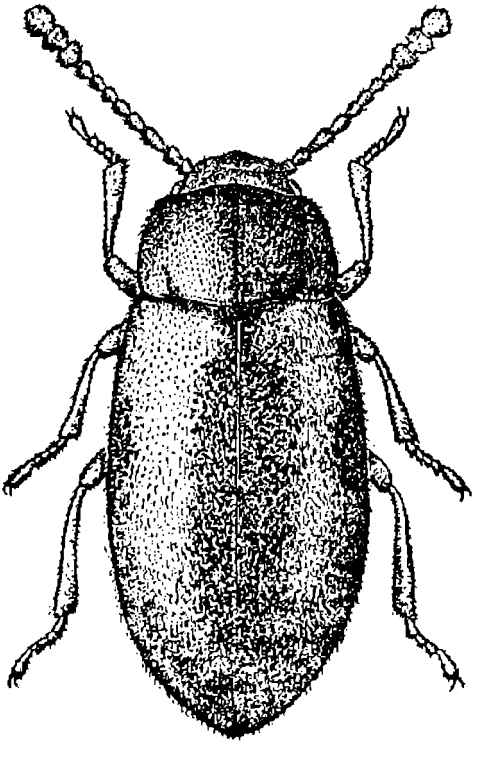
Nikolai B. Nikitsky

Generic classification of the beetle family Tetratomidae (Coleoptera, Tenebrionoidea) of the world, with description of new taxa



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Generic classification of the beetle family Tetratomidae (Coleoptera, Tenebrionoidea) of the world, with description of new taxa

by

Nikolai B. Nikitsky

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ABSTRACT

The beetle family Tetratomidae is diagnosed, with detailed keys to subfamilies, genera and some species based on adults and larvae. *Tetratoma* F. is considered as the sole constituent genus of Tetratominae including the subgenera *Tetratoma* s. str., *Abstrulia* Casey, *Falsoxanthalia* Pic, stat. nov., *Incolia* Casey, stat. nov. (both previously regarded as full-rank genera), and *Paratetratoma* subgen. nov. (type-species: *Tetratoma sakagutii* Nakane, 1955). Three new species are described in this genus: *T. (T.) fuscoguttata* sp. nov. and *T. (T.) nepalensis* sp. nov. from Nepal, and *T. (T.) wittmeri* sp. nov. from Bhutan. A new genus, *Cyanopenthe* gen. nov., is established in the subfamily Penthinae, with *Penthe metallica* Champion, 1916 as its type-species and *Cyanopenthe thailandica* sp. nov., from Thailand, as a second congener. *Penthe reitteri* sp. nov. is described from Sechuan, China. In the subfamily Hallomeninae, which only includes the genera *Hallomenus* Pz. and *Mycetoma* Dej., the subgenus *Parahallomenus* Nomura et Katô, 1958, genus *Hallomenus*, is considered as a new subjective junior synonym (syn. nov.) of the subgenus *Xeuxes* Champion, 1889, stat. nov., the latter taxon previously regarded as a genus of full rank. Based on a restudy of type specimens, *Xeuxes diversicornis* Pic, 1930, *Hallomenus pallens* Gyllenhal, 1817, *H. reticulatus* Motschoulsky, 1872, *H. fuscosuturalis* Blatchley, 1913 and *H. innatus* Kangas, 1959 actually belong to neither Tetratomidae nor Melandryidae. *Hallomenus variegatus* Motschoulsky, 1872 and *H. anaspioides* Motschoulsky, 1845 obviously do not belong in Tetratomidae either, but this could not be reconfirmed by pertinent material. Two new species are described in *Hallomenus: H. chinensis* sp. nov. from Sechuan, China and *H. orientalis* sp. nov. from Kashmir, India and Hazara, Pakistan. In the subfamily Eustrophinae, which includes the genera *Pseudoholostrophus* Nikitsky, 1983, *Holostrophus* Horn, 1888, *Eustrophus* Illiger, 1802, *Eustrophopsis* Champion, 1889 and *Synstrophus* Seidlitz, 1898, a new tribe is established, Holostrophini tribus nov., to incorporate *Holostrophus* and *Pseudoholostrophus*. *Holostrophus* is typified for the first time (type-species: *Eustrophus bifasciatus* Say, 1824), with *H. minimus* sp. nov. described from Luzon, Philippines and *H. similis* sp. nov. from Sarawak, Malaysia. Based on a restudy of the type of *H. multinotatus* Pic, 1911, from Taiwan, this taxon is considered as an infraspecific color variation (syn. nov., stat. nov.) of *H. orientalis* Lewis, 1895. *Eustrophinus aureofasciatus* Pic, 1954, described from China, is transferred into *Holostrophus: ?H. aureofasciatus* (Pic, 1954), comb. nov. *Pseudoholostrophus* is considered to encompass two subgenera: *Pseudoholostrophus* s. str. with *P. klapperichi* (Pic, 1954) (the type-species, redescribed from type material), *P. impressicollis* (LeConte, 1874), comb. nov. ex *Holostrophus* (redescribed) and *P. chinensis* sp. nov., from Sechuan, China, and *Holostrophinus* subgen. nov. erected for *P. discolor* (Horn, 1888), comb. nov. ex *Holostrophus* (redescribed from a non-type). *Eustrophus yunnanensis* sp. nov. is described from Yunnan, China. *Eustrophinus* Seidlitz, 1898 (type-species: *Mycetophagus bicolor* Fabricius, 1792), syn. nov., is considered as a new junior synonym of *Eustrophopsis* Champion, 1889. *Eustrophopsis similis* sp. nov. and *Eustrophopsis sexmaculata* sp. nov. are described from Zaire and Mexico, respectively. *Pseudorchesia* Fairmaire, 1883 (type-species: *P. nigrosignata* Fairmaire, 1883), the type of which could not be obtained for revision, is likely to represent a senior subjective synonym of *Eustrophopsis*, though no formal synonymy is advanced here. Based on a restudy of the types of *Eustrophus ochraceus* Motschoulsky, 1872 and *Eustrophinus bombinus* Seidlitz, 1898, the latter species is considered as a new subjective junior synonym (syn. nov.) of the former, *Eustrophopsis ochracea* (Motschoulsky, 1872), comb. nov. *Curteustrophinus* Pic, 1952 (type-species: *C. overlaeti* Pic, 1952), originally described in Melandryidae, is actually a member of Tenebrionidae.

INTRODUCTION

For a long time, the beetle family Tetratomidae Billberg, 1820 was often considered only as a subfamily or tribe of, or several tribes within, the Melandryidae Leach, 1815 (e.g. Csiki, 1924; Kaszab, 1969; Arnett, 1973; etc.). Based on the European fauna, Reitter (1911) referred to Tetratomini, Eustrophini and Hallomenini as independent tribes of Melandryidae; we regard these as subfamilies of Tetratomidae. Miyatake (1960) included the genera *Tetratoma* Fabricius, 1790 and *Abstrulia* Casey, 1900 (both as members of the tribe Tetratomini), *Pisenus* Casey, 1900 (as a member of the tribe Pisenini) and *Penthe* Newman, 1838 (as a member of the tribe Penthini) into the family Tetratomidae. Crowson (1966) and Viedma (1971) considered Eustrophinae to be a link between Melandryidae and Tetratomidae. Hayashi (1975) referred *Holostrophus* Horn, 1888 to Tetratomidae as based on larval characters. Lawrence & Newton (1995) divide the Tetratomidae into three subfamilies: Tetratominae, Piseninae, and Penthinae. We regard the family Tetratomidae as particularly closely related to Mycetophagidae (Nikitsky, 1993), with the following genera involved: *Tetratoma* Fabricius, 1790 (Tetratominae), *Pisenus* Casey, 1900, *Notopisenus* Nikitsky & Lawrence, 1992, and *Triphyllia* Reitter, 1898 (Piseninae), *Penthe* Newman, 1838 and *Cyanopenthe* gen. nov. (Penthinae), *Hallomenus* Panzer, 1794 and *Mycetoma* Dejean, 1834 (Hallomeninae), *Pseudoholostrophus* Nikitsky, 1983, *Holostrophus* Horn, 1888, *Eustrophus* Illiger, 1802, *Synstrophus* Seidlitz, 1898 and *Eustrophopsis* Champion, 1889 (Eustrophinae).

To the best of our knowledge, one of the above genus-group names has never been typified. Hence we designate its type-species for the first time.

Representatives of Tetratomidae occur almost all over the world except for the Australian region with New Zealand. The world fauna amounts to about 140 species.

Morphological characteristics

Imago. Length 2-17 mm. Antennae 11-segmented, often with a sharply defined 3- to 4-segmented club (Tetratominae, Piseninae) (Plate 1: 8, 10; Plate 2: 6, 7, 9; Plate 3: 1; Plate 4: 1, 9) or their 3-7 apical joints distinctly broadened (many of Eustrophinae) (Plate 7: 10, 13; Plate 8: 2, 8; Plate 9: 2, 4; Plate 10: 7, 8; Plate 11: 8, 14), or antennae filiform (Plate 6: 7) or moniliform (Plate 6: 19) (some Hallomeninae), or their articles serrate (Plate 6: 15, 17) (subgenus *Xeuxes*, genus *Hallomenus*). In some cases, antennae more or less filiform but with distinct sex dimorphism (Plate 5: 1, 3, 5) (*Penthe*), or with a serrate or pectinate club (Plate 5: 9-11) (*Cyanopenthe*). Antennae attached mostly freely on each side of head, only in Piseninae their bases slightly covered by lateral margin of frons. Mandibles apically bidentate, either more or less symmetrical (e.g. *Tetratoma*) or noticeably asymmetrical, in which case their preapical tooth or projection

of right mandible distinctly protruding (Plate 10: 5) (e.g. *Pisenus, Hallomenus, Holostrophus, Eustrophus*). Chewing part of mandibles distinctly protruding, mola can be well-developed and then with clear tubercles (Plate 10: 5) (e.g. *Eustrophus*). Galea usually considerably broader and often even longer than lacinia, latter can be very narrow (Plate 10: 6) (e.g. *Tetratoma* and *Eustrophus*). Last segment of maxillary palps often more or less oblong suboval or of some other shape, elongate as a rule, neither sharply cultriform nor securiform, usually either roundly or more or less straight but obliquely truncate so that internal side of joint shorter than external one (Plate 1: 14; Plate 4: 6, 14; Plate 5: 2; Plate 6: 2; Plate 7: 4; Plate 10: 6). Prementum clearly separated from mentum, often sinuate (Plate 1: 15; Plate 10: 4) at anterior edge, sometimes with a comb along the middle (*Pisenus*). Mentum clearly separated from submentum, latter more often even if slightly separated from gula. Gula usually more or less well-developed. Labial palps 3-segmented (Plate 10: 4). Eyes mostly even if slightly sinuate (Plate 5: 1, 3; Plate 7: 1, 14; Plate 8: 4), in some genera very large and almost contiguous upon frons (Plate 11: 5) (*Synstrophus*, many of *Eustrophopsis*). Frontoclypeal suture often more or less well-noticeable (Plate 11: 5). Head behind eyes usually without neck-like, sharp constriction.

Pronotum clearly transverse, considerably wider than head (Plate 1: 1; Plate 3: 1; Plate 4: 1, 12; Plate 5: 1, 9; Plate 6: 1, 8; Plate 7: 3; Plate 8: 3; Plate 10: 3), with lateral edge bordered, often anterior edge and at least partly base bordered as well. Pronotal sides not frequently rounded, its disk with neither ribs nor elongate striae (excluding basal impressions). Pair of basal impressions on pronotum often more or less well-developed (Tetratominae, Penthinae, Hallomeninae, *Pisenus* and partly Eustrophinae) (Plate 1: 1; Plate 3: 1; Plate 5: 1, 3, 9, 10; Plate 6: 8, 18; Plate 7: 3; Plate 8: 1).

Scutellum always present. Elytra fully developed, more or less parallel-sided, weakly broadened posteriorly or oblong-oval, distinctly narrowed posteriorly (Plate 7: 12; Plate 8: 1, 3, 7; Plate 9: 3; Plate 10: 3). Elytra confusedly punctured (Tetratominae, Piseninae, Holostrophini, partly *Hallomenus* and *Eustrophopsis*, to some extent *Cyanopenthe*) or with striae or rows of punctures, the number of rows exceeding 11 in *Penthe* (Plate 5: 1).

Procoxae considerably transverse, as a rule, somewhat projecting, divided by prosternal process, latter well-visible in situ (without special preparation), even apices of procoxae not contiguous (Plate 2: 8, 13; Plate 7: 15; Plate 8: 9; Plate 9: 5; Plate 10: 14; Plate 11: 7, 10, 13). Trochantin of procoxae can be well-developed (Plate 2: 8, 13) (at least Tetratominae, Piseninae, *Mycetoma* and partly *Hallomenus*). Anterior coxal cavities open from behind. Mesocoxae divided, mesepimera reaching the mesocoxal cavities (Plate 10: 13; Plate 11: 3). Metasternum usually well-developed, not shorter than visible abdominal sternite 1. Metepisterna whole or with an anteriorly more or less well-separated, not rarely somewhat elevated, triangular area developed best in Penthinae and Eustrophinae (Plate 10: 13; Plate 11: 3), sometimes to some extent noticeable also in Hallomeninae. Metacoxae strongly transverse, simple (always without narrow, triangular piece separated by suture from posterior part of coxa, punctured in a different way, directed obliquely anterolaterally). Legs moderately long; tibiae usually

not or only slightly shortened; metatibiae at least slightly longer than tarsomere 1 (Plate 1: 1; Plate 4: 1; Plate 5: 1; Plate 6: 8; Plate 7: 3; Plate 10: 15). Meso- and metatibiae can bear transverse rows of spines at outer edge (*Eustrophus, Eustrophopsis*). Spurs of metatibiae often fairly short, only rather seldom ca. 1/2 length of tarsomere 1. Tarsi of all legs simple (Plate 1: 1; Plate 4: 9; Plate 5: 1; Plate 6: 1, 18; Plate 10: 15), without sharply broadened, lobuliform joints, pattern 5-5-4 in both sexes. Claws simple and at most only somewhat thickened at base. Wings more or less well-developed, more often with well-developed radial cell, M-Cu-loop, 1-2 anal cells and not rarely with a more or less well-developed subcubital fleck (Plate 1: 2). In Hallomeninae and Eustrophinae, 1st anal cell can be open or closed by only a weakly developed piece of vein (Plate 9: 11; Plate 11: 2). Metendosternite more or less well-developed, with a marked stem, often with (Tetratominae, Piseninae, Penthinae and *Holostrophus*) (Plate 4: 15; Plate 9: 12) or without lateral plates directed outside (Plate 6: 3; Plate 10: 18). Abdomen with five visible sternites. Abdominal tergite 8 more or less rounded at apex (Plate 1: 18; Plate 10: 1); true sternite 8 often sinuate (Plate 10: 1, 11), in *Tetratoma* with a rather thin, medial, sclerotized process in basal part (Plate 1: 17). Genital segment often with more or less well-developed, sclerotized lobes in anterior part, these lobes usually separated, neither very strongly narrow nor long, more or less rounded at anterior edge (Plate 10: 2, 12); more rarely, genital segment more or less unilobate (Plate 9: 16) or with very long and narrow lobes (e.g. *Synstrophus macrophthalmus* (Reitter, 1887)) (Plate 10: 16). Sclerotized rods in posterior part of genital segment coming together or close to each other caudally, moderately to fairly long (Plate 10: 2, 12), their posterior extent can parallel or virtually contiguous. Aedeagus of varying structure, often simple, with a pair of elongated parameres and a more or less elongated penis (Tetratominae, Penthinae, *Triphyllia, Synstrophus, Eustrophus, Eustrophopsis*) (Plate 1: 5, 6, 9, 11; Plate 4: 17; Plate 5: 4; Plate 11: 11, 12), or parameres transformed into lobes of more complex structure, long, not frequently setigerous, strongly divided (*Mycetoma, Hallomenus, Holostrophus*) (Plate 6: 10, 20; Plate 8: 6). In Holostrophini, penis usually of complicated structure, underside with a sclerotized process connected by thin processes with penial apex, latter bearing thin spiniform processes (Plate 7: 8; Plate 8: 6; Plate 9: 9); parameres of Holostrophini highly moveably connected with a strongly elongated basal part of tegmen. Sometimes (*Pisenus*) basal part of tegmen bearing either a pair of long sensory setigerous lobes on ventral side (Plate 4: 2, 4, 7) or only one shorter lobe (*Notopisenus*) (Plate 4: 11). Ovipositor membranous in apical part, often with more heavily sclerotized lateral areas and a strongly elastic medial part (Plate 9: 17). Styles tactile, supplied with elongate setae at apex, as a rule.

Larva. Length 4-18 mm. Body often more or less convex and parallel-sided (Plate 14: 1; Plate 17: 1; Plate 19: 1; Plate 21: 1). Head in most genera with a more or less well-developed epicranial stem, with five ocelli on each side of head, as a rule (Plate 12: 3; Plate 14: 4; Plate 15: 1; Plate 17: 5; Plate 19: 7). Hypostomal rods usually short or of

medium size (Plate 14: 3; Plate 19: 3). Labrum distinctly separated from clypeus, more or less strongly rounded at front edge (Plate 14: 6; Plate 15: 3) or somewhat sinuate (Plate 12: 5; Plate 21: 6). Sclerotized rods of epipharynx either nearly undeveloped or short (Tetratominae, Hallomeninae, Eustrophinae) (Plate 12: 5; Plate 14: 6; Plate 17: 4; Plate 18: 4) to relatively long (*Penthe*, after Hayashi, 1972) (Plate 16: 7). Antennomere 1 often rather short and transverse, more rarely about as long as broad; 2nd one longer for the most part, more or less longitudinal or about as long as broad; 3rd one considerably narrower than 2nd (Plate 14: 5; Plate 15: 4; Plate 16: 5; Plate 17: 7; Plate 21: 10); sensorium of antennomere 2 more or less longitudinal and conical, as a rule, varying in length in relation to antennomere 3. Mandibles asymmetrical (except Tetratominae), preapical tooth or projection on right mandible usually developed stronger than on the left one (Plate 14: 7; Plate 15: 2; Plate 17: 2; Plate 19: 4). Molar part well-developed in Piseninae (Plate 14: 7; Plate 15: 2) and, to some extent, in *Mycetoma* (Plate 17: 2); in Tetratominae and Eustrophinae, chewing part of mandibles with a prosthecoid structure or prostheca, not rarely like thin, short, transparent processes (Plate 12: 2; Plate 19: 4). In Pentinae and *Hallomenus*, prostheca and mola either not marked or latter poorly-developed. Maxillae with a well-developed articular area and a cardo, their mala more or less strongly rounded at anterior edge, obtuse or more or less straight truncate but not falcate (Plate 12: 1, 6; Plate 14: 3, 8; Plate 15: 5; Plate 16: 3; Plate 17: 3; Plate 19: 3; Plate 21: 9). Anterior and inner edges of mala can bear thickened setae or spines (Piseninae, Penthinae, Hallomeninae) (Plate 14: 8; Plate 15: 5; Plate 17: 3), or inner edge without such setae/spines (Tetratominae, Eustrophinae) (Plate 12: 8; Plate 19: 5; Plate 21: 9). Maxillary palps 3-segmented, their joint 1 rather often more or less transverse and shorter than 2nd, latter often more or less longitudinal or about as long as broad (seldom transverse), not rarely considerably longer than 1st; joint 3 longitudinal and often considerably longer that 2nd. Labium consisting of two parts separated by sutures: a transverse prementum and a more strongly elongated mentum clearly separated either from submentum or from submentum + gula (Plate 14: 3; Plate 15: 5; Plate 16: 3; Plate 19: 3). Ligula usually more or less well-developed, rather short and rounded at apex (considerably shorter than labial palps) (Plate 12: 1; Plate 14: 3; Plate 17: 3; Plate 19: 3; Plate 21: 7); the only exception is *Penthe* which has a long (not shorter than labial palps), more or less parallel-sided ligula (Plate 16: 3). Hypopharyngeal scleroma can be more or less well-developed (especially so in Piseninae, see Plate 14: 9; Plate 15: 5). Legs from relatively short to medium-sized; coxae usually narrowly separated and more or less strongly projecting, distance between them considerably shorter than coxal transverse diameter, as a rule; claws in most cases clearly curved and usually with two setae of unequal length (Plate 12: 7; Plate 14: 11; Plate 15: 6; Plate 17: 8; Plate 9: 10). Posterior parts of abdominal tergites 2-8 at least either with one well-developed, transverse row of elongated setae (Plate 13: 5; Plate 14: 1; Plate 17: 1; Plate 18: 6; Plate 19: 1; Plate 21: 1) or with microscopical spinules (*Penthe*) (Plate 16: 1). Anterior edge of scutum of at least preapical abdominal tergites not frequently with a transverse sclerotized line. Abdominal tergites usually without well-developed

ambulacral ampullae. Abdominal tergite 8 not longer than 7th, tergite 9 of usual structure, with a pair of urogomphi at apex but without sclerotized fovea between them (Plate 13: 1, 5; Plate 14: 13; Plate 15: 7; Plate 16: 15; Plate 17: 9; Plate 20: 1, 3; Plate 21: 1). Abdominal tergite 9 often covered with numerous sclerotized tubercles (Piseninae, Hallomeninae, Eustrophinae) (Plate 14: 13, 16; Plate 15: 7; Plate 17: 9; Plate 18: 9; Plate 20: 1, 3; Plate 21: 1). Inner edge of urogomphi not rarely with well-developed setigerous tubercles (Tetratominae) (Plate 13: 1, 9), sclerotized teeth or lobes (Piseninae, Holostrophini) (Plate 14: 13; Plate 15: 7; Plate 20: 3, 5). In *Eustrophopsis*, urogomphi can bear sclerotized tubercles. Abdominal segment 10 usually posteroventral or ventral (Plate 14: 14; Plate 20: 2). Spiracles often annular-biforous (Plate 14: 15; Plate 16: 17; Plate 17: 11; Plate 19: 11; Plate 21: 13).

