigrocoeruleis, ...". In other respects, however, the present specimens agree well with the original description.

Xanthopygus cognatus SHARP

(Figs. 19–26)

Xanthopygus cognatus SHARP, 1876, Trans. ent. Soc. London, **1876**: 131–132 (type locality: Ega, Mexico). (In coll. British Museum of Natural History).

Lampropygus cognatus: SHARP, 1884, Biol. Centr.-Amer., **1** (2): 347–348. — BERNHAUER & SCHUBERT, 1914, Coleopt. Cat., (57): 406.

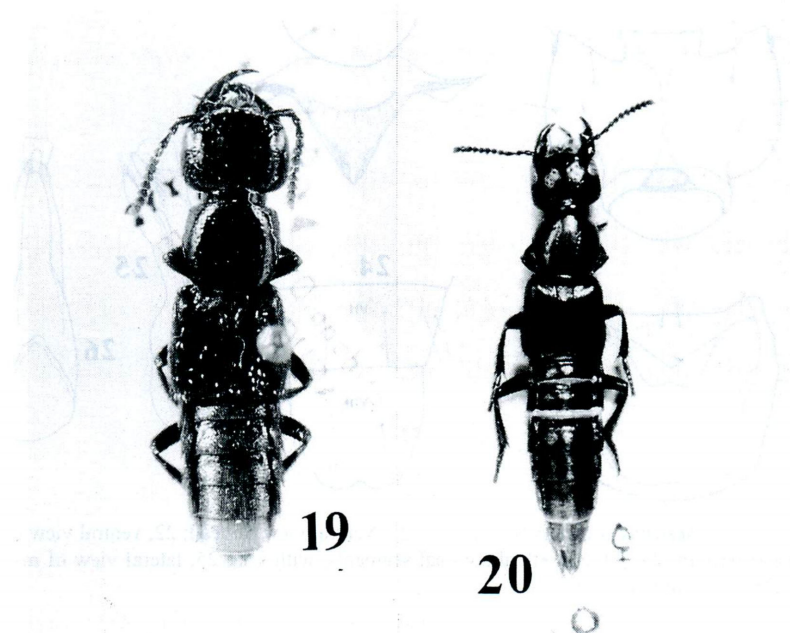
Philonthus xanthopygus: ERICHSON, 1840, Gen. et Spec. Staph., 496 (ex parte).

Staphylinus xanthopygus: SHARP, 1876, Trans. ent. Soc. London, **1876**: 131. — SHARP, 1884, Biol. Centr.-Amer., **1** (2): 347.

Xanthopygus cognatus: BLACKWELDER, 1943, Bull. U.S. natn. Mus., **182**: 450–451.

Xanthopygus cognatus var. *minor* SHARP, 1876, Trans. ent. Soc. London, **1876** (after SHARP, 1884).

The present species is very similar in general appearance and coloration to *Xanthopygus xanthopygus* (NORDMANN) but may easily be distinguished from the latter by



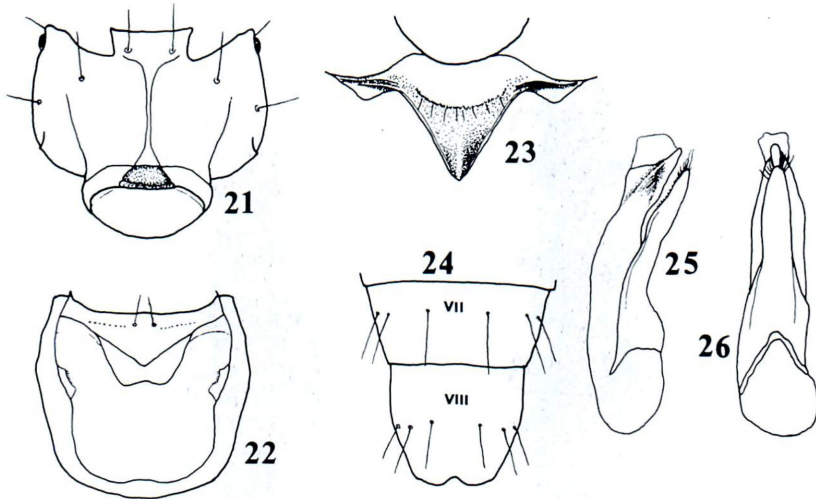
Figs. 19–20. *Xanthopygus cognatus* SHARP. — 19, Male; 20, female.

much sparser punctures on head and pronotum. Antennae with 4th to 10th segments brownish black and 11th pale brownish; elytra dark bluish black; abdomen rather strongly iridescent, with 6th segment very narrowly but distinctly orange red at the apex. Length: 14.5–18.5 mm (in the specimens examined).

Male. Head transversely subtrapezoidal, slightly narrowed anteriorly, nearly 1.5 times as wide as long, a little wider and shorter than pronotum (37:32 & 25:30.5); upper surface nearly flattened or faintly depressed in frontal area, moderately coarsely, irregularly and very sparsely punctured (similar in distribution to those of *X. xanthopygus*) except that marginal area of occiput is densely so. Eyes rather small, considerably shorter than postgenae (15.0:20.0). Mandibles not so long, nearly as long as head. Antennae rather short, not reaching the middle of pronotum, 4th to 10th segments more or less wider than long, and respective segments with the following relative lengths: 25.0–11.0–15.0–7.0–7.5–7.0–7.0–7.5–7.0–11.0.

Gular plate (Fig. 21) very narrow in posterior two-thirds like a sulcus, then abruptly dilated posteriorly just before neck constriction and becoming a large and shallow trapezoidal fovea behind the constriction.

Pronotum slightly wider than long (32.0:30.5), a little narrower (8:10) and as long as elytra (but shorter than the maximum length of elytra as 30.5:37.0); disc bearing a pair of longitudinal median rows of about 11 setiferous coarse punctures and an



Figs. 21–26. *Xanthopygus cognatus* SHARP. — 21, Ventral view of head; 22, ventral view of prothorax; 23, mesosternum; 24, 7th and 8th abdominal segments, with seta; 25, lateral view of male genitalia; 26, ventral view of male genitalia.

arched irregularly duplicate row of about 20 ones on each lateral side, and rather sparsely and coarsely punctured on front corners; apical angles barely or hardly visible (in ventral view). Epimeron (=hypomerall projection) wide, rather short, truncate at ciliate apex.

Elytra rather sparsely, finely and not roughly punctured, the punctures considerably smaller than those on scutellum, with long and stiff recumbent pubescence; sutural space feebly convex.

Prosternum (Fig. 22) strongly convex in middle, not ridged medially; hind margin conspicuously ridged, prosternal fossae shallow, clearly defined anteriorly with a transverse row of minute punctures.

Mesosternum (Fig. 23) bearing a short transverse carina on each side, feebly and unevenly convex in middle, scattered with sparse small tubercles on anterior half, smooth and glabrous on posterior half; mesosternal process wide, conspicuously carinate in apical portion and subacute at the tip.

Abdomen (Fig. 24) with 7th sternite simple, without any secondary sexual character; 8th sternite with shallow and rather small emargination at apex; 9th sternite narrowly and rather deeply notched at apex (with a pair of conspicuously long and suberect setae as in *Xanthopygus*).

Protibia not spinous except for apex; protarsus conspicuously dilated in basal 4 segments and distinctly wider than apex of protibia.

Male genitalia (Figs. 25–26) almost symmetrical; penis rather thick, feebly curved ventrad, gently narrowed apicad, base fairly tumid, apical portion oppressed lat-

erally, much narrowed on the ventral side like a prow, widely and triangularly protuberant dorsad on both sides, faintly rugose on lateral face and somewhat inclined to the left and blunt at the tip; parameres unilobed, gently narrowed apicad, rounded at the tip, not reaching apex of penis, and bearing about 5 fine setae at each side of the tip, inner (=dorsal) face scattered with numerous black granules (=peg setae) along the edge of apical third.