Development mostly in various xylotrophic fungi, mainly Aphyllophorales.

Diagnosis

The Tetratomidae differs from the Melandryidae, to which for a long time it belonged as a subfamily (see above), as follows. The imago of Tetratomidae is characterized by the simple narrow tarsi of all legs, as well as by the procoxae separated by a prosternal process combined with the simple metacoxae of usual structure and the relatively short spurs of the metatibiae (not longer than half of tarsomere 1 but mostly not more than 1/3, as a rule). The prementum, mentum and submentum of the larvae are often divided by sutures, abdominal tergite 9 always with a pair of urogomphi but without sclerotized fovea in between. Such a combination of characters is usually absent from the true Melandryidae (Nikitsky, 1989a).

Key to subfamilies, tribes and genera of Tetratomidae based on imago

1. Each elytrum with over 11 rows of punctures (Plate 5: 1), if punctation more or less confused, then antennae with a pectinate 4- or 5-segmented club (Plate 5: 9, 11). Body broad (Plate 5: 1, 9, 10), not or weakly narrowed posteriorly, not less than 9 mm in length. Upperside black, metallic dark blue or violet, sometimes with a more brightly colored scutellum. Scutellum almost always (except *P. pimelia* (Fabricius, 1787)) with dense light reddish or yellowish pubescence contrasting against background of elytra (Plate 5: 1, 3). Antennae more or less filiform, but their structure and proportions at least of some antennomeres (4th-7th) in males and females considerably different (Plate 5: 1, 3, 5), or antennae with a pectinate club. Pronotum very strongly transverse (Plate 5: 1, 3, 9, 10), usually not less than 2 times as broad as long, not rarely with light pubescence in posterior part before

scutellum and with two very strongly developed basal impressions. Trochantin of procoxae well-developed. Metepisterna with a well-separated, not frequently somewhat elevated, triangular area in anterior part (Plate 7: 5). Metendosternite with lateral plates (Plate 5: 6). Wings with radial cell and two closed anal cells. Aedeagus usually of simple structure (Plate 5: 7, 8), with a pair of distinctly divided parameres and a simple penis ..... (subfam. Penthinae) ... 2

-. Each elytrum with not more than 11 rows of punctures (Plate 6: 18; Plate 10: 15), if punctation confused, then antennae always without pectinate club. Body oblong-oval, either distinctly narrowed posteriorly or less than 9 mm. Scutellum usually without dense light contrasting pubescence. Male and female antennae similar in structure, either almost the same or very slightly different in proportions of antennomeres (Plate 6: 9, 19; Plate 8: 2, 8; Plate 10: 7). Pronotum often more weakly transverse, less than 2 times as broad as long, its pair of basal impressions can be weakly developed 3

2. Antennae filiform in both sexes, but with distinct sex dimorphism in structure of medial antennomeres at least (Plate 5: 1, 3, 5). Body black, usually with a clarified last antennomere (Plate 5: 5) ..... *Penthe* Newm.

-. Antennae in females at least (as we know all species of this genus solely from females) with a serrate or pectinate 4- or 5-segmented club (Plate 5: 9, 10). Upperside metallic dark blue or violet, often with more brightly colored scutellum. Last antennomere not clarified ..... *Cyanopenthe* gen. nov.

3. Antennae with a 3- or 4-segmented abruptly defined club (Plate 2: 6, 20; Plate 4: 1, 13). Elytra confusedly punctured, body generally more strongly parallel-sided. Trochantin of procoxae usually well-visible. Metepisterna without isolated triangular area in anterior part. Metendosternite with lateral plates directed outside (Plate 4: 15), wings often with more or less well-developed radial cell and two anal cells. Spurs of metatibiae short (Plate 4: 9) 4

-. Antennae filiform (Plate 6: 7), serrate (Plate 6: 17), moniliform (Plate 6: 19), or apical joints more or less gradually or rather weakly broadened (Plate 7: 7, 10, 13; Plate 10: 7, 8) (in latter case, with a well-defined triangular area in anterior part of metepisterna). Body often more strongly oblong-oval and stronger narrowed posteriorly 7

4. Antennal club 3-segmented (Plate 4: 1, 9, 12). Suture separating frons from clypeus semi-circular or bow-shaped and more weakly impressed. In addition to parameres, aedeagus not rarely with setigerous sensory lobes (Plate 4: 2, 4, 11) ..... (subfam. Piseninae) ... 5

-. Antennal club 4-segmented, though antennomere 7 can be fairly strongly broadened too (Plate 2: 6, 7, 9, 12; Plate 3: 1). Suture separating frons from clypeus close to straight and strongly developed. Aedeagus simple, with a pair of separated parameres and a more or less strongly elongate penis (Plate 1: 5, 6, 9, 19) ..... (subfam. Tetratominae) ... *Tetratoma* F.

5. Antennal club large and strongly asymmetrical, not shorter than preceding antennomeres combined (Plate 4: 10). Aedeagus with one unpaired sensory lobe

(Plate 4: 11). Pair of basal foveae on pronotum not developed (Plate 4: 9). Lateral edge of pronotum somewhat reflexed and flattened. 1st visible abdominal sternite considerably longer than 2nd but much shorter than 2nd and 3rd ones combined. Upperside covered with somewhat raised hairs (Plate 4: 9) .... *Notopisenus* Nikitsky et Lawrence

-. Antennal club considerably shorter than preceding antennomeres combined, more or less symmetrical (Plate 4: 13). Aedeagus with (Plate 4: 4) or without pair of sensory lobes (Plate 4: 17) 6

6. Pair of basal impressions on pronotum either undeveloped or very small, puncture-like and not frequently hardly visible (Plate 4: 12). Lateral edges of pronotum distinctly flattened. 1st visible abdominal sternite not or very slightly longer than 2nd one. Aedeagus without sensory processes (Plate 4: 17) ..... *Triphyllia* Rtt.

-. Pair of basal impressions on pronotum not large but well-developed (Plate 4: 1). Lateral edges of pronotum not flattened (Plate 4: 1). 1st visible abdominal sternite usually much longer than 2nd. Aedeagus with a pair of sensory lobes (Plate 4: 2, 4, 7) ..... *Pisenus* Casey

7. Antennae filiform, serrate or more or less moniliform (Plate 6: 7, 14, 15, 19). Pronotum with 2-3 well-developed fovea-like impressions (Plate 6: 8, 12, 18). Metepisterna whole or weakly divided into two pieces: a short triangular anterior piece and an elongate-quadrangular posterior one. Metendosternite without lateral plates directed outside. Parameres of aedeagus lobe-shaped, strongly separated (Plate 6: 5, 10, 20) ..... (subfam. Hallomeninae) ... 8

-. Apical 3-7 antennomeres usually more or less considerably broadened, at least some of these transverse (Plate 7: 7, 10; Plate 8: 2, 8; Plate 9: 4; Plate 10: 8). Pronotum with two very weak (Plate 10: 3, 15) or stroke-like impressions (Plate 7: 3, 9) in basal part. Metepisterna distinctly subdivided into a short triangular anterior and an elongate-quadrangular posterior piece (Plate 7: 5). Metendosternite without lateral plates (Plate 6: 3) outside directed (excluding Holostrophini). Wings more often with a clearly closed anal cell and usually only with trace of a crosspiece closing another cell ..... (subfam. Eustrophinae) ... 9

8. Pronotum with 3-4 strong impressions (Plate 6: 18); elytra usually with 10 (sometimes partly confused) rows of punctures; space between 1st and 2nd rows of punctures broadened at least in basal part of elytra and coarsely punctate. Antennae moniliform (Plate 6: 19). Trochantin of procoxae well-visible..... ..... *Mycetoma* Dej.

-. Pronotum only with two strong basal impressions (Plate 6: 8, 12). Elytra confusedly punctured or with less than 10 weaker rows of punctures (Plate 6: 1). Antennae filiform (Plate 6: 7), more or less moniliform or serrate (Plate 6: 15, 17). Trochantin of procoxae not or more weakly developed ..... *Hallomenus* Pz.

9. Meso- and metatibiae without transverse rows of spines at outer edge (Plate 7: 3). Elytra confusedly punctured (Plate 7: 12). Eyes considerably separated (Plate 7: 1,

14; Plate 8: 4). Metendosternite with lateral plates (Plate 9: 12). Tegmen and penis of complex structure, latter with a spine-like structure at anterior edge (Plate 8: 6). Pronotum more often with a pair of more or less stroke-like impressions in front of base (Plate 7: 3, 9; Plate 8: 1, 7). Elytra dark in the most part, with a red spotty pattern, more rarely one-color (Plate 7: 3; Plate 8: 3, 7) ..... (tribe Holostrophini, trib. nov.) ... 10

-. Meso- and metatibiae with transverse rows of spines at outer edge (Plate 10: 10; Plate 11: 3), if without them (*Synstrophus*), the elytra with rows of punctures (Plate 10: 15) and eyes almost contiguous. Metendosternite usually without lateral plates directed outside (Plate 10: 18). Aedeagus usually with apically divided parameres of simple structure and with penis (Plate 11: 11, 12) lacking a complex spine-like structure ..... (tribe Eustrophini) ... 11

10. Eyes more strongly sinuate and more strongly approximate to each other, distance between eyes less than ocular transverse diameter (Plate 8: 4). Prosternal process usually strongly surpassing posterior edge of procoxae (Plate 8: 5; Plate 9: 5). Elytra (excluding *H. unicolor* Lewis, 1895) dark with a red pattern ..... *Holostrophus* Horn

-. Eyes more weakly sinuate and more broadly separated, distance between eyes somewhat exceeding transverse ocular diameter (Plate 7: 1,14). Prosternal process mostly margined on each side and not or only rather slightly surpassing posterior edge of procoxae (Plate 7: 2, 11). Elytra one-color, usually red-brown, brownish or black with a light humeral spot (Plate 8: 1) or with a vague transverse fascia in basal part (Plate 7: 12) ..... *Pseudoholostrophus* Nikitsky

11. Meso- and metatibiae without distinct transverse rows of spines at outer edge (Plate 10: 15). Eyes very large, strongly approximate to each other, almost contiguous on frons; distance between eyes not less than 7-8 times shorter than ocular transverse diameter. Elytra with rows of punctures or striae. Apical 6-7 antennomeres distinctly broadened. Pronotum strongly transverse, with a small, usually with a pair of shallow basal impressions (Plate 10: 15). Transverse fold/suture of hypomeron of prothorax in its posterior part from almost indistinct to more or less well-developed ..... *Synstrophus* Seidl.

-. Meso- and metatibiae with well-developed transverse rows of spines at outer edge (Plate 10: 10; Plate 11: 3) 12

12. Hypomeron without distinct transverse fold/suture in its posterior part (Plate 10: 14). Eyes more or less considerably separated, distance between eyes usually not more than 2 times less than ocular transverse diameter (Plate 10: 3). Elytra with rows of punctures or striae (Plate 10: 3). Base of pronotum often margined at least partly. Apical 5-7 antennomeres distinctly broadened (Plate 10: 7, 8). Pronotum strongly transverse, with a pair of weak basal impressions (Plate 10: 3) ..... *Eustrophus* Ill.

-. Hypomeron with a distinct transverse fold/suture in its posterior part (Plate 11: 3). Eyes very strongly approximate to each other, as a rule; distance between eyes

considerably over 2 times less than ocular transverse diameter (Plate 11: 5). Antennae with 5-7 enlarged apical joints (Plate 11: 4, 8, 14). Posterior edge of prosternal process strongly sinuate to almost straight truncate (Plate 11: 7, 10, 13). Elytra with rows of punctures, as a rule (Plate 11: 6, 9), but sometimes more or less confusedly punctured (Plate 11: 1) .... *Eustrophopsis* Champ. (= *Eustrophinus* Seidl., syn. nov.)

Key to subfamilies and genera of Tetratomidae based on larvae

1. Epicranial stem not developed (Plate 21: 2) or extremely short. Mandibles asymmetrical, with prostheca consisting of rather numerous thin seta-like processes (Plate 21: 5) (according to Viedma, 1971, this structure can be a modified molar part of the mandibles). Labrum fairly deeply emarginate (Plate 21: 6). Abdominal tergite 9 with numerous sclerotized tubercles, latter can be present also in basal half of urogomphi (Plate 21: 1, 12). Endocarina well-developed (Plate 21: 2). Spiracles biforous (Plate 21: 13) .... (subfam. Eustrophinae, in part) (Plate 21: 1-13) ... *Eustrophopsis* Champ.
-. Epicranial stem well-developed (Plate 12: 3; Plate 14: 2; Plate 15: 1; Plate 16: 2; Plate 17: 5; Plate 18: 1; Plate 19: 2). Inner part of mandibles of different structure (Plate 12: 2; Plate 14: 7; Plate 15: 2; Plate 16: 8; Plate 17: 2; Plate 18: 2; Plate 19: 4). Labrum at most shallowly sinuate at anterior edge, usually straight or rounded (Plate 12: 5; Plate 14: 6; Plate 15: 3; Plate 16: 7; Plate 17: 4; Plate 18,4; Plate 19: 6). Basal half of urogomphi usually without or with a few sclerotized tubercles at least dorsally (Plate 13: 2, 3, 6; Plate 14: 17; Plate 15: 8; Plate 16: 15; Plate 17: 10; Plate 18: 7, 10; Plate 20: 6) 2
2. Abdominal tergite 9 without numerous sclerotized tubercles on dorsal surface (their number usually not exceeding 6-8) (Plate 13: 1, 3, 5; Plate 16: 15). Epicranial stem usually short (over 5 times as short as head length up to anterior edge of labrum) (Plate 12: 3; Plate 16: 2). Mandibles without well-developed mola (Plate 12: 2; Plate 16: 8) 3
-. Abdominal tergite 9 with numerous sclerotized tubercles on dorsal surface (Plate 14: 13, 16; Plate 15: 7). Epicranial stem better developed, not more than 5 times as short as head length (Plate 14: 2; Plate 15: 1). Mandibles not rarely with a mola (Plate 14: 7; Plate 15: 2) 4
3. Ligula rounded apically, apparently shorter than labial palps (Plate 12: 1, 8). Mala with neither spines nor macrosetae at inner edge, with solitary setae or bristles at most (Plate 12: 1, 8). Mandibles more or less symmetrical, with a prostheca-like structure (Plate 12: 2). Abdominal tergites without transverse rows of microspinules, at most with a transverse sclerotized line in their anterior part (Plate 13: 5). Urogomphi with well-developed setigerous tubercles at inner edge (Plate 13: 1, 4, 5, 9) ..... (subfam. Tetratominae) ... *Tetratoma* F.

-. Ligula long, more or less parallel-sided, usually not shorter than labial palps (Plate 16: 11). Mala with well-developed thickened setae at inner edge (Plate 16: 9). Mandibles fairly sharply asymmetrical (without prostheca-like structure), left one with a well-developed sharpened projection near middle (Plate 16: 8). Abdominal tergites with microscopic denticles (Plate 16: 1, 14). Urogomphi without well-developed setigerous tubercles at inner edge (Plate 16: 15) ..... (subfam. Penthinae) ... *Penthe* Newm.

4. Urogomphi with a distinct denticle or process on the inner side (Plate 14: 13, 16; Plate 15: 7; Plate 20: 1, 3, 5). Epicranial stem usually somewhat shorter, not more than 1/3 length of cephalic capsule (measuring its length up to base of labrum) (Plate 14: 2; Plate 19: 2). Mandibles with a more or less well-developed mola (Plate 14: 7; Plate 15: 2) or prostheca-like structure (Plate 19: 4) 5

-. Urogomphi with neither distinct denticle nor process on inner side (Plate 17: 9; Plate 18: 6, 9). Epicranial stem somewhat better developed, usually over 1/3 length of cephalic capsule (Plate 17: 5; Plate 18: 1) ..... (subfam. Hallomeninae) ... 7

5. Mandibles without distinct mola, anterior part of their chewing surface with a prostheca-like structure (Plate 19: 4). Hypopharyngeal scleroma not or weakly developed. Sensorium of antennomere 2 not more than half as long as antennomere 3 (Plate 19: 8) ..... (subfam. Eustrophinae, in part) ... *Holostrophus* Horn

-. Mandibles with a distinct mola (Plate 14: 7), but they can be without clear transverse rows of microtubercles on ventral side (Plate 15: 2). Hypopharyngeal scleroma well-developed (Plate 14: 9; Plate 15: 5). Sensorium of antennomere 2 over half as long as 3rd (Plate 14: 8; Plate 15: 4) ..... (subfam. Piseninae) ... 6

6. Base of inner part of urogomphi with a rather short, sharp denticle, latter not less than 3-4 times as short as urogomphi in lateral view (Plate 14: 14). Urogomphi proper fairly thin in lateral view, not less than 2.0-2.5 times as long as thick at base (Plate 14: 14, 17) ..... *Pisenus* Casey

-. Base of inner part of urogomphi with a fairly long lobe, latter 1.3-1.5 times as short as urogomphi in lateral view (Plate 15: 8). Urogomphi proper thick in lateral view, over most of extent of anterior edge fairly straight, unciform at apex, 1.3-1.4 times as long as thick at base (Plate 15: 8) ..... *Triphyllia* Rtt.

7. Epipharynx over most of its extent along middle with well-developed rows of microtrichiae (Plate 17: 4). Mandibles with a more or less well-developed mola but without transverse rows of microscopic tubercles on ventral side (Plate 17: 2). Labrum less strongly transverse (Plate 17: 4) ..... *Mycetoma* Dej.

-. Epipharynx without well-developed rows of microtrichiae (Plate 18: 4). Mandibles without distinct mola (Plate 18: 2). Labrum more strongly transverse (Plate 18: 4)... ..... *Hallomenus* Pz.

Subfamily Tetratominae Billberg, 1820

Genera included: *Tetratoma* F. only.

Genus *Tetratoma* Fabricius, 1790

Plate 1: 1-23; Plate 2: 1-24; Plate 3: 1-5

Type-species: *Tetratoma fungorum* Fabricius, 1790 (Plate 1: 1, 2)

Modern descriptions of this genus can be found elsewhere (Nikitsky, 1989a, 1992), in the above family characteristics and keys as well as in the definitions of the subgenera given below. The world fauna encompasses 22 species, all nicely corresponding to the scope of the Holarctic. *Tetratoma* has been encountered in Nepal and Bhutan, Himalaya for the first time, though it has long been known from Sikkim (*T. cyanoptera* Champion, 1924).

Larva as in Plate 12: 1-9; Plate 13: 1-9.