Female. Head and pronotum distinctly smaller than in male as in *xanthopygus*, head nearly 1.4 times as wide as long, as wide as and a little shorter (51:67) than pronotum; mandibles slightly shorter than head; pronotum a little narrower (71:87) than and nearly as long as pronotum (but considerably shorter than maximum length of elytra as 67:85); 8th sternite gently arcuate at apex; 10th tergite faintly impressed medially in apical half; protarsus less widely dilated, a little narrower than apex of protibia.

In other respects this species very closely resembles *X. xanthopygus*.

Material examined. 2 ♂♂, 12 k.w. Olanchito, Honduras, 27–XI–1948 and 28–II–1949, E. C. BECKER leg.; ♀, Chontales, Nicaragua (Brit. Mus.).

Notes. Though the present species is remarkably similar in general appearance to *X. xanthopygus*, it is easily distinguishable from the latter by smaller number (about eleven) of serial punctures in each median row on pronotum. *Xanthopygus cognatus* is rather different from *xanthopygus* in some important characteristics as follows: prosternum not ridged medially, mesosternum with a distinct transverse carina on each side, and 7th sternite of male simple, without any secondary sexual features. However, the two species are basically almost identical with each other in the structures of the mouth organs, prothorax, mesonotum and the 9th abdominal sternite.

Previous Review of the Genus *Xanthopygus*

For understanding the characteristics of the tribe Xanthopygini, it is indispensable to clarify diagnostic characters of the genus *Xanthopygus* KRAATZ.

Since the original description, no close investigation has been made on the morphology of this genus. Only a small number of brief papers were published by SHARP, BERNHAUER and BLACKWELDER. SHARP (1876) pointed out some taxonomic problems, and later (1886) established *Lampropygyus* for *Xanthopygus xanthopygus* (NORDMANN) including *X. cognatus*. BERNHAUER (1906) erected *Heteropygyus* as a subgenus of *Lampropygyus*; BERNHAUER and SCHUBERT (1914) treated them as independent genera. SCHEERPELTZ (1933) followed their arrangement, while BLACKWELDER (1943) regarded *Lampropygyus* and *Heteropygyus* as junior synonyms of *Xanthopygus* and gave rather a brief redescription of *Xanthopygus*, with notes on taxonomic and nomenclatural problems. He (1952) also gave a note on the type species of *Xanthopygus*, early fixation, later citation and synonyms. HATCH (1957) described characteristics of *Xanthopygus* in his key to genera, but his *Xanthopygus* seems obviously different in the structure of mouth organs from correctly identified *Xanthopygus*.

Genus *Xanthopygus* KRAATZ

(Figs. 1–19)

- Xanthopygus* KRAATZ, 1857, Naturg. Ins. Dtschl., 539. — SHARP, 1876, Trans. ent. Soc. London, **1876**: 125–126; 1885, Biol. Centr.-Amer., **1** (2): 344. — BERNHAUER & SCHUBERT, 1914, Coleopt. Cat., (57): 407. — BLACKWELDER, 1943, Bull. U. S. natn. Mus., **182**: 449–450; 1952, *ibid.*, **200**: 405.
- Lampropygus* SHARP, 1885, Biol. Centr.-Amer., **1** (2): 346–347. — BERNHAUER & SCHUBERT, 1914, Coleopt. Cat., (57): 406. — BLACKWELDER, 1943, Bull. U. S. natn. Mus., **182**: 449–450; 1952, *ibid.*, **200**: 208.
- Heteropygus* BERNHAUER, 1906, Dt. ent. Z., **1906**: 195. — BERNHAUER & SCHUBERT, 1914, Coleopt. Cat., (54): 406. — BLACKWELDER, 1943, Bull. U. S. natn. Mus., **182**: 449–450; 1952, *ibid.*, **200**: 185.

Type species: *Staphylinus xanthopygus* NORDMANN (after BLACKWELDER, 1943).

Description. Body robust, wide, rather flattened above and shiny; head and pronotum not densely punctured, the punctures weakly umbilicate, interspace smooth and irregularly wide; elytra and abdomen rather densely punctured, interspaces shiny.