Some authors divide this taxon into two genera (e.g. Csiki, 1924; Arnett, 1973) or subgenera (Crowson, 1964; Nikitsky, 1992): *Tetratoma* F. and *Abstrulia* Casey. Division of this genus into subgenera seems to be useful, but we also include therein the earlier monotypic genus *Falsoxanthalia* Pic, 1934, stat. nov. (type-species: *F. bicoloripes* Pic, 1934, described from China in the family of Tenebrionidae), the earlier monotypic genus *Incolia* Casey, 1900, stat. nov. (type-species: *Incolia longipennis* Casey, 1900, from North America), and *Paratetratoma* subgen. nov. (type-species: *Tetratoma sakagutii* Nakane, 1955, from Japan).

The subgenus *Abstrulia* Casey, 1900 differs from *Tetratoma* s. str. in combining the following characters: antennomeres 8-11 shorter than or about as long as all preceding ones combined (Plate 2: 20, 21); parameres very narrowly divided or contiguous all along inner edge, sharpened at apex. Penis much shorter than tegmen (Plate 1: 11, 12, 19, 23) (this feature makes all the species of *Abstrulia* we know from males distinguishable from other subgenera); lateral edges of pronotum more often more or less uneven to undulate-crenulate, usually fairly broadly reflexed and flattened (Plate 1: 10; Plate 2: 22); 1st visible abdominal sternite often considerably longer that 2nd (Plate 1: 13, 16, 20), 5th one with an impression at least in males. Elytra bicolor, black or brown, with a red spotty pattern (Plate 1: 10; Plate 2: 23). Upperside distinctly though not rarely rather shortly pubescent.

This subgenus is distributed over the Holarctic and includes the following species: *T. (A.) ancora* Fabricius, 1790 (Plate 1: 19; Plate 2: 22, 23), *T. (A.) virgo* Motschoulsky, 1845(b), *T. (A.) crenicollis* Baudi, 1877, *T. (A.) bauduери* Perris, 1864, *T. (A.) ainu* (Nakane, 1963) (Plate 1: 23; Plate 2: 20), *T. (A.) japonica* Miyatake, 1955 (Plate 2: 21), *T. (A.) pictipennis* Reitter, 1896, *T. (A.) tedaldi* Reitter, 1887, *T. (A.) tesselata* Melsheimer, 1844 (Plate 1: 10-12), *T. (A.) variegata* (Casey, 1900). The species of this subgenus we met in nature more often develop on Stereaceae or Corticiaceae fungi.

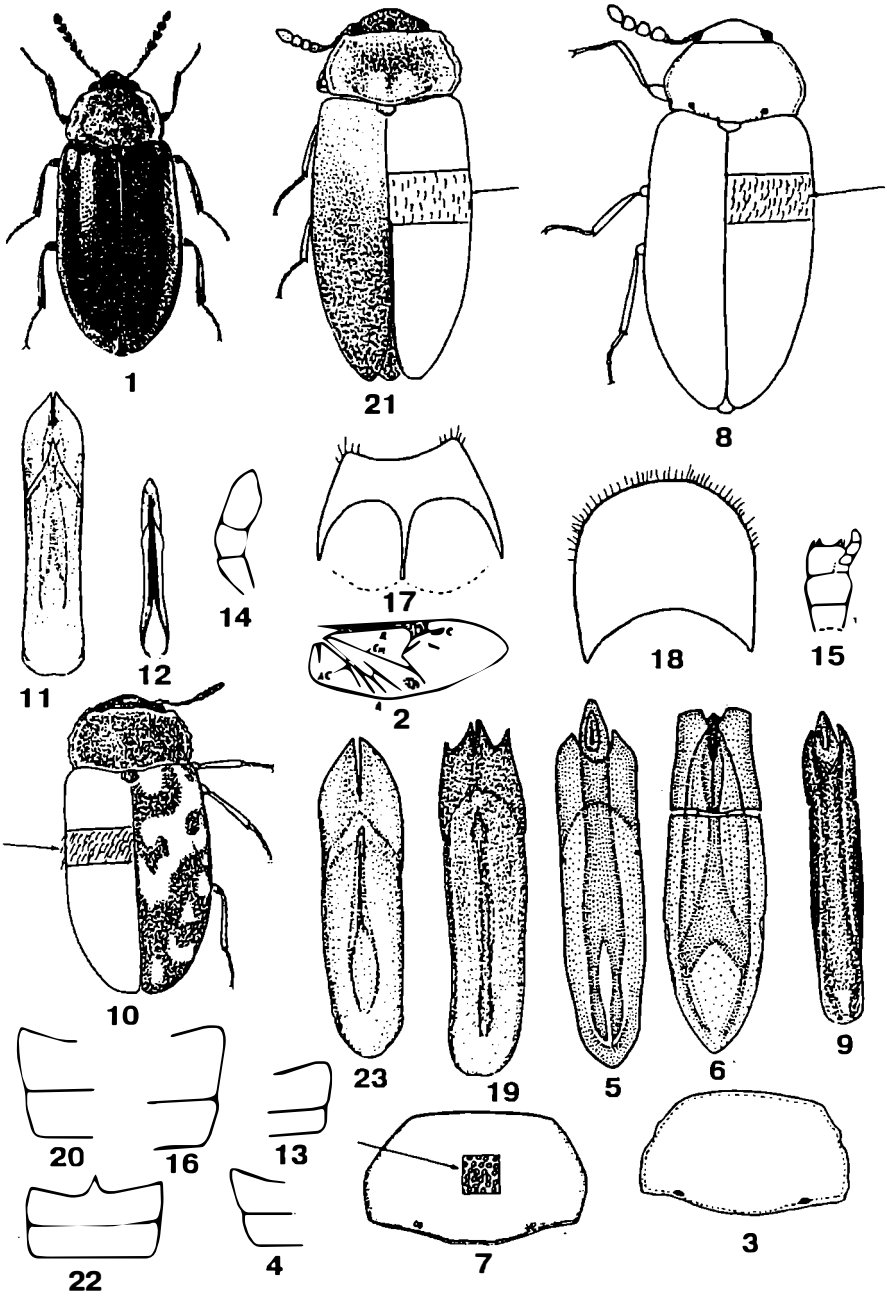

Plate 1. General view and details of structure of *Tetratoma* spp. (5, 6, 11, 12 - after Miyatake, 1960, others original). 1, 2 - *Tetratoma (Tetratoma) fungorum;* 3 - *T. (T.) cyanoptera* (type); 4 - *T. (Incolia) concolor;* 5 - *T. (T.) nobuchii;* 6 - *T. (Paratetratoma) sakagutii;* 7 - *T. (Falsoxanthalia) bicoloripes* (type); 8-9 - *T. (F.) desmarestii;* 10-13 - *T. (Abstrulia) tesselata;* 14-19 - *T. (A.) ancora;* 20, 23 - *T. (A.) ainu;* 21-22 - *Tetratoma (Incolia) longipennis.* 1, 8, 10, 21 - general view; 2 - wing; 3, 7 - pronotum; 4, 13, 16, 20, 22 - visible sternites 1 and 2 of abdomen; 5, 6, 9, 19, 23 - aedeagus (dorsal view); 11 - tegmen; 12 - penis; 14 - joints 2-4 of maxillary palps; 15 - labium; 17 - abdominal sternite 8; 18 - abdominal tergite 8.

The subgenus *Tetratoma* s. str. is characterized by the antennal club more strongly elongate in comparison with the flagellum together with joint 1 (antennomeres 8-11 longer than all other joints combined) (Plate 2: 6; Plate 3: 1). Parameres usually more broadly separated, if narrowly separated, then not sharpened at apex; penis fairly long, always in relation to tegmen longer than in *Abstrulia* (Plate 1: 5; Plate 2: 1, 4). Lateral edges of pronotum often more even. 1st visible abdominal sternite about as long as 2nd (Plate 1: 4), 5th one without impression. Upperside with very short pubescence, looking like almost glabrous. Coloration of elytra often of metallic tinges (dark blue or green), more rarely with a reddish spotty pattern.

This subgenus is represented in the Holarctic by the following species: *Tetratoma (Tetratoma) fungorum* Fabricius, 1790 (Plate 1: 1, 2), *T. (T.) truncorum* LeConte, 1879, *T. (T.) talyshensis* Nikitsky, 1989, *T. (T.) nobuchii* Nakane, 1955 (Plate 1: 5), *T. (T.) cyanoptera* Champion, 1924 (Plate 1: 3; Plate 2: 4-6), *T. (T.) fuscoguttata* sp. nov. (Plate 2: 1-3; Plate 3: 1, 2), *T. (T.) nepalensis* sp. nov. (Plate 3: 3), *T. (T.) wittmeri* sp. nov. (Plate 3: 4, 5).

Based on the main features given above for the other subgenera, the subgenus *Falsoxanthalia* Pic, 1934, stat. nov., is closer to *Tetratoma* s. str. Its antennomeres 8-11 are longer than all preceding ones combined (Plate 1: 8; Plate 2: 9). However, the main difference of *Falsoxanthalia* from *Tetratoma* s. str. lies in the well-developed, moderately dense pubescence on the dorsal side of the body, where each preceding seta distinctly surpasses the base of the next one (Plate 1: 8).

Only two Palearctic species: *T. (Falsoxanthalia) desmarestii* Latreille, 1807 (Plate 1: 8, 9), which is distributed over Europe and the Caucasus, and *T. (Falsoxanthalia) bicoloripes* (Pic, 1934), comb. nov. (Plate 1: 7; Plate 2: 9-11), described and known only from Ginfushan, China. The former species has hitherto been treated as a member of *Tetratoma* s. str.

The subgenus *Incolia* Casey, 1900, stat. nov. (type-species: *I. longipennis* Casey, 1900) has heretofore been considered as a genus of full rank. It seems to take a position intermediate between the above subgenera as based on the following characters: antennomeres 8-11 slightly shorter than or as long as all preceding joints combined (this feature brings it nearer to *Abstrulia* (Plate 2: 16, 17)). Pubescence of elytra rather short, decumbent, developed weaker than in *Falsoxanthalia* (Plate 1: 21), but stronger than in *Tetratoma* s. str. Sides of pronotum considerably reflexed and can be uneven (*T. (I.). longipennis* (Casey), see Plate 1: 21) or almost even with lateral edge somewhat protruding laterally near middle (*T. (Incolia) concolor* LeConte, 1879). 1st visible abdominal sternite almost not or slightly longer than 2nd (Plate 1: 22), 5th one without fovea. Aedeagus apically with distinctly divided parameres and with a long penis; this makes this subgenus more similar to *Tetratoma* s. str. (Plate 2: 18, 19). Upperside can be more or less dark one-color or bicolor.

Two species can be included in this subgenus: *T. (Incolia) longipennis* (Casey), comb. nov. (Plate 1: 21-22; Plate 2: 17, 19) and *T. (Incolia) concolor* LeC. (Plate 1: 4;

Plate 2: 14, 16), both from North America. The latter species has hitherto been treated as a member of *Tetratoma* s. str.

The Japanese species *Tetratoma sakagutii* Nakane, 1955 (Plate 1: 6; Plate 2: 12), known to us from a single male only, is here considered as representing a separate subgenus of its own, *Paratetratoma* subgen. nov., which differs from the other subgenera in the following combination of characters: strongly developed antennal club (antennomeres 8-11 considerably longer than all preceding ones combined); very narrow (8-10 times as narrow as transverse diameter of coxa) prosternal process separating procoxae (Plate 2: 13), a feature absent from other *Tetratoma* species, in which it is considerably broader; almost glabrous elytra; metallic dark blue or green upperside; and well-developed medial impression on visible abdominal sternite 5 of male (Plate 2: 24), the latter feature shared only with the species of the subgenus *Abstrulia*.

Key to subgenera of *Tetratoma* based on imago

1. Penis considerably shorter than tegmen, parameres narrow at apex, more or less pointed and usually more or less contiguous (Plate 1: 11, 12, 19, 23). Visible abdominal sternite 5 with a rather well-developed impression. Antennomeres 8-11 considerably shorter than or about as long as all preceding ones combined (Plate 2: 20, 21). Upperside more or less distinctly pubescent (setae well-visible in dorsal view), elytra black or black-brown with a red-yellow, red or yellow spotty pattern (Plate 1: 10; Plate 2: 23). Lateral sides of pronotum often uneven and fairly strongly reflexed ..... Subgenus *Abstrulia* Casey
-. Penis not or very slightly shorter than tegmen (Plate 1: 5, 6; Plate 2: 1, 2, 4, 10, 14, 18, 19). Parameres apically usually distinctly separated, if almost contiguous, then not sharpened (Plate 1: 5, 6; Plate 2: 1, 10, 14, 18). Visible abdominal sternite 5 (excluding *T. sakagutii* Nakane) without well-developed fovea. Antennomeres 8-11 usually longer (rarely slightly shorter or equal - subgenus *Incolia*, see Plate 2: 16, 17) than all preceding ones combined (Plate 2: 6, 7, 9; Plate 3: 1)..... 2
2. Antennomeres 8-11 considerably longer than all preceding ones combined (Plate 1: 1; Plate 2: 6, 9; Plate 3: 1). Upperside almost glabrous (setae very short and hardly visible) or pubescence fairly strongly developed and each preceding seta distinctly surpassing the base of next one 3
-. Antennomeres 8-11 slightly shorter than or as long as all preceding ones combined (Plate 2: 16, 17). Pubescence of upperside distinct, but rather short, with which each preceding hair usually not reaches behind a base of the next (Plate 1: 21). Lateral sides of pronotum more or less clearly reflexed (Plate 1: 21). Elytra without marked red-yellow spots against a dark background, at most with a clarified basal part. 1st visible abdominal sternite at most only slightly longer than 2nd (Plate 1: 22). Species from North America ..... Subgenus *Incolia* Casey

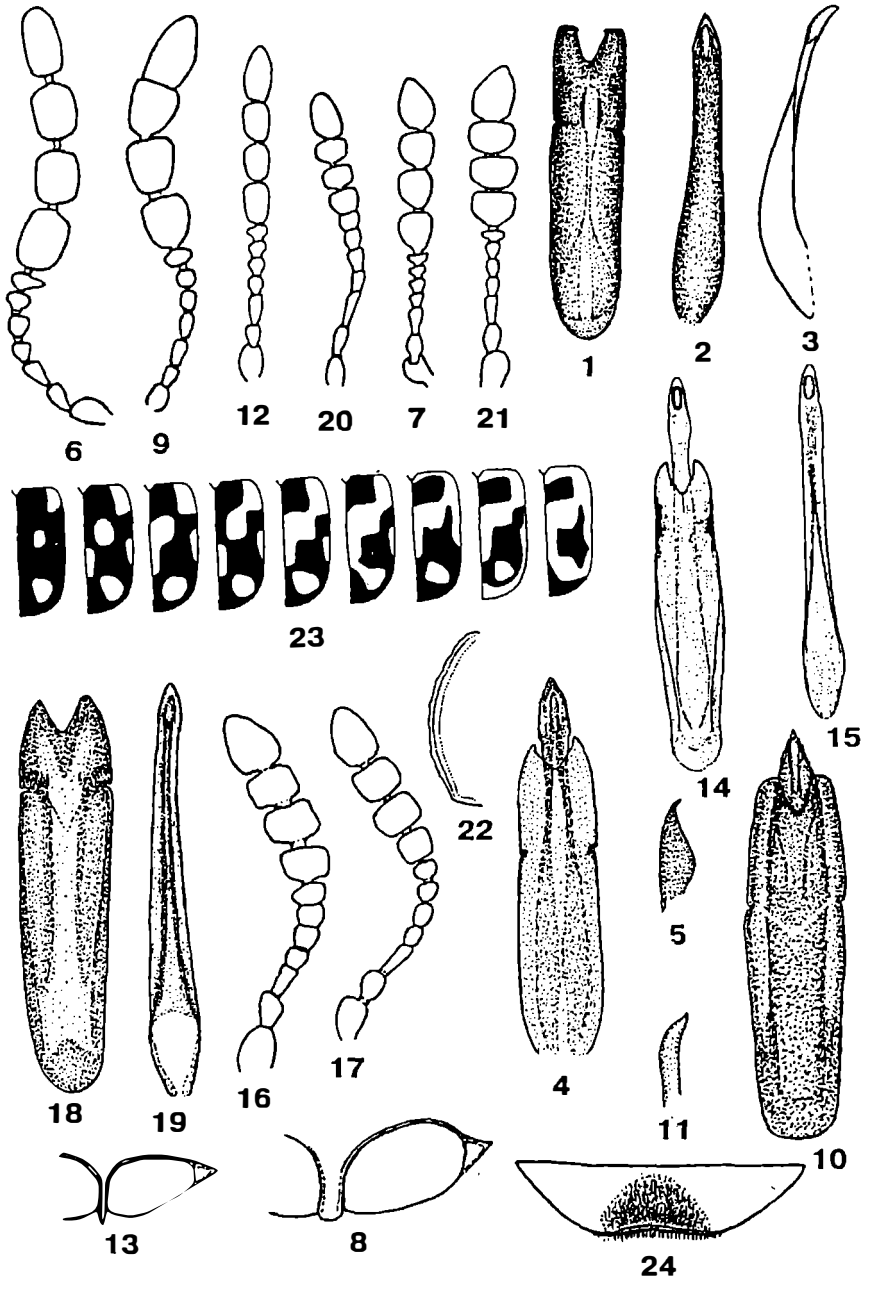

Plate 2. General view and details of structure of *Tetratoma* spp. (23 - after Kaszab, 1969, 4, 7, 12, 14, 15 - after Miyatake, 1960, others original). 1-3 - *Tetratoma (Tetratoma) fuscoguttata* (type); 4-6 - *T. (T.) cyanoptera* (type); 7 - *T. (T.) nobuchii;* 8 - *T. (T.) fungorum;* 9-11 - *T. (Falsoxanthalia) bicoloripes* (type); 12, 13, 24 - *T. (Paratetratoma) sakagutii;* 14-16 - *T. (Incolia) concolor;* 17-19 - T. *(Incolia) longipennis;* 20 - *T. (Abstrulia) ainu;* 21 - *T. (A.) japonica;* 22, 23 - *T. (A.) ancora.* 1, 18 - tegmen (dorsal view); 2, 15, 19 - penis (dorsal view); 3 - penis (lateral view); 4, 10, 14 - aedeagus (dorsal view); 5, 11 - apex of penis (lateral view); 6, 7, 9, 12, 16, 17, 20, 21 - antenna; 8, 13 - prosternal process; 22 - side edge of pronotum; 23 - various types of elytral pattern; 24 - visible abdominal sternite 5 of male.

3. Prosternal process separating procoxae very narrow, 8-10 times as narrow as coxal transverse diameter of coxa (Plate 2: 13). 5th visible abdominal sternite at least in male with a strong impression (Plate 2: 24). Sides of pronotum rather smooth and weakly reflexed. Upperside almost glabrous, metallic blue, dark blue-green or dark blue. Known only from Japan ..... Subgenus *Paratetratoma* subgen. nov.

-. Prosternal process broader, usually not more than 5 times as narrow as coxal transverse diameter (Plate 2: 8). 5th visible abdominal sternite without fovea. Upperside either almost glabrous but sharply bicolor, or fairly strongly pubescent and more uniform one-color 4

4. Upperside rather densely and more or less long pubescent, comparatively one-color (Plate 1: 8); such combinations of characters as red pronotum and metallic dark blue, green or sharply bicolor elytra absent ..... Subgenus *Falsoxanthalia* Pic

-. Upperside almost glabrous, setae very short and can be hardly seen in dorsal view. Elytra sharply bicolor (black or brown with a red spotty pattern) (Plate 3: 1, 3, 5) or metallic dark blue, green, dark blue-green, violet or black, often in combination with a red pronotum ..... Subgenus *Tetratoma* F.

Tetratoma (Tetratoma) fuscoguttata sp. nov.

Plate 2: 1-3; Plate 3: 1, 2

Holotype male, Nepal, Parbat Distr., Ridge E. Ghoropani Pass, 3100 m, 7.X.1983, Smetana & Löbl leg. - 5 paratypes, including 1 female, same locality; 3 paratypes: Nepal, Parbat Distr., Ghoropani Pass, N. slope, 2750 m, 5.X.1983, Smetana et Löbl leg.

The holotype and most of the paratypes are kept in the collection of the Muséum d'Histoire naturelle in Geneva, while 2 paratypes in the Zoological Museum of the State University of Moscow, Russia.