Head (Fig. 2) transversely subquadrate and feebly convex above; neck thick, much wider than half the width of head. Antennae filiform, rather short, with basal 3 segments polished. Eyes moderate in size, a little shorter than postgenae, placed upwards and convex. Chaetotaxy as shown in Fig. 2, genal seta only mal-developed, postgenal and occipital setae located near occipital margin; postgena rather convex beneath and bearing a short arcuate sulcus.

Mandibles (Figs. 7–8) thick, moderately long, about as long as head (relatively long in male than in female), subacute at the tip and feebly arcuate; left mandible bearing 2 large teeth at about the middle, and right one bearing a subcylindrical tooth, whose base is widened; prostheca unilobed, not long, with very long and dense pubescence.

Labrum (Fig. 6) moderate in length, wide, widely and deeply emarginate in middle, each half with about 10 long setae on transverse middle line, 1 or 2 of the setae much longer than the others, densely pubescent at about inner half of apical margin and sparsely so at outer fourth; interspace between labrum and frons widely leathery in the middle.

Galea (Fig. 10) nearly parallel-sided, thickly pubescent on distal lobe, smooth and bearing some well developed terminal setae in proximal sclerite. Lacinia (Fig. 10) wide, moderately long, densely pubescent, with sparse suberect hairs at the base. Maxillary palpi (Fig. 10) elongate, with 1st segment very short, a little longer than wide, weakly geniculate, with 1 or 2 fine short setae near apex; 2nd long, gently thickened apicad and feebly curved, much longer and a little thicker than the other segments, bearing a few fine setae of various length mainly near apex; subclavate, straight, a little shorter but thicker than 4th, with a few fine setae mainly near apex; 4th elongate, straight, subcylindrical, glabrous but bearing very sparse elongate punctures.

Labial palpi (Fig. 9) elongate; 1st segment straight, thickened at apex, much longer than wide, with 2 fine setae, of which one is located near base and the other at apex; 2nd straight, a little thickened at apex, nearly as long as and slightly thicker than

1st, with a few fine setae and a few additional short pubescence, one of the setae being located at the base and the other setae at about apex; 3rd very elongate, straight, subclavate, thickest at about apical third, much longer and slightly slenderer than 2nd, blunt at the tip, very sparsely and minutely punctured, with very fine short pubescence. Ligula short, wide, narrowly excised at apex, finely sulcate medially, and each tip rounded and with a few ciliae. Paraglossa rather long, rounded at the tip, apical portion sparsely ciliate at the outer margin and pubescent at the inner margin. Prementum rather short, subquadrate, finely impressed medially, only apical half being exposed.

Mentum (Fig. 9) short, very transverse, well sclerotized and shallowly emarginate at front margin, bearing two fine setae at each anterior corner, outer one of them much shorter than the inner which is rather distant from front angle.

Gular sutures (Figs. 4–5) strongly impressed, very close to each other in middle but abruptly divergent posteriad from just before neck constriction; gular plate shallowly foveate a little behind neck constriction.

Pronotum (Fig. 2) subhexagonal, widest before the middle, feebly arcuate at apex and base; disc feebly convex, with a pair of serial setiferous punctures along the middle, and numerous and coarsely punctate at the sides, interspaces shiny, covered with faint microsculpture; chaetotaxy composed of 2 pairs of macrosetae, antero-lateral seta well developed and located at the turning point of superior lateral line; superior lateral line gently incurved forwards from about the widest point of pronotum (the turning point of superior lateral line), then hidden by the apical corner, and abruptly vanishing after arriving at apical angle and never linked with inferior lateral line, so that inferior lateral line only extends forwards and shifts to apical margin. Hypomerall projection (=epimeron) present.

Scutellum large, triangular with prescutum well developed.