Description. Head black with yellow-brown clypeus and labrum. Antennomeres 1-4 or 1-7 reddish-brown, other apical antennal joints infuscate; pronotum usually dark red-brown, only its sides can be somewhat clarified. Sternum and abdomen usually brown-black with somewhat clarified sides of prosternum and abdomen. Scutellum dark. Legs red-brown to brown. Elytra yellow-brown, shining, at base with a black-brown or black longitudinal spot located medially of humeral angle, and with a transverse row of three spots in anterior 1/3 extent (inner spot reaching the suture and outer spot connected with an infuscate lateral margin); apical part of elytra black-brown, entirely margining a large transverse yellow-brown spot. Elytra with very short and sparse grayish hairs not rarely hardly distinguishable in dorsal view.

Antennae rather short, not surpassing 1/6 extent of elytra, their joints 8-11 1.2-1.3 times longer than all preceding antennomeres combined (Plate 3: 1); antennomere 1 more or less round, longitudinal; 2nd somewhat narrower and ca. 1.4 times shorter than 1st, also somewhat rounded; antennomere 3 elongate-triangular, 1.1-1.2 times longer than 2nd, 1.6-1.8 times as long as broad and as antennomere 4, latter about as long as broad or very slightly transverse; antennomere 5 ca. 1.1-1.2 times broader and longer than 4th; antennomere 6 a little shorter than 5th and 1.25-1.3 times as broad as long; antennomere 7 ca. 1.7-1.8 times as broad as long and 1.3 times broader than 6th; antennomere 8 ca. 1.2-1.3 times broader and 2.2-2.4 times longer than 7th, 1.1-1.2 times as long as broad; antennal joints 9 and 10 about as long and broad as 8th; antennomere 11 more or less oblong-oval, 1.5-1.7 times longer than both wide and antennomere 10. Head shining, somewhat flattened, with dense, relatively fine punctation, distance between punctures considerably less than their diameter. Vertex straight behind eyes not frequently with a more or less strong impression. Width of frons between distinctly sinuate eyes 1.2-1.3 times greater than transverse ocular diameter.

Pronotum shining, not shagreened, 1.5-1.6 times as broad as both long and head with eyes. Sides of pronotum more or less straight, reflexed and flattened not too broadly, 2-4-undulate, hind corners of pronotum rectangular, not frequently somewhat rounded or slightly sharply protruding. Greatest width of pronotum in its anterior part, whence narrowed more or less roundly anteriorly and often very weakly rectilinear posteriorly. Base of pronotum in front of scutellum weakly sinuate. Disk of pronotum with two postmedial impressions on each side behind middle and with two well-developed basal foveae. Punctation of pronotum dense, of rather medium size, distance between punctures considerably less than their diameter.

Scutellum ca. 1.4-1.5 times as broad as long, shining, finely and rather sparsely punctured. Elytra more or less oblong-oval, shining, virtually not shagreened, considerably broadened posteriorly, ca. 1.6 times as long as greatest width, with dense and rough punctation (considerably coarser than on pronotum), in middle part of elytra distance between neighboring punctures 1.5-3.0 times less than diameter of a puncture.

Prosternal process posteriorly very weakly broadened, ca. 3 times as narrow as coxal transverse diameter. Mesosternal process considerably broader than prosternal one and reaching the middle of length of mesocoxae. Metasternum shining, not shagreened, with dense and rather coarse punctation. Abdomen with finer, rather sparse punctation. 1st visible abdominal sternite almost not longer than 2nd; sternite 5 without impression.

Aedeagus as in Plate 2: 1-3.

Body length: 3.8-5.0 mm.

Diagnosis: The spotty pattern of the elytra coupled with their very short dust-like pubescence, as well as the strongly developed antennomeres 8-11 which are longer than all preceding joints combined make this species safely distinguishable from congeners.

Tetratoma (T.) nepalensis sp. nov.

Plate 3: 3

Holotype female, Nepal, Ramche, 1800-3350 m, 18.VI.1978, Bhakta B. leg.

The type is kept in the Naturhistorisches Museum in Basel.

Description. Underside, also including legs, clypeus, labrum, three basal antennomeres, pronotum (except for transverse row of obscure dark spots) and elytra (except for dark spots) yellow to yellow-brown or red-yellow-brown; upperside iridescent; scutellum light, more or less dirty yellow-brown; antennomeres 4-7 considerably darker than preceding ones, antennal joints 8-11 black-brown; head dark red-brown; disk of pronotum red-yellow-brown with a transverse row of four black-brown obscure spots, of which inner longitudinal and outer one transverse; black-brown pattern of elytra consisting of a spot bilobed in posterior part at base, one spot common to both elytra on suture behind scutellum, a transverse row of three spots in front of middle of elytra, with outer spot connected with lateral edge of elytra broadly infuscate up to apex; apical part of elytra black-brown, margining two relatively small light spots, of which one, more distant from apex, larger and more strongly approximate to suture than to sides, while the other smaller, apical, longitudinal, considerably more strongly approximate to suture (Plate 3: 3). Body pubescence as in preceding species.

Antennomeres 8-11 less than 1.2 times as long as all preceding ones combined. Antennal joint 1 broad, roundly triangular, almost as long as broad; 2nd considerably narrower and only slightly shorter than 1st; 3rd narrow, elongate-triangular, ca. 1.3 times as long as 2nd and 1.8-1.9 times as long as broad; antennomere 4 about as long as broad and ca. 1.6 times as short as 3rd; antennal joint 5 somewhat rounded, about as long as 4th and not more than 1.05 times as broad as long; antennomere 6 slightly shorter than 5th and ca. 1.3 times as broad as long; antennomere 7 about as long and ca. 1.2 times as broad as 6th, 1.5 times as broad as long; antennal joint 8 ca. 1.3 times as broad and ca. 2.0-2.2 times as long as 7th, about as long as broad and barely longer than antennal joint 9 or 10; antennomere 11 oblong-oval, ca. 1.5 times as long as wide and as 10th. Head shining, densely but not coarsely punctured; width of frons between eyes ca. 1.25 times greater than transverse diameter of a distinctly sinuate eye.

Pronotum shining, strongly transverse, ca. 1.6 times as broad as long and 1.7 times as broad as head with eyes. Base of pronotum weakly rounded, only very weakly sinuate in front of scutellum; sides of pronotum narrowly reflexed and flattened, not entirely even, each with two very weak, roundly angulate projections, in between almost parallel-sided, posteriorly narrowed more or less rectilinearly and anteriorly narrowed roundly; hind corners obtuse and rounded; anterior part of medial surface of pronotum with a longitudinal impression flanked by a rounded impression situated more closely to posterior part of pronotum; deeply impressed areas of paired basal impressions of pronotum transverse, while their shallower areas roundly triangular and narrowed anteriorly. Disk of pronotum with dense, moderately coarse punctation,

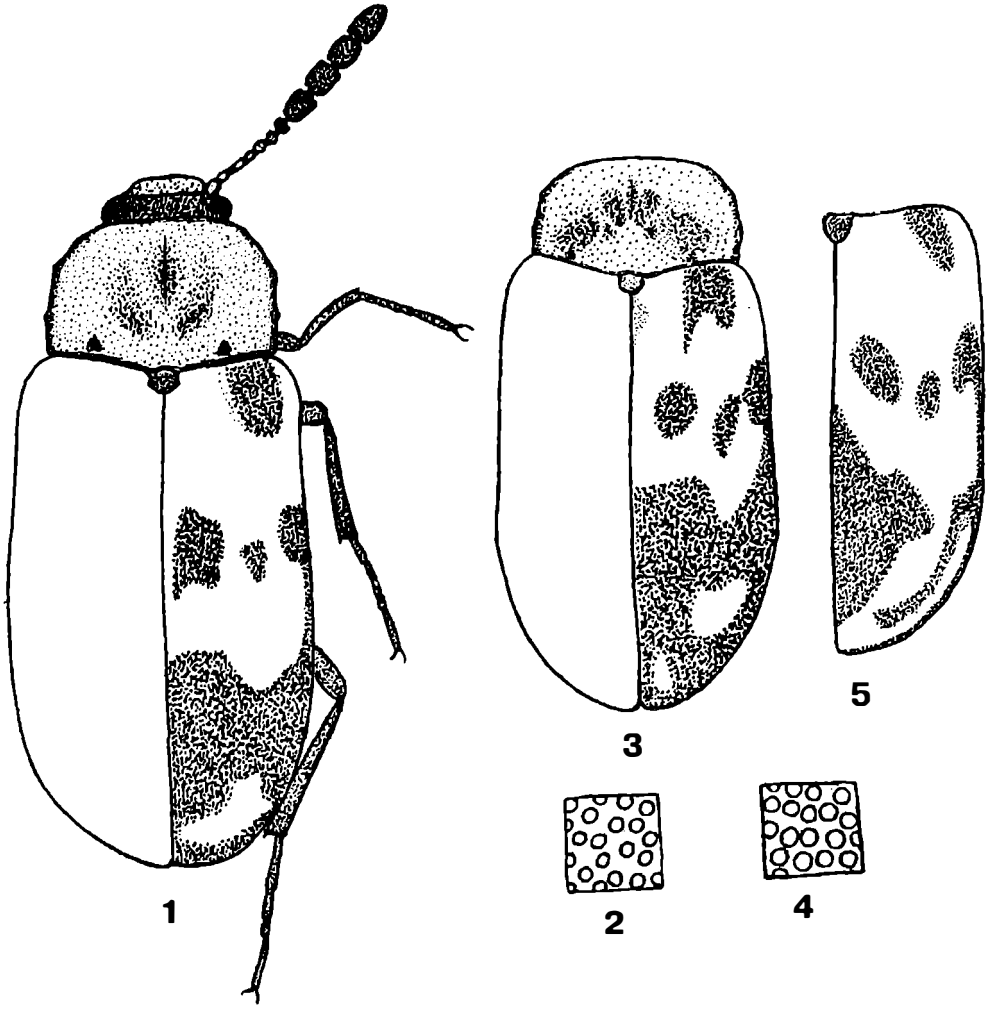

Plate 3. General view and details of structure of *Tetratoma* spp. (all original). 1, 2 - *Tetratoma (T.) fuscoguttata;* 3 - *T. (T.) nepalensis;* 4, 5 - *T. (T.) wittmeri.* 1 - general view; 2, 4 - punctation of elytra (x 20); 3 - pronotum and elytra; 5 - elytrum.

distance between punctures on the average considerably less than their diameter. Posterior part of medial surface of pronotum with a shortened smooth patch.

Scutellum weakly transverse, shining, with rather sparse punctation of about same size as on pronotum. Elytra more or less elongate, shining, considerably broadened posteriorly, ca. 1.2 times as broad as pronotum and 1.55 times as long as their own greatest width; their punctation very rough, considerably coarser than on pronotum, distance between punctures in middle part of elytra not more than 1.5 times less than diameter of a puncture.

Body length: 3.8 mm.

Diagnosis: The species differs from *T. fuscoguttata* sp. nov. in coloration of the upperside (Plate 3: 3), lighter legs and less strongly elongated antennomeres 8-11.

Tetratoma (T.) wittmeri sp. nov.

Plate 3: 4, 5

Holotype male, Bhutan, Chimakothi, 1900-2300 m, 14.5.1972, Bhutan Zool. Exp. leg.

The type is kept in the collection of the Naturhistorisches Museum in Basel.

Description. Most of head and maxillary palps dark brown-red, antennomeres 8-11 black-brown, basal ones distinctly clarified. Underside red-brown; clypeus, labrum, legs (with somewhat infuscate tarsi) and elytra (excluding dark spots) yellow to yellow-brown; disk of pronotum infuscate, red-brown, with darker two, thin semi-arches in medial part of pronotum, with a short, small lineiform patch behind these semi-arches in the middle, and an infuscate area outside.

Scutellum black-brown. Each elytrum with a black-brown longitudinal spot at base; an obliquely transverse spot near suture in anterior 1/3; a small longitudinal spot situated somewhat outside and behind preceding spot; a horseshoe-shaped spot laterad of preceding spot and reaching the infuscate lateral edge (latter broadly continued up to apex of elytra); a large irregular diamond-shaped spot starting before and ending up far behind middle of elytra, yet at a considerable distance from their apex; and also a dark longitudinal stripe starting from the dark lateral spot situated straight behind the middle of elytra and continued backwards almost in parallels to infuscate lateral edge of elytra but reaching neither their apex nor suture, nor diamond-shaped spot (Plate 3: 5). Body pubescence as in preceding species.

Antennae not surpassing basal 1/4 extent of elytra, antennomeres 8-11 ca. 1.1-1.15 times as long as all preceding joints combined; antennomere 1 large, distinctly longitudinal, 1.4-1.5 times longer and considerably broader than a rounded 2nd, latter 1.2 times as long as broad; antennal joint 3 elongate-triangular, 1.3-1.4 times as long as

2nd and 1.8 times as long as broad; antennomere 4 somewhat rounded, ca. 1.7-1.8 times as short as 3rd and about as long as broad; antennal joint 5 ca. 1.5 times as long and 1.1-1.2 times as broad as 4th, about as long as broad; antennomere 6 considerably shorter than 5th and ca. 1.3 times as broad as long; antennal joint 7 almost not longer but ca. 1.3 times broader than 6th, 1.6 times as broad as long; antennomere 8 ca. 1.25 times broader than 7th, 1.2 times as long as both preceding joints combined, ca. 1.1 times as long as 9th or 10th, both latter subequal; antennal joint 9 weakly longitudinal, 1.1-1.2 times as long as broad; antennomere 11 oblong-oval, ca. 1.5 times longer than 10th and 1.7 times as long as broad. Head shining, not shagreened, with dense, not coarse punctation; width of frons between distinctly sinuate eyes ca. 1.5 times greater than transverse ocular diameter.

Pronotum transverse, 1.6 times broader than head with eyes and 1.55 times as broad as long; its lateral sides slightly uneven, very weakly rounded and rather weakly reflexed, anterior corners of pronotum entirely rounded, posterior ones more or less rectangularly rounded; pronotum broadest near middle whence more strongly and roundly narrowed anteriorly than basally. Medial part of pronotum before middle with a longitudinal impression. Punctation of pronotum rough and very dense, punctures separated by very narrow, small, wrinkle-like spaces, latter by far narrower than diameter of a puncture.

Scutellum weakly transverse, rather sparsely and moderately finely punctured. Elytra oblong-oval, ca. 1.55 times as long as broad and ca. 1.2 times broader than pronotum, distinctly broadened posteriorly, their surface convex, shining, with very dense and rough punctation, considerably coarser than on pronotum, distance between punctures in middle part of elytral disk 3.0-3.5 times less than diameter of a puncture.

Aedeagus similar to that of *T. fuscoguttata* sp. nov.

Body length: 3.6 mm.

Diagnosis: This species differs from *T. fuscoguttata* sp. nov. and *T. nepalensis* sp. nov. in combining such characters as the very rough and dense punctation of the elytra (Plate 3: 4), black-brown scutellum and coloration of the upperside (Plate 3: 5).

Key to species of *Tetratoma* based on larvae

Plate 12: 1-9; Plate 13: 1-9

1. Urogomphi more narrow and proportionately elongate, notch between them at level of inner setigerous tubercles considerably greater than width of one urogomphus together with tubercles (Plate 13: 5, 9). Medial tubercles of abdominal tergite 9 more narrow and weakly developed (Plate 13: 5). Body only with slightly yellowish scuta of tergites. Body length: 4.3-5.5 mm .... (Subgenus *Abstrulia* Casey) ... 2

-. Urogomphi broader and proportionately short, notch between them more shallow, distance at level of inner setigerous tubercles not or very slightly exceeding the

width of one urogomphus together with tubercles (Plate 13: 1, 4). Medial tubercles of abdominal tergite 9 broader and more strongly developed (Plate 13: 1, 4). Scuta of abdominal tergites not rarely considerably darker. Body length: 6.5 - 8.5 mm3

2. Inner setigerous tubercles of urogomphi more strongly shifted ventrad, usually only slightly projecting inside in dorsal view and thus more broadly separated (Plate 13: 5) ..... *T. (Abstrulia) ainu* (Nakane)

-. Inner setigerous tubercles of urogomphi more strongly projecting and thus more strongly approximate to each other (Plate 13: 9) ..... *T. (A.) ancora* F.

3. Abdominal tergite 9 in lateral view bearing a transverse row of 2-3 large setigerous tubercles with smaller ones in front of them (Plate 13: 3). Medial tubercles of abdominal tergite 9 considerably larger, directed laterad (Plate 13: 4) .... *T. (Falsoxanthalia) desmarestii* Latr.

-. Abdominal tergite 9 in lateral view bears not more than 2-3 tubercles (Plate 13: 2). Medial tubercles of abdominal tergite 9 considerably more weakly developed and directed caudad (Plate 13: 1) ..... *T. (Tetratoma) fungorum* F.

Subfamily Piseninae Miyatake, 1960

Genera included: *Pisenus* Casey, 1900, *Notopisenus* Nikitsky et Lawrence, 1992, and *Triphyllia* Reitter, 1898.

Genus *Pisenus* Casey, 1900

Plate 4: 1-8

Type-species: *Cryptophagus humeralis* Kirby, 1837

This genus is represented in the world fauna by six species, of which three are distributed in the south of the Russian Far East, in Korea and Japan, one species in Taiwan and two in North America.

Larva as in Plate 14: 1-18.

Key to species of *Pisenus* based on larvae

1. Teeth at base of interior edge of urogomphi more elongate and sharp, 1.7-2.0 times as long as broad at base (Plate 14: 13, 14). Body larger: 6.0-7.5 mm 2

-. Tubercles at base of interior edge of urogomphi less elongate and more strongly rounded, not more than 1.4 times as long as broad in basal part (Plate 14: 16). Body smaller: 4.0-5.0 mm. Kunashir Island; Japan .... *P. insignis* (Reitter, 1889)

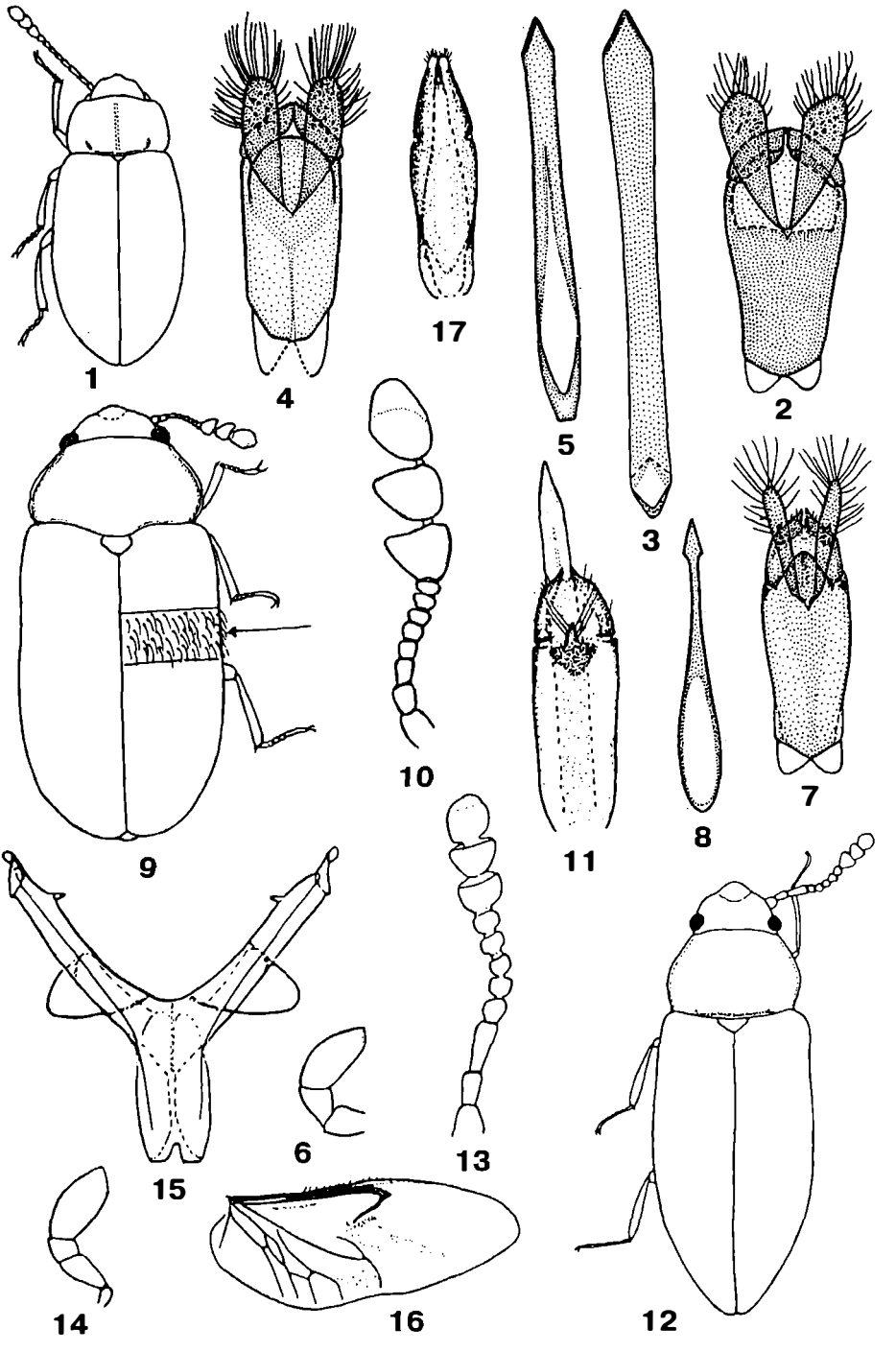

Plate 4. General view and details of structure of Piseninae (1-5, 7, 8 - after Miyatake, 1960, others original). 1-3 - *Pisenus chujoi;* 4-6 - *P. rufitarsis;* 7, 8 - *P. insignis;* 9-11 - *Notopisenus boleti;* 12-17 - *Triphyllia koenigi.* 1, 9, 12 - general view; 2, 4, 7 - tegmen (ventral view); 3, 5, 8 - penis; 6, 14 - maxillary palp; 10, 13 - antenna; 11, 17 - aedeagus; 15 - metendosternite; 16 - wing.

2. Antennomere 3 usually shorter than 2nd (Plate 14: 5). Khabarovsk and Maritime provinces, Sakhalin and Kunashir islands; Korea, Japan ..... *P. rufitarsis* (Reitter, 1889)
Antennomere 3 not shorter, rather often even somewhat longer, than 2nd (Plate 14: 18). Khabarovsk and Maritime provinces, Sakhalin and Kunashir islands; Korea, Japan ..... *P. chujoi* Miyatake, 1960

enus *Notopisenus* Nikitsky et Lawrence, 1992

Plate 4: 9-11

Type-species: *Notopisenus boleti* Nikitsky et Lawrence, 1992 (Plate 4: 9-11)

This monotypic genus has been described from Chile and still is the only representative of the subfamily Piseninae occurring beyond the true Holarctic (considering Taiwan as a territory intermediate between the Holarctic and Oriental regions).

Genus *Triphyllia* Reitter, 1898

Plate 4: 12-17

Type-species: *Triphyllia koenigi* Reitter, 1898 (Plate 4: 12-17)

This genus includes two species, one of which is distributed in the Northwest Caucasus, as well as in West and central Transcaucasia, and the other in North America.

The genus *Eupisenus* Casey, 1900, which until recently encompassed the Nearctic *E. elongatus* (LeConte, 1875) (see Nikitsky, 1988), can now be considered only as a subgenus of the genus *Triphyllia*. It displays fuller wing venation (with a developed radial cell) and the aedeagus carries a group of setae missing in the Caucasian *Triphyllia koenigi* Reitter, 1898.

Larva as in Plate 15: 1-9.

Subfamily Penthinae Lacordaire, 1859

Genera included: *Cyanopenthe* gen. nov. and *Penthe* Newman, 1838

Genus *Cyanopenthe* gen. nov.

Plate 5: 9-11

Type-species: *Penthe metallica* Champion, 1916 (Plate 5: 10, 11)

Cyanopenthe differs from *Penthe* in the following characters: apical 4-5 antennomeres, all strongly broadened asymmetrically, more or less pectinate-clavate; last antennomere not lighter than preceding ones (Plate 5: 9, 11), and body coloration of metallic tinge. Only females are currently known.

Two species.

Distribution: India, Bhutan and Indochina.

Cyanopenthe thailandica sp. nov.

Plate 5: 9

Holotype female, NW Thailand, Doi Suthep, 19-23.04.1991, Jan Farkač leg.

The type is kept in the collection of the Naturhistorisches Museum in Basel.

Description. Upperside shining, not shagreened. Antennae, femora, tibiae and underside very dark blue, partly sternum and abdomen with violet tinge; head and pronotum more or less black, frons at antennal bases and pronotal edges with metallic dark blue lustre, elytra violet with dark bluish suture (partly) and lateral edges. Scutellum metallic green, with dense decumbent yellow pubescence almost undeveloped in its medial part against background of a darker impression of black-violet color. Upperside with black elongate protruding pubescence.

Joint 2 of maxillary palps elongate-triangular, subequal to 4th, latter almost twice as long as broad, sides of 4th more or less parallel, apex obliquely rounded. Antennomere 1 broad, strongly longitudinal, ca. 1.4 times as long as 2nd, latter short and very weakly longitudinal; antennomere 3 strongly elongate, ca. 4 times as long as broad and ca. 3.4-3.5 times longer than 2nd; antennal joint 4 ca. 1.6 times as short as 3rd, 2.5 times as long as broad and slightly longer than 5th, latter about twice as long as broad; antennal joint 6th longitudinal, ca. 1.4 times as long as broad, slightly shorter and considerably broader than 5th; antennomeres 7-11 broadened into a pectinate club; antennal joint 7 about as long as 6th, 1.8 times as broad as long and 2.2-2.3 times broader than 6th; antennal joints 8-10 each about as long and 1.4 times as broad as 7th, 2.4-2.5 times as broad as long; antennal joint 11 asymmetrically curved, oblong-oval, ca. 1.8 times as long as broad. Head shining, more or less convex, with fine irregular punctation. Frontal width between eyes ca. 1.3 times less than transverse ocular diameter.

Pronotum shining, strongly flattened (ca. 1.8 times broader than head with eyes and 2.4 times as broad as long), with fine sparse punctation (distance between punctures near middle of disk equal to 2-3 diameters of a puncture). Edging of pronotum well-developed, reflexed on each side and in lateral parts of anterior edge; posterior edge on each side (approximately to level of inner edge of basal impressions) broadly margined. Anterior edge of pronotum near middle very shallowly sinuate. Pair of basal impressions of pronotum very large and extending from base to about 1/2 length. Pronotum broadest near posterior corners, its sides more or less parallel posteriorly, but more or less rectilinearly and somewhat roundly narrowed anteriorly.

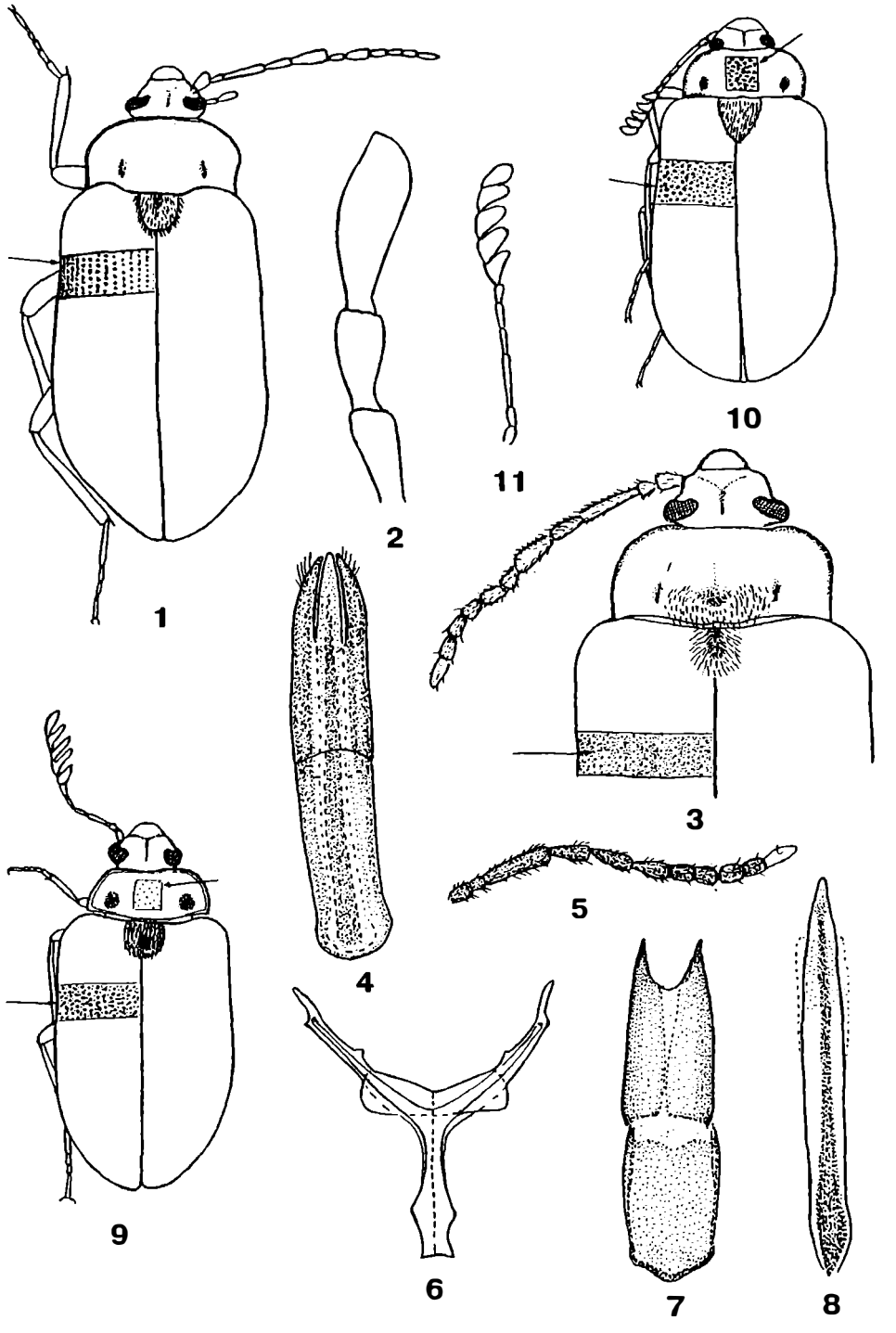

Plate 5. General view and details of structure of Penthinae (all original). 1, 2 - *Penthe japana* Marseul, 1876 (male); 3, 4 - *P. reitteri* (male); 5 - *P. rufopubens* Marseul, 1876 (female); 6 - *P. obliquata;* 7, 8 - *P. almorensis* Champion, 1917; 9 - *Cyanopenthe thailandica* (type); 10, 11 - *C. metallica* (type). 1, 9, 10 - general view; 2 - maxillary palp; 3 - anterior part of body; 4 - aedeagus (dorsal view); 5, 11 - antenna; 6 - metendosternite; 7 - tegmen (dorsal view); 8 - penis.

Scutellum large, transverse, densely punctured, ca. 1.6 times as short as pronotum. Elytra broadly oval, shining, generally more or less convex, somewhat flattened on disk, at humeri ca. 1.3 times as broad as pronotum at base, posteriorly considerably broadened, ca. 1.55-1.6 times as long as broad. Rows of punctures of elytra rather rough but clearly traceable only in middle part of disk of each elytrum, while towards edges and suture their configuration becoming more or less confused. Width of intervals between rows of punctures up to 0.3-0.7 diameter of punctures in rows. Spaces between rough rows of punctures with dense, rather fine punctures, latter's diameter 2.0-2.5 times smaller than that of punctures in rows but considerably larger than punctures in the center of pronotal disk.

Prosternum before procoxae ca. 1.5 times as short as coxal longitudinal diameter. Prosternal process moderately strongly broadened posteriorly (on each side without distinct edging from behind), near midway ca. 2.3 times as narrow as coxal transverse diameter. Posterior, more or less roundly truncated part of prosternal process not surpassing posterior edge of coxae caudally. Metepisterna shining, with fine punctation of medium density. 1st visible abdominal sternite about as long as 2nd. Joint 1 of metatarsi slightly shorter than all following tarsomeres combined, and joints 2 and 3 each considerably shorter than 4th. Body length: 9.0 mm.

Diagnosis: This species differs from *Cyanopenthe metallica* (Champ.), comb. nov. (Plate 5: 10, 11), in the broader pronotum (in *C. metallica* only twice as broad as long) with fine and sparse punctation (Plate 5: 9) (in *C. metallica*, punctation of rather medium size, at least partly umbilicate, and spaces between punctures shining, rugose). Scutellum in *C. metallica* of bronzed or metallic red-bronzed color, more or less evenly covered with dense yellow hairs, without distinct impression (Plate 5: 10). Antennomeres 8-10 in *C. metallica* less transverse (Plate 5: 11).

Genus *Penthe* Newman, 1838

Plate 5: 1-8

Type-species: *Helops obliquatus* Fabricius, 1798

This genus includes nine species distributed in China, the Himalaya, Japan, the Oriental Region, and North America.

Larva as in Plate 16: 1-17.

Probably mycetophages.

Penthe reitteri sp. nov.

Plate 5: 3, 4

Holotype male, China, Sechuan, Nitou Tatsienlu, Em. Reitter. - Paratypes: 1 male, 1 female with the same data.

The holotype and one paratype are kept in the Národni Muzeum v Praze, Prague, while the other paratype in the Zoological Museum of the State University of Moscow, Russia.

Description. Body black, oblong-oval, at least elytra more or less dull; last antennomere yellowish. Upperside clothed with black or black-brown, somewhat raised, moderately dense and modestly elongate hairs. Pronotum at hind margin before scutellum with a transverse, U-shaped patch clothed with dense yellow hairs, in front of latter an impressed patch clothed with erect black hairs. Scutellum medially with well-developed black pubescence surrounded with dense yellow pubescence (Plate 5: 3).

Female antennomere 3 strongly elongate but a little shorter than two subsequent joints combined, 6th considerably shorter than 5th; male antennomere 5 considerably broader and longer than 4th, 6th or 7th, latter considerably longer than 6th; male antennomeres 7-10 rather short, subequal, 1.2-1.25 times longer than wide, densely clothed with rather short decumbent pubescence. Frontal width between eyes 1.3-1.4 times less than transverse ocular diameter. Head posteriorly and pronotum rather finely and densely punctured, punctures in fore part of head larger.

Pronotum 2.1-2.2 times as broad as long, with somewhat pointedly rounded and projecting posterior corners (Plate 5: 3). Paired basal impressions of pronotum well-developed, fovea-like, more or less longitudinal.

Elytra twice as long as maximum broad behind middle, each with 14 very fine rows of punctures (including presutural row but excluding a rough row on lateral border). Spaces between rows ca. 3-4 diameters of a puncture in row; spaces between rows with very fine, superficial and dense punctures, latter only relatively little smaller than punctures in rows (Plate 5: 3).

Aedeagus as in Plate 5: 4.

Body length: 10.5-12.0 mm.

Diagnosis: Differs well from congeners by the following combination of characters: coloration of pubescence of scutellum and of posterior part of pronotum as well as very fine rows of punctures of elongated elytra.

Subfamily Hallomeninae Mulsant, 1856

Genera included: *Hallomenus* Panzer, 1794 and *Mycetoma* Dejean, 1834

Genus *Hallomenus* Panzer, 1794

Plate 6: 1-17; Plate 10: 1

Type-species: *Hallomenus humeralis* Panzer, 1794 (= *binotatus* Quensel, 1790) (Plate 6: 1)

This genus is divided into two subgenera: *Hallomenus* s. str. (Plate 6: 1-14; Plate 10: 1) with ten species distributed in Europe, the Caucasus, Siberia, the Far East of Russia, China, Japan, Pakistan, Kashmir and North America, and *Xeuxes* Champion, 1889, stat. nov. (Plate 6: 15-17), known from the south of the Russian Far East, Japan and North America (including Mexico).

Xeuxes was described as a monotypic genus and included only *X. brevicollis* Champion, 1889, from Mexico (Plate 6: 15, 16). While studying the world fauna of this group, two more species have been found to be actually referred to this subgenus: *Hallomenus (Xeuxes) serricornis* LeConte, 1877, from North America, and *H. (X.) tokejii* Nomura et Katô, 1958 (Plate 6: 17), distributed in the south of the Russian Far East and in Japan. The latter species was earlier included in the monotypic subgenus *Parahallomenus* Nomura et Katô, 1958. Examination of all three above species has allowed to establish absolute synonymy of *Xeuxes* Champion, 1889 and *Parahallomenus* Nomura et Katô, 1958, syn. nov.

We have examined the type of *Xeuxes diversicornis* Pic, 1930, described from Argentine, and found out that in reality it belongs to the subfamily Alleculinae of the family Tenebrionidae.

In accordance with the catalogue of Csiki (1924), some species in fact belonging to other families or genera have also been included in *Hallomenus*. Thus, *Hallomenus pallens* Gyllenhal, 1817, described from Sierra Leone, is in reality referred to the family Scraptiidae; we have studied the types of this species and designated the lectotype. *Hallomenus reticulatus* Motschoulsky, 1872, described from Atlanta, Georgia, U.S.A. (the holotype of which has also been restudied by us) actually belongs in the subfamily Alleculinae, family Tenebrionidae. *Hallomenus fuscosuturalis* Blatchley, 1913, described from Florida, U.S.A., is in reality another member of Scraptiidae. Unfortunately, the type of *Hallomenus variegatus* Motschoulsky, 1872, from the Caucasus, has not been recovered in the Motschoulsky Collection of the Moscow Museum but, based on the original description, it is very likely to represent the genus *Orchesia* Latr. (Melandryidae).

Similarly, no type of *Hallomenus ? anaspioides* Motschoulsky, 1845(a), described from Kamchatka, has been elucidated in the Motschoulsky Collection. However, it does contain a specimen which could have represented this species, judged from the geographical label and regrettably far too brief original description. Yet it seems likely to be non-type. In reality it represents *Orchesia fusiformis* Solsky, 1871 (Melandryidae). As soon as there is no convincing evidence about the original identity of Motschoulsky's specimen, we conserve the latter name as valid.

Further, the species described as *Mycetochara puncticollis* Blatchley, 1917, from North America, is actually referred to the genus *Hallomenus*; we have restudied the type of this species. *Hallomenus innatus* Kangas, 1959, described from Finland (we have restudied the type as well), belongs in fact to the genus *Scraptia* Latr. (Scraptiidae). Based on a restudy of the type, *Hallomenus klapperichi* Pic, 1954, described from China, has long become type-species of a separate genus, *Pseudoholostrophus* Nikitsky,

1983. Finally, we consider *Hallomenus punctulatus* LeConte, 1866, described from North America, as a junior synonym of *H. binotatus* (Quensel, 1790).

Apparently, the development of *Hallomenus* species is mainly associated with Aphyllophorales fungi.

Hallomenus (Hallomenus) chinensis sp. nov.

Plate 6: 8-11

Holotype male, China, Sechuan, Gongga Shan, above Camp 3, 3050 m, 22.VII.1994, A. Smetana leg. - Paratype male, same locality.

The holotype is kept in the collection of the Muséum d'Histoire naturelle in Geneva, the paratype in the Zoological Museum of the State University of Moscow, Russia.

Description. Upperside and underside black-brown to black; coxae, trochanters and femora red-yellow, tibiae with tarsi brown or almost black; antennomeres 3-11 (excluding a weakly clarified apex of last joint) black-brown to black; maxillary palps, antennomeres 1-2 and anterior edge of labrum dark red-brown. Upperside covered with more or less elongate hairs, latter lighter grayish on head and pronotum and darker brownish-grey on elytra.

Last joint of maxillary palps ca. 1.8-1.9 times as long as broad, considerably longer at outer edge than at inner one, more or less roundly and obliquely truncate apically. Antennae more or less elongate, when stretched back along body, reaching about anterior 1/5 extent of elytra. Antennomere 1 distinctly longitudinal, 1.5-1.7 times as long as 2nd, latter short and about as long as broad; antennal joint 3 elongate-triangular, ca. 2.2-2.3 times as long and 1.6-1.7 times as broad as 2nd and 1.3-1.4 times as long as broad; antennomere 4 ca. 1.15-1.25 times as short as 3rd, barely longitudinal or about as long as broad; antennal joints 5-10 about as long as broad; antennomere 11 elongate, ca. 1.6-1.7 times as long as 10th and 2.0 times as long as broad, distinctly narrowed in apical part and conspicuously constricted (Plate 6: 9). Head rather slightly shining or almost dull, with dense, medium-sized, granulate punctation, very finely shagreened, at most with a weak flattened impression level to posterior edge of eyes. Width of frons between strongly sinuate eyes 1.15-1.2 times less than transverse ocular diameter.