Elytra (Fig. 2) subquadrate, feebly emarginate at apices, flattened, sutural space slightly convex but without distinct parasutural line; surface rather densely and coarsely punctate, with fine recumbent setae, interspaces shiny, covered with weak and sparse microsculpture; chaetotaxy consisting of 2 pairs of macrosetae at the least, humeral macroseta well developed, located a little behind shoulder, parascutellar one mal-developed, lying near scutellum; epipleura not bordered above.

Prosternum (Figs. 11–12) rather strongly convex in the middle, lateral border long, tightly bounded with inferior lateral line of pronotum at apical angle; prosternal fossae shallow, bordered anteriorly with fine sparse punctures; median ridge distinct, sharp; prosternal process very short and sharply protuberant at the tip. Furcasternum not long, without median ridge.

Mesosternum (Fig. 13) feebly convex, with a wide and low convexity in the middle, finely and sparsely granulato-punctate on anterior half but smooth and covered with linear microsculpture on hind half, hind margin of the median convexity bearing several long-haired granulate punctures; mesosternal process wide, subacute at the tip, raised medially as a blunt ridge and conspicuously ridged at sides; intersternal piece only slightly sunken. Mesocoxae widely separated.

Abdomen subparallel-sided; 3rd to 5th tergites shallowly depressed at each base; male 7th sternite (Fig. 15) bearing a suboval, shallow and tufted fovea in the middle, with 3 pairs of long stiff setae, and feebly emarginate at apical margin; male 8th sternite triangularly emarginate at apical margin and with 3 pairs of long stiff setae; male 9th sternite excised at apex and bearing a pair of long stiff erect setae; pleurites rather short, thick, each blunt at the tip and bearing 4 long stiff setae near apex.

Male genitalia almost symmetrical (somewhat twisted to the left); parameres well developed and merging into one plate, inner (=dorsal) surface bearing rather numerous tubercles (=peg setae).

Legs stout and rather long; protibiae clavate, with very sparse short spines other than apical ones; protarsi strongly dilated in ♂ but weakly so in ♀, with dense agar-like pubescence on plantars; mesotibiae numerous spinous; metatibiae sparsely spinous; 1st segment of metatarsus nearly as long as the following 3 segments combined, empodial setae paired, fine, much shorter than claws, and the inner seta slightly longer than the outer one.

Notes. This genus is very similar to the genus *Philonthus* CURTIS in the chaetotaxy of the pronotum, structure of the interspace (membranous joint) between labrum and frons, paired long erect setae on the 9th sternite, and structure of the furcasterium.

Xanthopygus has been placed in a higher position of the Xanthopygini, but I cannot comment on the current phylogenetic placement of this genus, since I have been unable to examine sufficiently numerous other xanthopygine genera than *Xanthopygus*.

Delimitation of the Tribe Xanthopygini

Delimitation of the tribe Xanthopygini is based on close examination of the above mentioned two species and other xanthopygine genera (species).

Xanthopygina SHARP, 1885, Biol. Centr.-Amer., **1** (2): 342.

Xanthopygi: BERNHAUER & SCHUBERT, 1914, Coleopt. Cat., (57): 396 (ex parte). — CAMERON, 1932, Fn. Brit. India, Coleopt., Staphylinidae III, 54 & 254 (ex parte). — SCHEERPELTZ, 1933, Coleopt. Cat., (129): 1140 (ex parte); 1940, Koleopt. Rdsch., **30**: 47 (ex parte); 1964, Ark. Zool., **17 A** (2): 277–280 (ex parte). — BLACKWELDER, 1952, Bull. U.S. natn. Mus., **200**: 423–424 (ex parte). — NAOMI, 1982, Kontyû, Tokyo, **50**: 127 (ex parte).

Xanthopygini: BLACKWELDER, 1943, J. N. Y. ent. Soc., **48**: 254.

Staphylinina: HATCH, 1957, Univ. Wash. Publ. Biol., **16**: 172–173.

Xanthopyginae: MOORE & LEGNER, 1974, Hilgardia, **42**: 548–550.

Type genus: *Xanthopygus* KRAATZ, 1857.