Pronotum generally more or less convex, 1.6-1.7 times as broad as head with eyes and as its own length. Its sides before posterior roundly obtuse corners (approximately in posterior 1/4 length) at first weakly broadened and then strongly narrowed towards anterior, fully rounded corners (Plate 6: 8). Base of pronotum distinctly bisinuate, all edges fully margined. Disk of pronotum more or less shining, with dense, rather medium-sized, granulate punctation (Plate 6: 8), with traces of fine shagreen in spaces at most. Distance between punctures in longitudinal direction ca. 0.5 diameter of a puncture. Paired basal impressions of pronotum large and deep, but a smaller and shallower impression can be situated in front of each. Medial surface of pronotum can be weakly

transversely flattened in posterior part, anterior part usually with a more or less distinct longitudinal impression.

Scutellum about as long as broad, strongly narrowed posteriorly, more or less roundly truncate, with fine punctation and finely shagreened. Elytra oblong-oval, somewhat flattened, 2.0 times as long as greatest width. Their surface finely and densely punctured, more or less shining, with a conspicuous transverse impression in anterior part at suture. Each elytrum with 5-7 weak striae but without distinctly deepened rows of punctures inside (Plate 6,8). Spaces between punctures of elytra with weak traces of shagreen at most, up to 0.5-1.0 diameter of a puncture in longitudinal direction.

Prosternum before procoxae ca. 2.0 times as short as their longitudinal diameter. Trochantin of procoxae invisible. Prosternal process rather broad, margined on sides, more or less roundly broadened posteriorly and in this part ca. 2.0-2.2 times as narrow as coxal transverse diameter. Mesosternal process narrow, margined, considerably narrower than prosternal one, almost reaching the posterior edge of mesocoxae. Metasternum finely punctured in middle part and finely shagreened, ca. 2.0 times as long as 1st visible abdominal sternite. Metepisterna conspicuously narrowed posteriorly, ca. 3.5 times as long as broad, without well-defined triangular area in anterior part. Joint 1 of protarsi considerably longer than joints 2 and 3 combined, slightly longer than 5th. Metatibiae about as long as tarsi, their spurs short, of almost equal length, 5.0 times as short as tarsomere 1, latter considerably longer than joints 2 and 3 combined and ca. 2.2 times as long as 4th. 1st visible abdominal sternite subequal to 2nd. Abdominal sternites with fine punctation and finely shagreened, more or less dull.

Aedeagus as in Plate 6: 10, 11. In the holotype penis and parameres approximately in one plane (Plate 6: 10, 11), while in the paratype the penis is curved almost at right angles with respect to the parameres.

Diagnosis: The species differs from other species of *Hallomenus* s. str. in the following combination of characters: granulate punctation of pronotum, more or less uniform black-brown or black body with femora considerably lighter than tibiae (Plate 6: 8), and fairly strongly enlarged antennomeres.

Hallomenus (H.) orientalis sp. nov.

Plate 6: 12-14

Holotype female, India, Kashmir, Gulmarg, VI.1931, Dr. M. Cameron leg. - Paratypes, 3 females, Pakistan, Hazara, Malkandi, 1500 m, 3.VI.1983, Besuchet & Löbl leg.

The holotype is kept in the collection of the Natural History Museum in London, two paratypes in the Muséum d'Histoire naturelle in Geneva, and one paratype in the Zoological Museum of the State University of Moscow, Russia.

Description. Main color of body black-brown to dark red-brown; abdomen usually more or less clarified; maxillary palps, head generally or its anterior part only, pronotum

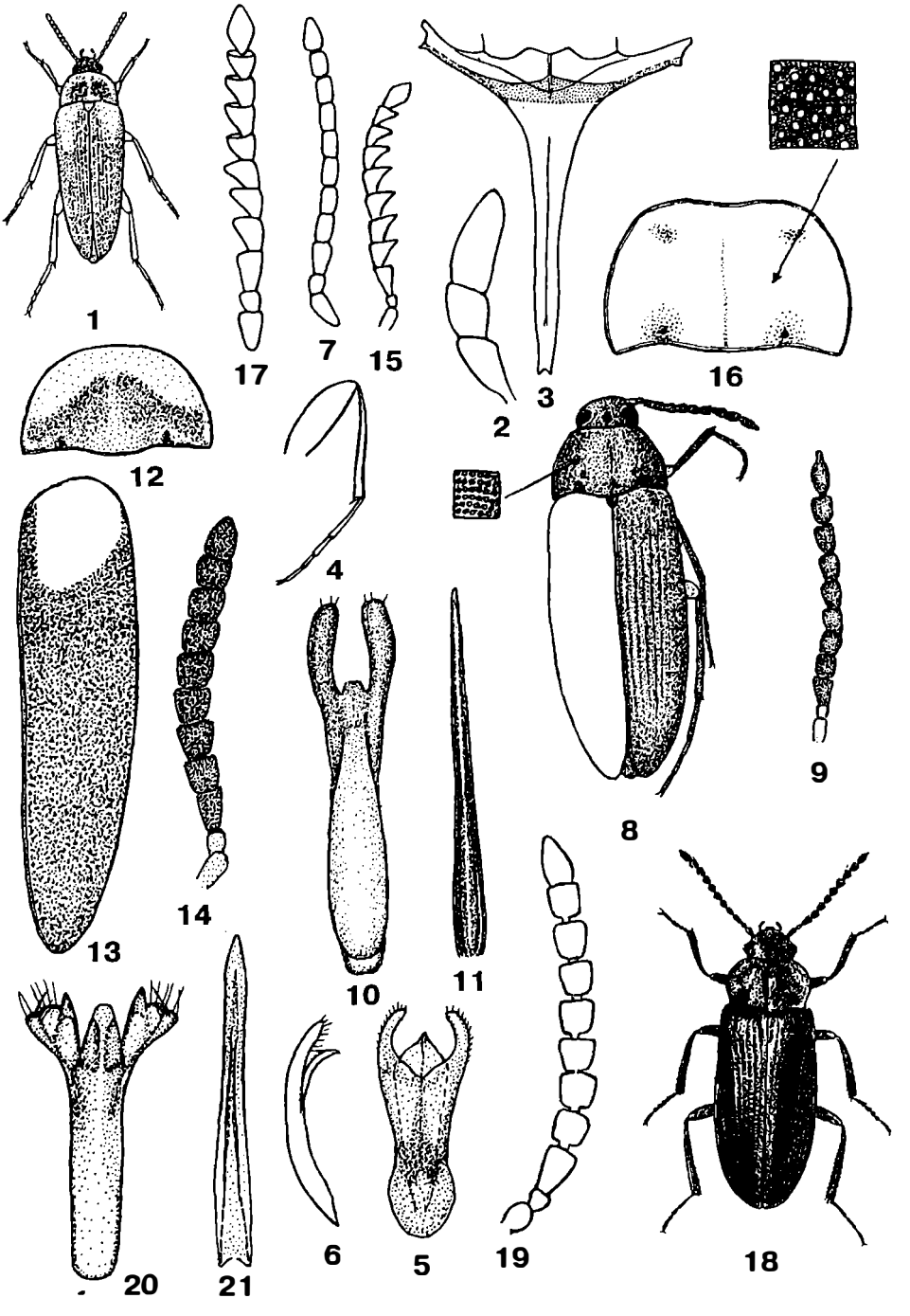

Plate 6. General view and details of structure of Hallomeninae (all original). 1-6 - *Hallomenus (Hallomenus) binotatus;* 7 - *H. (H.) nipponicus;* 8-11 - *H. (H.) chinensis* (type); 12-14 - *H. (H.) orientalis;* 15-16 - *H. (Xeuxes) brevicollis* (type); 17 - *H. (X.) tokejii;* 18 - *Mycetoma suturalis;* 19 - *M. ussuriensis* Nikitsky, 1985; 20, 21 - *M. affinis* Nikitsky, 1985. 1, 8, 18 - general view; 2 - maxillary palp; 3 - metendosternite; 4 - hind leg; 5 - aedeagus (dorsal view); 6 - same (lateral view); 7, 9, 14, 15, 17, 19 - antenna; 10, 20 - tegmen (dorsal view); 11, 21 - penis; 12, 16 - pronotum; 13 - elytrum.

(except for a transverse obscure dark fascia usually divided in middle part into two spots by a more or less light longitudinal area), antennae and legs red-brown or red-yellow; large humeral spot on each elytrum red-yellow and slightly not reaching the suture, but reaching the lateral edge (Plate 6: 13). Antennomeres 3-10 more often strongly infuscate, more rarely dark red-brown. Upperside covered with elongate hairs, more or less decumbent or strongly inclined, light on disk of pronotum and infuscate against black-brown or almost black background of elytra.

Antennomere 1 longitudinal, ca. 1.4-1.6 times as long as 2nd; latter short, about as long as broad; antennal joint 3 elongate-triangular, twice as long as 2nd and 1.3-1.4 times as long as both width and antennomere 4; antennal joints 4-10 more or less equal in size, antennal joints 8-10 ca. 1.1-1.2 times as broad as long; 11th more or less oblong-oval, ca. 1.4-1.5 times as long as both wide and 10th (Plate 6: 14). Head with dense, rather fine, granulate punctation; distance between deeply emarginate eyes ca. 1.4-1.5 times smaller than ocular transverse diameter.

Pronotum more or less shining, strongly transverse, ca. 1.7 times as broad as both long and head with eyes; pronotum broadest in posterior part, whence its edges fairly strongly and roundly narrowed anteriorly. Anterior corners of pronotum entirely rounded, posterior ones also rounded but less strongly so. Base of pronotum shallowly bisinuate. Granulate punctation of pronotum moderately large, very dense, punctures contiguous or almost so, disk of pronotum somewhat flattened in middle part.

Scutellum roundly triangular, finely punctured, very weakly transverse. Elytra oblong-oval, 2.1-2.3 times as long as maximum width, more or less shining, somewhat flattened on disk, at base only barely broader than pronotum, with dense, fine, rugose punctation (considerably finer than on pronotum) and at most with very weak traces of two striae in anterior part of elytra.

Prosternal process considerably broadened and rounded caudally, its width before broadest place ca. 3.5 times as narrow as coxal transverse diameter. Mesosternal process almost reaching the posterior edge of mesocoxae. Sides of metasternum and its episterna with dense and rough punctation. Spurs of metatibiae ca. 5.0 times as short as joint 1 of metatarsus, latter ca. 1.2 times as short as following joints combined; joint 2 considerably longer than 3rd and subequal to 4th. Abdominal sternites finely and densely punctured, shining.

Body length: 4.4-5.0 mm.

Diagnosis: This form differs from other species of *Hallomenus* s. str. in combining the following characters: pronotum with granulate punctation, reddish-yellow except for medial area infuscate like a transverse, dark, obscure fascia usually divided into two spots by a lighter longitudinal patch in middle part (Plate 6: 12); elytra fairly strongly elongate (ca. 2.1-2.2 times as long as maximum width), their humeral spots yellow-brown, fairly sharply delimited from remaining surface of elytra (Plate 6: 13), far from reaching the suture but enveloping humeral tubercle; median part of elytra with two weak striae at most.

Key to species of *Hallomenus* based on larvae

Plate 18: 1-10

1. Urogomphi more or less straight in lateral view, reflexed dentiform at apex and at most only very slightly curved (Plate 18: 9, 10). Body length: 5.0-6.5 mm. Europe, Caucasus, (?) Siberia ..... *H. axillaris* (Illiger, 1807)
-. Urogomphi rather evenly and more or less strongly curved all along in lateral view, curved forward at apex (Plate 18: 7). 6.5-9.0 mm. Europe, Caucasus, Siberia ..... *H. binotatus* (Quensel, 1790)

Genus *Mycetoma* Dejean, 1834

Plate 6: 18-21

Type-species: *Dryops suturalis* Panzer, 1797

This Palearctic genus is represented in the world fauna by four species, of which one is distributed in Europe and the Caucasus, one more in the south of the Khabarovsk and Maritime provinces (Nikitsky, 1985), further one in Japan and Kunashir Island, while the fourth in Japan. Their development is mainly associated with fungi of the genus *Ischnoderma*.

Larva as in Plate 17: 1-11.

Subfamily Eustrophinae Gistel, 1856

This subfamily is divided into two tribes: Holostrophini trib. nov. and Eustrophini Gistel. The former includes two genera: *Holostrophus* Horn, 1888 and *Pseudoholostrophus* Nikitsky, 1983. The latter tribe is composed of three genera: *Eustrophus* Illiger, 1802, *Synstrophus* Seidlitz, 1898, and *Eustrophopsis* Champion, 1889.

Tribe Holostrophini, tribus nov.

Genera included: *Pseudoholostrophus* Nikitsky and *Holostrophus* Horn

Representatives of this tribe differ from the Eustrophini in the metendosternite with well-developed lateral plates directed laterad (Plate 9: 12) as well as in the more complex structure of the aedeagus: basal part of tegmen strongly elongate, parameres like well-developed and strongly separated lobes, apices of latter often sclerotized more weakly than basal part. Penis strongly elongate, with a spiniform structure in its anterior part

and a long rod-shaped sclerotized process on ventral side. In addition, simple metatibiae without transverse rows of spines combined with confused punctation of the elytra are not characteristic of the true Eustrophini. The larval labium which is divided into a prementum, a mentum and a submentum more or less distinctly separated from the gula in *Holostrophus*, as well as the structure of the mandibles, the well-developed epicranial stem and the presence of a tooth at the inner edge of the urogomphi are not characteristic at least of the larvae of *Eustrophopsis* (= *Eustrophinus*), i.e. the only genus of Eustrophini in which the larva is sufficiently well-described.

Genus *Pseudoholostrophus* Nikitsky, 1983

Type-species: *Hallomenus klapperichi* Pic, 1954 (Plate 7: 3-8)

The genus has been established based on a study of the type of *Hallomenus klapperichi* Pic, 1954, a species described from Kuatun, Fukien, China. It differs from *Holostrophus* Horn, 1888 in the smaller and more weakly emarginate eyes, with the distance between them being considerably greater than a transverse ocular diameter (in *Holostrophus*, less than a transverse ocular diameter), as well as in the prosternal process usually faintly to not projecting behind the posterior edge of the procoxae and largely entirely margined on sides (in *Holostrophus*, prosternal process considerably longer and not rarely very strongly protruding behind posterior edge of procoxae).

Pseudoholostrophus is here considered to encompass four species, including also *Pseudoholostrophus chinensis* sp. nov. from Sechuan, China (Plate 7: 1, 2), *Pseudoholostrophus impressicollis* (LeConte, 1874), comb. nov. ex *Holostrophus* (Plate 7: 9-11), and *Pseudoholostrophus discolor* (Horn, 1888), comb. nov. ex *Holostrophus* (Plate 7: 12-15). Both latter species are North American, while *discolor* (we have seen only a single specimen) is promoted to type-species of a separate subgenus, *Holostrophinus* subgen. nov. This subgenus differs from *Pseudoholostrophus* s. str. in the double punctation of the pronotum (Plate 7: 12) and the weakly impressed pair of basal rather nonstroke-shaped impressions of the pronotum.

It seems noteworthy that species of *Pseudoholostrophus* display the elytra either one-color but not black or with a light humeral spot (Plate 8: 1) only, or with a clarified diffused transverse fascia in basal part (Plate 7: 12). A more clearly evident reddish-yellow or red spotty pattern of the elytra is characteristic of *Holostrophus*, not *Pseudoholostrophus*. The larva is unknown to us.

Key to species of *Pseudoholostrophus* based on imago

1. Pronotum with evident double punctation, with rather dense and large punctures interspaced by smaller ones (Plate 7: 12). Pair of basal impressions of pronotum

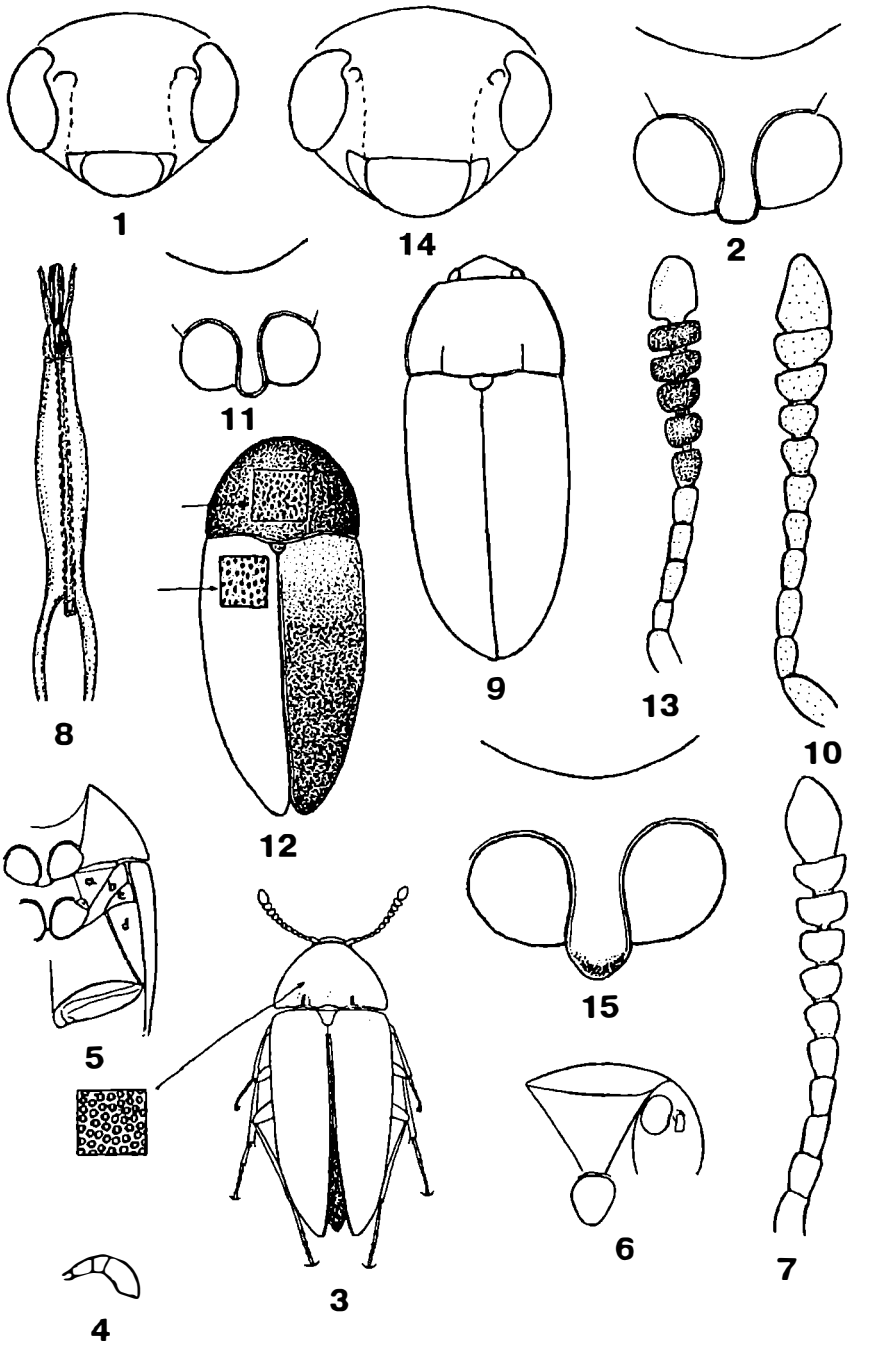

Plate 7. General view and details of structure of *Pseudoholostrophus* spp. (all original). 1, 2 - *Pseudoholostrophus (Pseudoholostrophus) chinensis* (type); 3-8 - *P. (P.) klapperichi* (type); 9-11 - *P. (P.) impressicollis;* 12-15 - *P. (Holostrophinus) discolor.* 1, 14 - head (frontal view); 2, 11, 15 - prosternum (ventral view); 3 - general view; 4 - maxillary palp; 5 - sternum (ventral view); 6 - head and prosternum (lateral view, schematic); 7, 10, 13 - antenna; 8 - penis (dorsal view); 9 - head, pronotum and elytra; 12 - pronotum and elytra; a - mesepisternum; b - mesepimerum; c - triangular area of anterior part of metepisternum; d - metepisternum.

rather shallow, rather nonstroke in shape. Prosternal process considerably broadened posteriorly, slightly but distinctly surpassing posterior edge of procoxae, bent under mesosternum but its very tip weakly elevated (Plate 7: 15) ..... Subgenus *Holostrophinus* subgen. nov.

Body black-brown to black; maxillary palps, basal 4-5 antennomeres and antennomere 11, as well as legs red-brown; antennomeres 6-10 usually infuscate, underside clarified at least partly, as a rule. Basal part of elytra with a diffused, transverse, red-brown or red fascia turning behind into darker background of elytra without any sharp boundaries. Upperside covered with somewhat raised, elongate, more or less infuscate hairs. Body length: 4.6-5.5 mm. North America ..... *P. (H.) discolor* (Horn)

-. Pronotum with simple, more or less uniform punctation (Plate 8: 1). Pair of basal impressions of pronotum usually distinctly stroke-like or in any case deeper (Plate 8: 1). Elytra one-color (Plate 7: 3, 9) or with a light, rather contrasting humeral spot (Plate 8: 1) ..... Subgenus *Pseudoholostrophus* s. str 2

2. Body black, each elytrum with a red-yellow humeral spot (Plate 8: 1); antennomeres 1-3 or 1-4, labrum and maxillary palps dark red-brown; apex of terminal antennal joint and tarsi somewhat clarified. Elytra at least against dark background covered with dense hairs, latter black-brown, slightly raised and somewhat darker that those on pronotum. Pronotum rather weakly shining or more or less dull, at least its middle part with moderately dense, rather medium-sized and not deep punctation (distance between punctures subequal to or a little greater than their diameter). Body length: 4.5 mm. China ..... *P. (P.) chinensis* sp. nov.

-. Body one-color, red-brown to brown, not rarely red tinge on upperside. Pronotum with fine or rough but dense punctation (distance between punctures considerably less than their diameter) 3

3. Pronotum and elytra with dense and rough punctation, shining, not shagreened (Plate 7: 3). Stroke-like impressions of pronotum short and occupying ca. 1/5 pronotal length (Plate 7: 3). Upperside covered with dense, semi-erect, reddish-brown hairs. Pronotum 1.6-1.7 times as broad as long. Body more or less convex, dark red-brown to almost brown; disk of pronotum more or less infuscate, basal 2-3 antennomeres and apex of joint 11 clarified. Body length: 5.1-5.4 mm. China ..... *P. (P.) klapperichi* (Pic)

-. Upperside densely and finely punctured, weakly shining or dull. Stroke-like impressions of pronotum fairly long and occupying about or slightly less than 1/3 pronotal length (Plate 7: 9). Upperside covered with relatively short, grayish or yellowish-gray, decumbent hairs. Pronotum less transverse, ca. 1.4-1.5 times as broad as long. Body oblong-oval, red-brown, generally more or less convex. Body length: 5-7 mm. North America ..... *P. (P.) impressicollis* (LeConte)

Pseudoholostrophus (*Holostrophinus* subgen. nov.) *discolor* (Horn, 1888), comb. nov.

Plate 7: 12-15

Material: 1 ex., North America.

Body black-brown to black; maxillary palps, basal 4-5 antennomeres and antennomere 11, as well as legs red-brown; antennomeres 6-10 usually infuscate, underside clarified at least partly, as a rule. Basal part of elytra with a diffused, transverse, red-brown or red fascia turning behind into darker background of elytra without any sharp boundaries. Upperside covered with somewhat raised, elongate, more or less infuscate hairs.

Apical joint of maxillary palps about as long as broad, obliquely truncate at apex. Antennae comparatively short and usually slightly not reaching the posterior edge of pronotum, their four apical joints broadened considerably more strongly than preceding ones; antennal joint 1 rather large, ca. 1.7 times as long as broad; joint 2 ca. 1.6 times as short as 1st and ca. 1.25 times as long as broad; joint 3 elongate-triangular, ca. 1.4 times as long as 2nd and ca. 1.7 times as long as its own width; joint 4 about as long as 3rd and 1.4-1.45 times as long as broad; joint 5 also longitudinal, only very slightly shorter than 4th; joint 6 ca. 1.1-1.15 times as short as 5th and longer than wide; joint 7 ca. 1.15 times as short as and very slightly broader than 6th, ca. 1.25-1.3 times as broad as long; joint 8 ca. 1.2 times as broad as and subequal in length to 7th, 1.6 times as broad as long; joint 9 slightly shorter, 1.2 times as broad as 8th and ca. 2 times as broad as long; joint 10 very slightly shorter and broader than 9th and 2.3-2.4 times as broad as long; joint 11 oblong-oval, subequal in length to two preceding ones combined, 2.7 times as long as 10th and 1.2 times as long as broad (Plate 7: 13). Head with dense and fine punctation (distance between punctures considerably smaller than their diameter), distinctly flattened in medial part behind eyes; distance between relatively small and weakly sinuate eyes ca. 1.6 as great as ocular transverse diameter.

Pronotum convex, ca. 2.5 times as broad as head with eyes and 1.45 times as broad as long, margined along all edges, its base shallowly bisinuate, more or less straight truncate in middle part. Pronotum broadest at posterior ca. 1/4 extent, whence its sides strongly and roundly narrowed anteriorly, while posterior corners more or less rectangularly rounded. Disk of pronotum more or less dull or weakly shining, with traces of very fine shagreen and with double punctation of coarse, moderately dense punctures somewhat elongate in longitudinal direction (distance between them in middle part of disk 0.3-1 diameter of a puncture) and fine punctures in between (2-3 times smaller than coarse ones).

Scutellum more or less roundly quadrangular, dull, ca. 1.3 times as broad as long, with dense, fine punctation and finely shagreened. Elytra oblong-oval, more or less convex, at humeri about as broad as pronotum at base, 1.7 times as long as broad, their

disk with coarse punctation and partly with traces of fine shagreen, thus making elytra look like more or less weakly shining or almost dull. Distance between punctures on disk of elytra (subequal to those on pronotum) in transverse direction up to 0.3-0.7 diameter of a puncture and, in longitudinal direction, subequal to their diameter (Plate 7: 12). Presutural stria well-developed.

Sides of prosternum also with moderately dense double punctation, but lacking dense rugose sculpture. Prosternum before procoxae ca. 2.2 times as short as their longitudinal diameter. Prosternal process in its broadened part 1.7-1.8 times as narrow as coxal transverse diameter, considerably broadened posteriorly, slightly but distinctly surpassing posterior edge of procoxae, bent under mesosternum but its very tip weakly elevated (Plate 7: 15). Mesosternal process without distinct impression in medial part, reaching ca. posterior 1/4-1/5 length of mesocoxae. Sides of metasternum and its episterna also with double punctation. Metepisterna distinctly narrowed posteriorly, ca. 2.8 times as long as broad. Metasternum considerably longer than 1st visible abdominal sternite, latter by far more finely punctured. Spurs of metatibiae subequal in length, ca. 3.5-3.8 times as short as tarsomere 1, latter ca. 1.5 times as long as joints 2 and 3 combined, joint 2 considerably shorter than 4th. 1st visible abdominal sternite subequal to 2nd.

Body length: 4.6-5.5 mm.

North America.

Pseudoholostrophus (Pseudoholostrophus) chinensis sp. nov.

Plate 7: 1, 2; Plate 8: 1, 2

Holotype female, China, Sechuan, Gongga Shan, above Camp 3, 3050 m, 22.VII.1994, A. Smetana.

The type is kept in the collection of the Muséum d'Histoire naturelle in Geneva.

Description. Body black, each elytrum with a red-yellow humeral spot (Plate 8: 1); antennomeres 1-3 or 1-4, labrum and maxillary palps dark red-brown; apex of terminal antennal joint and tarsi somewhat clarified. Elytra at least against dark background covered with dense hairs, latter black-brown, slightly raised and somewhat darker that those on pronotum. Pronotum rather weakly shining or more or less dull.

Joint 4 of maxillary palps ca. 1.6 times as long as broad and ca. 2.2 times as long as 3rd. Antennae rather short and, when stretched back along body, barely surpassing base of elytra. Antennomere 1 strongly developed, longitudinal, considerably longer than 2nd, latter ca. 1.6 times as long as broad; joint 3 elongate-triangular, ca. 1.1-1.2 times as long as 2nd and 1.8 times as long as broad; joint 4 also distinctly longitudinal, ca. 1.3 times as short as 3rd; joint 5 ca. 1.3-1.4 times broader and very slightly longer than 4th, barely longitudinal; joints 6-10 more or less gradually broadened, transverse, almost equal in length; joint 6 ca. 1.25 times as broad as long; joint 10 ca. 1.8 times as broad as long; joint 11 ca. 2.5 times longer than 10th and ca. 1.2-1.3 times as long as broad (Plate 8: 2). Head more or less dull, weakly impressed medially behind eyes,

with dense, rather not coarse punctation and markedly, finely, transversely shagreened. Width of frons between the eyes 1.25 times greater than ocular transverse diameter (Plate 7: 1).

Pronotum strongly transverse, twice as broad as head with eyes and ca. 1.6 times as broad as long, rather weakly shining or more or less dull, at least its middle part with moderately dense, rather medium-sized and not deep punctation (distance between punctures subequal to or a little greater than their diameter). Pronotum broadest at base, whence anteriad at first more or less parallel-sided (about posterior 1/3 extent) and then strongly and roundly narrowed. Base of pronotum more or less trisinuate, basal impressions strongly developed, stroke-like and extending up to ca. 1/3 extent. Posterior corners of pronotum roundly rectangular, anterior ones entirely rounded. Middle of pronotum weakly transversely impressed against a more or less convex general background.

Scutellum finely punctured and shagreened, more or less straight truncate at posterior edge (only barely rounded). Elytra oblong-oval, middle part of disk somewhat flattened, at humeri barely broader than pronotum at base, ca. 1.85 times as long as maximum width. Elytra shining, virtually not shagreened; punctation dense, transversely rugose, considerably denser and markedly coarser and deeper than on pronotum; average distance between punctures in transverse direction considerably less than their diameter, in longitudinal direction a little greater than or subequal to diameter of a puncture. Apices of elytra more or less broadly rounded.

Prosternum before procoxae ca. 1.6 times as short as coxal longitudinal diameter. Prosternal process rather finely punctured and finely transversely shagreened, markedly broadened toward apex, margined along sides, virtually not projecting behind posterior edge of procoxae, in its broadest part ca. 2.3-2.5 times as narrow as coxal transverse diameter. Mesosternal process narrower than prosternal one, margined, reaching the posterior 1/3 extent of mesocoxae and in its posterior part ca. 4.5 times as narrow as coxal transverse diameter. Longitudinal metasternal suture ca. 1.3 times shorter than metasternum (measuring its diameter from meso- to metacoxae). Sides of metasternum with moderately dense, coarse punctation. Metepisterna (regardless of a well-defined, triangular, somewhat elevated area anteriorly) ca. 3 times as long as broad, distinctly narrowed posteriorly. Most part of sternum and its episterna evidently, finely and transversely shagreened. Shagreen of abdomen also well-developed. Metatibiae subequal in length to metatarsi, their spurs ca. 4 times as short as tarsomere 1, latter barely shorter than all following tarsomeres combined; tarsomere 2 ca. 1.4-1.5 times as long as 3rd and barely longer than 4th.

Body length: 4.5 mm.

Pseudoholostrophus (P.) klapperichi (Pic, 1954)

Plate 7: 3-8

Lectotype male (designated herein), China, Kuatun, Fukien, 22.X.1946, Tshung Sen leg. - Paralectotype, same data (see Nikitsky, 1983).

The lectotype is housed in the Staatliches Museum für Naturkunde in Stuttgart, the paralectotype in the Muséum national d'Histoire naturelle in Paris.

Description (see also Pic, 1954a and Nikitsky, 1983). Body more or less convex, dark red-brown to almost brown; disk of pronotum more or less infuscate, basal 2-3 antennomeres and apex of joint 11 clarified. Upperside covered with dense, semi-erect, reddish-brown hairs.

Antennae relatively short and, when stretched back along body, only relatively slightly surpassing base of elytra.Antennomere 1 fairly strongly developed, longitudinal, ca. 1.6-1.8 times as long as 2nd; latter ca. 1.25 times as long as broad and 1.2 times as short as 3rd; latter 1.6 times as long as broad and ca. 1.2 times longer than a distinctly longitudinal antennomere 4; antennomere 5 ca. 1.25 times as long as broad and 1.1 times broader than 4th; antennomeres 6-10 more or less gradually broadened; antennomere 6 about as long as broad, 10th ca. 1.7 times as broad as long; antennomere 11 oblong-oval, ca. 2.3-2.4 times longer than 10th and 1.4 times as long as broad (Plate 7: 7). Head more or less shining, densely, relatively finely punctured. Distance between rather weakly sinuate eyes ca. 1.3 times greater than ocular transverse diameter.

Stroke-like impressions of pronotum short and occupying ca. 1/5 pronotal extent (Plate 7: 3). Pronotum 1.6-1.7 times as broad as long, strongly transverse, about twice as broad as head with eyes, its base trisinuate and posterior corners more or less obtusely rounded. Pronotum and elytra with dense and rough punctation, shining, not shagreened (Plate 7: 3). Medial part of pronotum before scutellum and before middle with weak impressions. Punctures on pronotum coarse, considerably larger than on head, very dense, spaces between them like very thin wrinkles, 2-3 times narrower than diameter of a puncture.

Scutellum transverse, ca. 1.5 times as broad as long, rather finely and densely punctured, either more or less straight truncate at posterior edge or weakly rounded. Elytra oblong-oval, at humeri subequal in width to pronotum at base, 1.93 times as long as broad, with dense and rough, transversely rugose punctation, punctures being about same size as on pronotum; average distance between punctures considerably less than their diameter.

Prosternum before procoxae 1.7-1.8 times as short as coxal longitudinal diameter. Prosternal process distinctly broadened posteriorly, almost not projecting behind posterior edge of coxae, without sharp margin along sides of apical part, ca. 1.8-2.0 times as narrow as coxal transverse diameter (Plate 7: 5). Mesosternal process more or less margined, narrowed posteriorly, in its posterior part ca. 3.4-3.8 times as narrow as coxal transverse diameter. Longitudinal metasternal suture ca. 1.5 times shorter than metasternum. Sides of metasternum with very rough and moderately dense punctation and distinctly but finely shagreened. Metepisterna also with dense punctation, but latter more fine than that of metasternum, also distinctly and finely shagreened; their length (regardless of a triangular, well-isolated area anteriorly) ca. 2.8 times greater than width. Metasternum between meso- and metacoxae ca. 1.6 times as long as 1st visible

abdominal sternite. Metatibiae a little shorter than metatarsi; tarsomere 1 subequal in length to all following joints combined; tarsomere 2 ca. 1.5 times as long as 3rd, latter twice shorter than 4th. Penis as in Plate 7: 8.

Body length: 5.1-5.4 mm.

China.

Pseudoholostrophus (P.) impressicollis (LeConte, 1874), comb. nov.

Plate 7: 9-11

Material: 7 males and females, North America.

Description. Body oblong-oval, red-brown, generally more or less convex. Upperside covered with relatively short, grayish or yellowish-gray, decumbent hairs. Upperside densely, finely punctured, weakly shining or dull.

Joint 4 of maxillary palps elongate, ca. 1.5-1.7 times as long as broad and 2.3-2.5 times as long as 2nd, obliquely truncate at apex. Antennae rather short and usually not or barely surpassing posterior edge of pronotum; antennomere 1 large and longitudinal, ca. 1.5 times longer than 2nd, latter ca. 1.4-1.6 times as long as wide; joint 3 strongly elongate, 1.2-1.35 times longer than 2nd and 1.6-2.0 times as long as broad; joint 4 subequal in length to 2nd and 1.35-1.6 times as long as broad; joint 5 subequal in length and width to 4th; joint 6 very slightly shorter and broader than 5th, ca. 1.1 times as long as broad; joint 7 subequal in length to and very slightly broader than 6th, about as long as broad (barely longitudinal at most); joint 8 ca. 1.1 times as broad as long and 7th; joint 9 ca. 1.3-1.4 times as broad as long and 8th; joint 10 a little shorter and 1.1-1.15 times broader than 9th, ca. 1.7-1.8 times as broad as long; joint 11 more or less oval, ca. 1.8-2.0 times longer than 10th and 1.1-1.2 times as long as broad (Plate 7: 10). Head finely and rather densely punctured and finely shagreened, dull. Width of frons between weakly sinuate eyes 1.5-1.6 times greater than transverse ocular diameter.

Pronotum ca. 1.4-1.5 times as broad as long, about twice as broad as head with eyes, its surface rather weakly convex, usually without distinct impressions in medial part, with traces of fine shagreen and dense fine punctation, average distance between punctures being considerably less than their diameter. Base of pronotum very shallowly bi- or trisinuate, stroke-like impressions fairly long and occupying about 1/3 or slightly less pronotal extent (Plate 7: 9). Pronotum broadest at posterior 1/3 or 1/4 extent, whence its sides narrowed weakly posteriorly and fairly strongly and roundly anteriorly. Hind corners of pronotum obtusely rounded but more distinct than entirely rounded anterior ones.

Scutellum transverse (ca. 1.8-2.0 times as broad as long), roundly triangular, with very fine punctation and traces of fine shagreen. Elytra more or less convex, ca. 1.75-1.85 times as long as maximum width, at humeri barely broader than pronotum at

base, at first weakly broadened posteriorly and then roundly narrowed toward apex. Surface of elytra with dense, very fine, transversely rugose punctation (on the average finer than on pronotum) and with traces of fine shagreen. Distance between punctures in transverse direction considerably less than, while in longitudinal direction subequal to, their diameter.

Prosternum before procoxae roughly punctured and finely shagreened, more or less dull, before procoxae ca. 1.1-1.2 times as short as coxal longitudinal diameter. Prosternal process rather finely punctured and distinctly shagreened, entirely margined, surpassing posterior edge of anterior coxal cavities not more than 1/6 their length, distinctly broadened posteriorly, rounded at posterior edge, in broadest part ca. 1.8 times as narrow as coxal transverse diameter. Mesosternal process margined, roughly and densely punctured, shining, reaching approximately to posterior 1/3 extent of mesocoxae, without excavation for accommodation of prosternal process. Metasternum along midline subequal to of 1st and 2nd visible abdominal sternites combined. Longitudinal metasternal suture anteriorly only slightly surpassing midlength of metasternum. Sides of metasternum with rough, moderately dense punctation and distinctly shagreened. Metepisterna with finer punctation than on sides of metasternum, their length ca. 2.5 times exceeding the width. Metatibiae about as long as metatarsi. Spurs of metatibiae subequal in length, ca. 4.5-5.0 times as short as tarsomere 1, latter only barely shorter than all following tarsomeres combined; tarsomere 2 ca. 1.7 times as long as 3rd and subequal to 4th. Process of 1st visible abdominal sternite separating metacoxae narrowly triangular. 1st visible abdominal sternite a little longer than 2nd. Abdomen densely, very finely punctate and finely shagreened. Last visible abdominal sternite rounded at apex.

Body length: 5-7 mm.

NorthAmerica.

Genus *Holostrophus* Horn, 1888

Plate 8: 3-9; Plate 9: 1-17

Type-species: *Eustrophus bifasciatus* Say, 1824 (first designated herewith)

This genus encompasses 17 species in the world fauna. These are distributed in the south of the Russian Far East, in Korea, China, Japan, the Oriental Region and the Nearctic.

Larva as in Plate 19: 1-11; Plate 20: 1-6.

Development basically in arboreal fungi.

Holostrophus minimus sp. nov.

Plate 8: 7-9

Holotype female, Philippines, S. Luzon, Quezon N. P. (Lucena), 250 m, 8-10.I.1991, Bolm leg.