Description. Pronotum with superior lateral line abruptly vanishing after arriving at apical angle and never linked with inferior lateral line in front and behind, so that the inferior lateral line only extends forwards and shifts to apical margin; chaetotaxy consisting of 2 pairs of macrosetae, one located near apical angle and the other on basal angle. Hypomerall projection (=epimeron) present.

Discussion. This tribe is distinctly different from other tribes of the Staphylini-

nae in the limbic conformation of the pronotum, viz., the superior lateral line of pronotum shifts directly or after being united with the inferior lateral line to pronotal apical margin in the other tribes.

This tribe is more closely similar to the Philonthini COIFFAIT in the structure of the prosternum including the furcasternum and chaetotaxy of the pronotum than to the Staphylinini sensu COIFFAIT. The Xanthopygini is more closely related to the Philonthini than to the Quediini in the condition between the prosternum and the inferior lateral line of the pronotum. It is basically identical with the Philonthini and Quediini in the macrochaetal chaetotaxy of the pronotum.

True xanthopygine genera examined are as follows: *Xanthopygus* KRAATZ, *Creophilus* LEACH, *Thinopinus* LECONTE, *Hadropinus* SHARP, *Hadrotus* MÄKLIN and *Liusus* SHARP. The genera *Pammegus* FAUVEL and *Amaulochlamys* SCHEERPELTZ should be transferred to the Anisolinina because of close similarity in limbic conformation of the pronotum. The genera *Algon* SHARP and *Rientis* SHARP should be returned to the Quediini because of the similar structure of the head and prothorax. The genus *Xenopygus* BERNHAUER should be regarded as a member of the Philonthini in view of the structure of the head and the prothorax. *Craspedomerus* CAMERON should also be transferred to the Philonthini because of the basically same limbic conformation of the pronotum.

要 約

林 靖彦：アジア産ハネカクシ亜科の研究。III. オオハネカクシ族 Xanthopygini とその基準属について。—— 本シリーズ第一報においてすでに言及したように、オオハネカクシ族は、その基準属である中南米産の *Xanthopygus* 属が十分に再検討されないままに適用されてきた。そのために本族の概念が十分明らかにされないまま現在にいたったと考えられ、その結果として異質な属も含まれることになった。また、*Xanthopygus* 属の基準種について文献学的な検索を行った結果、いくつかの問題点があるように思われた。

筆者は最近、カナダのスメタナ博士のご好意により、中米産 *Xanthopygus cognatus* SHARP の標本の恵与をうけて詳しく調べることができた。また、大英博物館よりシャープが調べた *X. cognatus* と *X. xanthopygus* (NORDMANN) の標本も借用することができ、両種を比較して詳しく調べることができた。その結果、同族の若干の他属の調査をあわせて、オオハネカクシ族の基本的な特徴を明らかにできたものと考えている。

本族は前胸背板辺縁の構造が非常に特異で、ハネカクシ亜科の他の族から容易に区別できる。また本族は、従来ハネカクシ族 Staphylinini の亜族として扱われることが多かったが、前胸の特異な構造から独立族とすべきものと考えられる。しかも、その前胸背板上の剛毛式や前胸腹板の構造からみてコガシラハネカクシ族 Philonthini とより近い関係にあるものと思われる。

Xanthopygus cognatus SHARP は、中南米産の中型ハネカクシで、原記載以降まったく再検討されていないように思われる。筆者は *Xanthopygus* 属の基準種である *X. xanthopygus* (NORDMANN) について再記載を行ったが、SHARP の見解にしたがえば BLACKWELDER の指定した *Xanthopygus* 属の基準種は ERICHSON の *Philonthus xanthopygus* と同一で、これはまた *X. cognatus* のシノニムとい

うことになる。しかし、反復名の規定により、基準種そのものは誤同定によっても変わらない。

References

- BERNHAEUER, M., 1906. Neue Staphyliniden aus Sudamerika (II Teil). *Dt. ent. Z.*, **1906**: 193–202.
- & K. SCHUBERT, 1914. Staphylinidae IV. In JUNK, W., & S. SCHENKLING (eds.), *Coleopt. Cat.*, (57): 289–408.
- BLACKWELDER, R. E., 1940. Some aspects of modern taxonomy. *J. N. Y. ent. Soc.*, **48**: 245–257.
- 1943. Monograph of the West Indian beetles of the family Staphylinidae. *Bull. U.S. natn. Mus.*, **182**: i–viii+1–658.
- 1952. The generic names of the beetle family Staphylinidae with an essay on genotypy. *Ibid.*, **200**: i–iv+1–483.
- CAMERON, M., 1932. Coleoptera. Staphylinidae III. In *the: Fauna of British India including Ceylon and Burma*. xiii+443 pp., 4 pls. Tayler & Francis, London.
- COIFFAIT, H., 1974. Coléoptères Staphylinidae de la région paléarctique occidentale II. Sous-famille Staphylininae, Tribus Philonthini et Staphylinini. *Nouv. Rev. Ent.*, Suppl. **4** (4): 1–593.
- ERICHSON, W. F., 1840. Genera et Species Staphylinorum Insectorum Coleopterorum Familiae. viii+954 pp., 5 pls.
- HATCH, M. H., 1957. The Beetles of the Pacific Northwest. Part II: Staphyliniformia. *Univ. Wash. Publ. Biol.*, **16**: ix+384 pp. Seattle, Wash.
- HAYASHI, Y., 1993. Studies on the Asian Staphylininae (Coleoptera, Staphylinidae). *Elytra, Tokyo*, **21**: 281–301.
- KRAATZ, G., 1857. Naturgeschichte den Insekten Deutschlands. Abt. 1, Coleoptera, 2, 377–768.
- MOORE, I., & E. F. LEGNER, 1974. Key to the genera of the Staphylinidae of America north of Mexico exclusive of the Aleocharinae (Coleoptera: Staphylinidae). *Hilgardia*, **42**: 548–563.
- NAOMI, S., 1982. Revision of the subtribe Xanthopygina (Coleoptera: Staphylinidae) of Japan, I. *Kontyû, Tokyo*, **50**: 125–133.
- 1983. Ditto, III. *Ibid.*, **51**: 582–592.
- NORDMANN, A. v., 1837. Symbolae ad Monographiam Staphylinorum. 167 pp., 2 pls. Petropol.
- SAWADA, K., 1961. Two new species of the genus *Anisolinus* SHARP from Japan. *Ent. Rev. Japan*, **13**: 4–6, 1 pl.
- SCHEERPELTZ, O., 1933. In JUNK, W., & S. SCHENKLING (eds.), Staphylinidae VII, Suppl. I. *Coleopt. Cat.*, (129): 985–1500.
- 1940. Bestimmungstabelle der in der paläarktischen Region durch Arten vertretenen Gattungen der 17. Fam. Staphylinidae. Bestimmungstabellen europäischen Käfer, 5. Buch. *Koleopt. Rdsch.*, **30**: 1–93.
- 1964. Wissenschaftliche Ergebnisse der schwedischen Expedition 1934 nach Indien und Burma. Col. Staphylinidae (except. Megalopsidiinae et Steninae). *Ark. Zool.*, **17 A** (2): 93–371.
- SHARP, D., 1876. Contributions to an insect fauna of the Amazon Valley: Coleoptera–Staphylinidae. *Trans. ent. Soc. London*, **1876**: 27–424.
- 1885. Biologia Centrali-Americana: Insecta, Coleoptera, **1** (2): 142–824, 19 pls.
- 1889. The Staphylinidae of Japan. *Ann. Mag. nat. Hist.*, (6), **3**: 108–121.
- SMETANA, A., 1977. The Nearctic genus *Beeria* HATCH. Taxonomy, distribution and ecology (Coleoptera: Staphylinidae). *Ent. scand.*, **8**: 177–190.
- 1988. Revision of the tribes Quediini and Atanygnathini. Part II. The Himalayan region (Coleoptera: Staphylinidae). *Quaest. ent.*, **24**: 163–464.