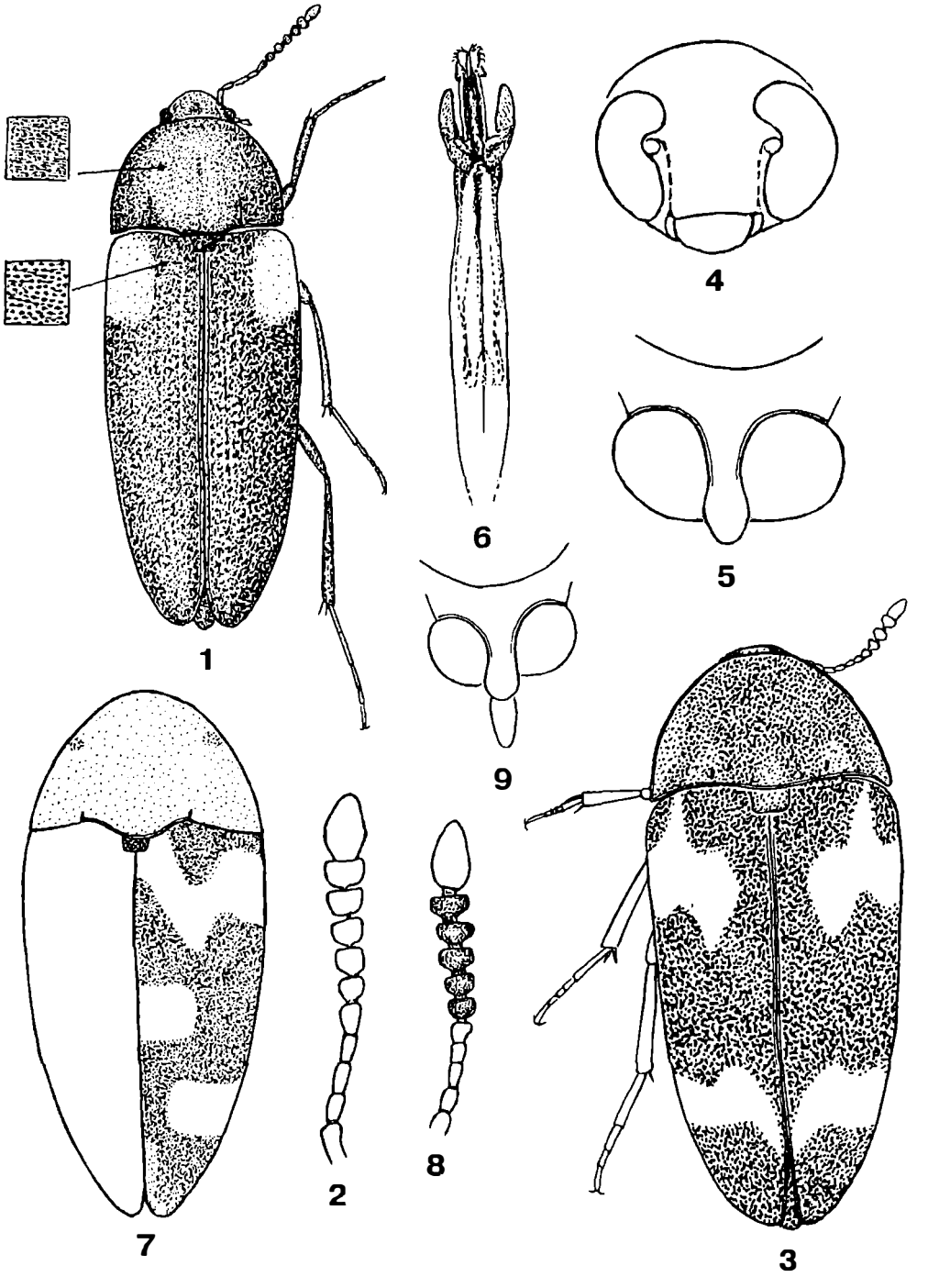

Plate 8. General view and details of structure of *Pseudoholostrophus* and *Holostrophus* spp. (all original). 1, 2 - *Pseudoholostrophus chinensis;* 3-6 - *Holostrophus diversefasciatus;* 7-9 - *H. minimus.* 1, 3, 7 - general view; 2, 8 - antenna; 4 - head (frontal view); 5, 9 - prosternum; 6 - aedeagus.

The type is kept in the collection of the Naturhistorisches Museum in Basel.

Description. Red-brown, pronotum with vague infuscate spots in anterior part on each side of middle and of the very posterior edge. Antennomeres 6-10 infuscate, black-brown; joint 11 red-yellow. Elytra black, each at base with a transverse red-yellow fascia somewhat sinuate at posterior edge and extending forward along suture up to scutellum; a not very large red-yellow spot at suture close to middle; and a red-yellow transverse spot in apical 1/3 far from reaching the suture but reaching the lateral edge; apex of elytra in presutural area somewhat clarified (Plate 8: 7). Upperside covered with more or less decumbent hairs, latter black in dark areas and light in red-yellow ones.

Antennae relatively short, antennomere 1 considerably longer than 2nd, latter ca. 1.3 times as long as broad, considerably broader and ca. 1.15 times shorter than elongate-triangular 3rd one, latter ca. 1.6 times as long as broad; joint 4 ca. 1.3 times as long as broad and 1.25 times as short as 3rd; joint 5 ca. 1.3-1.4 times broader than 4th and barely as broad as long; joints 6-10 more or less gradually broadened, similar in length; joint 10 ca. 1.8 times as broad as long; joint 11 oblong-oval, ca. 2.5 times longer than 10th and 1.6 times as long as broad (Plate 8: 8). Head with rather dense and fine punctation and finely, transversely shagreened. Width of frons between eyes ca. 1.5 times less than ocular transverse diameter.

Pronotum moderately transverse, ca. 2.8 times broader than head with eyes and ca. 1.4-1.5 times as broad as long. Pronotal surface with rather dense and fine punctation (average distance between punctures in middle part of disk up to 0.6-1.0 diameter of a puncture) and finely, transversely shagreened, more or less shining. Pair of basal stroke-like impressions of pronotum short, ca. 12 times as short as pronotum. Pronotal base margined only in medial part, very slightly outreaching the paired basal impressions; sides of pronotum and its anterior edge entirely margined. Disk of pronotum distinctly convex.

Scutellum finely punctured and distinctly shagreened, transverse-quadrangular, ca. 1.8 times as broad as long. Elytra oblong-oval, ca. 1.65-1.7 times as long as broad, at base about similar in width to pronotum, shining (not shagreened), rather finely, densely, transversely and rugosely punctured (distance between punctures in transverse direction apparently less than their diameter), punctation being markedly denser and very slightly finer than on pronotum.

Prosternum before procoxae ca. 3.5 times as short as their longitudinal diameter. Prosternal process ca. 2.2 times as narrow as coxal transverse diameter, relatively slightly surpassing procoxae (Plate 8: 9) and fairly strongly bent under sternum; its part roundly projecting beyond procoxae ca. 2.5-2.6 times as short as maximum width of process. Sides of prosternum with fine shallow punctation (without rough rugosity). Impression on mesosternum receiving the prosternum weakly developed, short and narrow, represented only in the very anterior part of mesosternum. Sides of metasternum with punctation more sparse and rough than its episterna, both sides and episterna distinctly

transversely shagreened. Spurs of metatibiae subequal in length, ca. 2.7 times shorter than tarsomere 1. Joint 1 of metatarsus ca. 1.2-1.3 times as long as 2nd and 3rd ones combined; joint 2 a little longer than 3rd and distinctly shorter than 4th.

Body length: 3.5 mm.

Diagnosis: This species differs from congeners in combining such characters as coloration of the upperside, short prosternal process, more or less smooth (without rough rugose punctation) sides of prosternum (hypomera), etc.

Holostrophus similis sp. nov.

Plate 9: 3-10

Holotype male, Malaysia, Sarawak, 4th Division Gn. Mulu NP, nr. Base Camp, 50-100 m, Malaise trap. - Paratype, 1 ex., Sarawak, 4th Division Gn. Mulu NP., nr. Camp, 150-200 m, Malaise trap. VI.1978.

The types are kept in the Natural History Museum in London.

Description. Underside, legs, maxillary palps, head, antennomeres 1-5 and main coloration of pronotum red-brown; vague infuscate pattern on pronotum rather T-shaped with two infuscate areas on each side of basal part. Terminal antennal joint very weakly infuscate basally, more or less red or red-brown there, yellowish apically. Elytra black, each with four red or red-yellow spots and a clarified apex; front spot of elytra situated near scutellum along suture; second one larger, more or less reaching the lateral edge, lying outside of front spot; medial spot situated near middle of suture of each elytrum; and sub-apical spot transverse, considerably far from reaching the suture, situated in apical 1/3 of each elytrum (Plate 9: 3). Upperside covered with more or less elongate pubescence, only barely inclined, darker in black areas of elytra.

Terminal joint of maxillary palps obliquely truncate at apex, subequal in length and width. Antennae relatively short and usually, when stretched back along body, slightly not reaching the posterior edge of pronotum. Antennomere 1 large and longitudinal, considerably larger than 2nd, latter 1.3-1.5 times as long as broad; joint 3 elongate-triangular, ca. 1.7-1.8 times as long as broad and 1.3-1.4 times longer than 2nd; joints 4 and 5 a little shorter than 3rd, subequal in length, but 5th slightly broader than 4th, about as long as broad; joints 6-10 more or less gradually broadened; joint 6 ca. 1.1 times broader than 5th and ca. 1.2-1.3 times as broad as long; joint 10 subequal in length to 9th, 1.7-1.8 times broader than long; joint 11 elongate-oval, 2.1-2.3 times longer than 10th and ca. 1.4-1.6 times longer than wide (Plate 9: 4). Head with dense, fairly fine punctation and finely shagreened, more or less dull. Width of frons between eyes 1.5-1.6 times as less than ocular transverse diameter.

Pronotum ca. 2.8 times as broad as head with eyes and 1.5 times as broad as long, its surface very strongly transversely shagreened, dull. Pair of basal impressions of pronotum very short, 15-16 times shorter than length of pronotum. Pronotal disk with dense, somewhat elongate, fine punctation (average distance between punctures

somewhat less than their diameter). Posterior corners of pronotum more or less rectangularly obtuse.

Scutellum transverse, with fine punctation and finely shagreened, weakly rounded at posterior edge, ca. 1.5 times as broad as long. Elytra oblong-oval, 1.5 times as long as broad, their surface more or less shining, with very dense (on the average only very slightly finer and denser than on pronotum), transversely rugose punctation.

Prosternum before procoxae ca. 2.5 times shorter than coxal longitudinal diameter. Prosternal process very strongly developed, at first distinctly broadened posteriorly, then triangularly narrowed toward apex; the part of prosternal process projecting behind posterior edge of procoxae a little longer than or equal to its maximum width (Plate 9: 5). Impression in middle part of mesosternum strongly developed and occupying not less than 2/3 extent of mesosternum. Longitudinal suture of metasternum ca. 0.5 as short. Metepisterna ca. 2.7-2.8 times as long as broad, their surface with fine punctation and distinctly shagreened. Spurs of metatibiae subequal in length, 2.2-2.5 times as short as metatarsomere 1. Abdomen with dense and fine punctation and distinctly shagreened.

Aedeagus as in Plate 9: 7-9.

Body length: 3.7-4.4 mm.

Diagnosis: This species differs from congeners in combining such characters as coloration of the upperside; comparatively not too strongly elongate antennomere 11 (less than 2.5 times as long as 10th and 1.3-1.5 times as long as broad); dull pronotum with a highly vague, dark pattern against a red-brown background; antennomere 11 weakly infuscate at base.

It differs from the closely related *H. borneensis* Pic, 1912, in the light terminal antennomere, denser punctation on the quite dull surface of the pronotum and the anterior light lateral spot reaching the lateral edge of the elytra (Plate 9: 3).

Holostrophus orientalis Lewis, 1895

We consider *H. multinotatus* Pic, 1911, syn. nov., described from Taiwan (Formosa) (holotype restudied) only as a color variation of *H. orientalis* Lewis, 1895. The latter species is widespread in Japan, Korea, it occurs in eastern China and possibly in North Vietnam.

?Holostrophus aureofasciatus (Pic, 1954), comb. nov.

Eustrophinus aureofasciatus Pic, 1954b, Bull. Soc. Ent. Mulh.: 63

This species has been described from Kuatun, Fukien, China as *Eustrophinus aureofasciatus* (see Pic, 1954b). Judged from some characters taken from its original

description (shape of paired basal impressions of pronotum, coloration of elytra, geographical range) should rather be referred to *Holostrophus*. Unfortunately, the type could not be recovered.

Key to species of *Holostrophus* based on larvae (modified after Hayashi, 1975)

Plate 19: 1-10; Plate 20: 1-6

1. Posterior edge of abdominal tergite 9 weakly sinuate between urogomphi, each urogomphus short and, on inner side in front of base, without well-developed, sclerotized tubercle rounded at inner edge (Plate 20: 1,2). Abdominal tergite 9 in lateral view strongly convex. 8 mm. Japan, Taiwan, China, Korea .... *H. orientalis* Lewis, 1895

-. Posterior edge of abdominal tergite 9 strongly sinuate between urogomphi, each urogomphus longer, with a broadened basal part and a considerably thinner, unciform curved apex (Plate 20: 3-6). A well-developed, sclerotized tubercle on inner side near base of unpaired part of urogomphi (Plate 20: 3, 5). Abdominal tergite 9 in lateral view more weakly convex..... 2

2. Sclerotized tubercles on inner side near base of urogomphi more strongly approximate to each other, strongly projecting beyond or at least reaching the inner edge of urogomphi, distance between them not more than twice as great as length of tubercle (Plate 20: 5). Inner apical process of urogomphi proportionately shorter and, in lateral view, not less than 1.5 times as short as outer one (Plate 20: 6). 5.5-7.0 mm. South Maritime Province; Japan .... *H. diversefasciatus* Pic, 1921

-. Sclerotized tubercles situated on inner side near base of urogomphi more strongly separated, not projecting behind contour of inner edge of urogomphi, distance between them not less than twice as great as length of tubercle (Plate 20: 3). Inner apical process of urogomphi proportionately more elongate and, in lateral view, not more than 1.3 times as short as outer one (Plate 20: 4). 5.5-6.0 mm. Kunashir Island; Japan ..... *H. lewisi* Csiki, 1924

Tribe Eustrophini Gistel, 1856

Genera included: *Eustrophus* Illiger, 1802, *Synstrophus* Seidlitz, 1898, and *Eustrophopsis* Champion, 1889.

According to its author (Seidlitz, 1898), the genus *Eustrophinus* Seidlitz, 1898 (type-species: *Mycetophagus bicolor* Fabricius, 1792) differs from *Eustrophopsis* in the absence of a clear-cut excavation/notch at apex of the prosternal process and in a

different structure of the mesosternum. However, all these characters which served as basic for separation of both genera concerned prove to display a complete series of gradual transitions, without any distinct gap/hiatus. Dependent on the species, the excavation of the prosternal process and, consequently, the structure of the mesosternum correlated with the shape of the prosternal process can be strongly (Plate 11: 7), moderately or weakly developed (Plate 11: 13), up to not expressed at all (Plate 11: 10). The rows of punctures on the elytra also exhibit a virtually complete transition from well-developed to almost indistinguishable, only with traces when the elytra are viewed shining through, or they can entirely disappear. Taking into account all above variations, we consider these genera as strict synonyms, syn. nov.

The monotypic genus *Curteustrophinus* Pic, 1952 is the member of the family Tenebrionidae (see below).

Genus *Eustrophus* Illiger, 1802

Plate 10: 3-14

Type-species: *Mycetophagus dermestoides* Fabricius, 1792 (Plate 10: 3-7)

The genus includes four species distributed in Europe, in the south of the Russian Far East, in Japan, South China and North America. The recent record of this genus in Turkey (W. Schawaller, personal communication), could actually be attributed either to *Eustrophus dermestoides* (F.) or to an apparently new species unknown to us. Species develop in arboreal fungi, e.g. *Laetiporus sulphureus*.

Eustrophus yunnanensis sp. nov.

Plate 9: 18

Holotype female, China, Yunnan, Jizu Shan (25.58°N, 100.21°E), 2500-2700 m, 6-10.7.1994, Vit Kubán leg.

The type is kept in the Naturhistorisches Museum in Basel.

Description. Oblong-oval, dark brownish with somewhat lighter elytra and abdomen; maxillary palps, antennae and at least partly legs from below red-brown, upperside covered with reddish-brown, more or less dense and decumbent pubescence.

Joint 4 of maxillary palps elongate, more or less parallel-sided, ca. 1.4 times as long as broad and ca. 1.8 times longer than a triangular 3rd joint, latter subequal in length and width. Width of frons between strongly emarginate eyes ca. 2.3 times less than transverse ocular diameter. Antennae when stretched back along body not surpassing base of elytra, antennomere 1 fairly wide and strongly elongate, not less than twice as long as broad; joint 2 ca. 1.5-1.6 times as long as broad and twice as short as 1st; antennomere 3 elongate-triangular, ca. 2.0-2.2 times as long as broad and 1.8-1.9 times

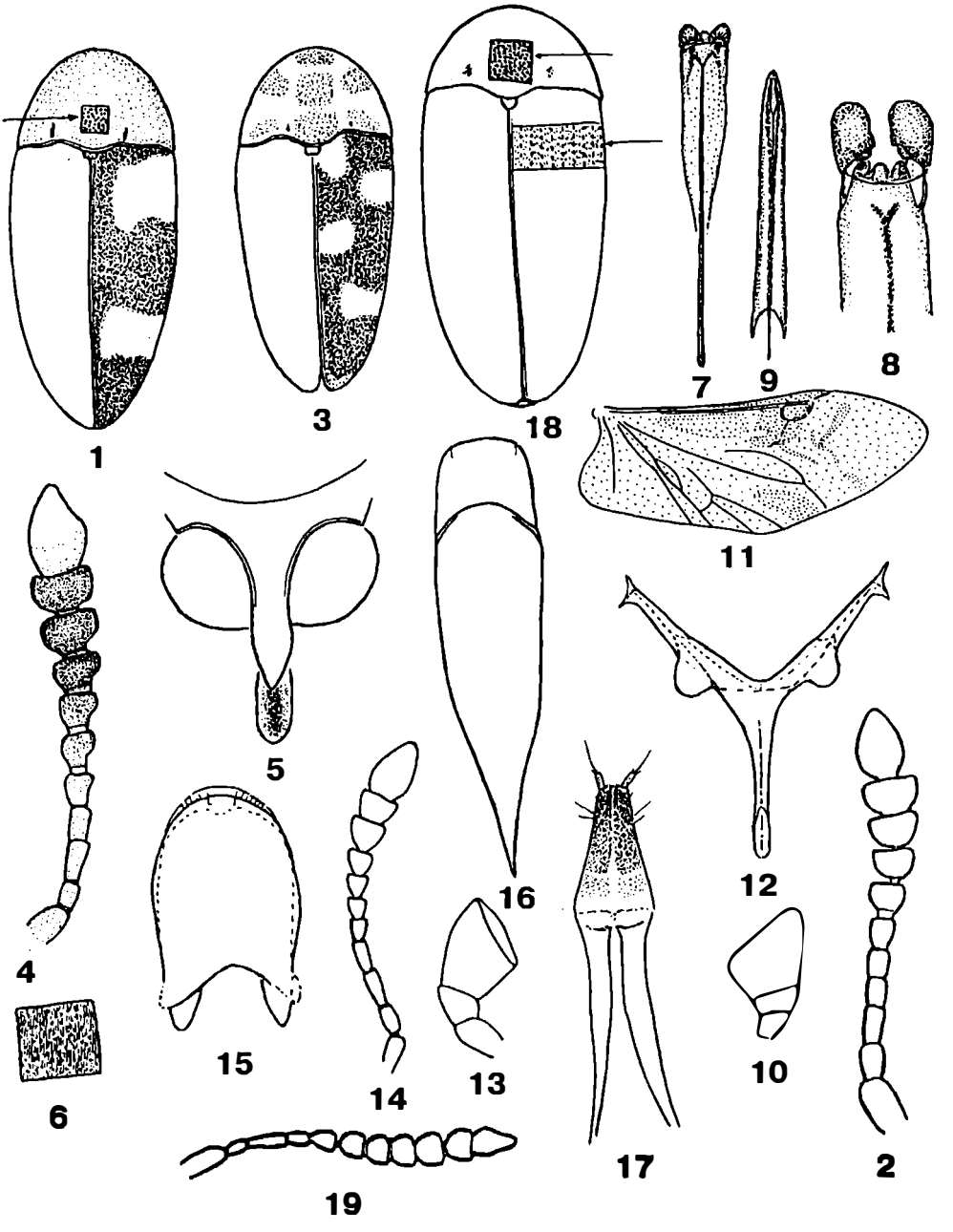

Plate 9. Details of structure of *Holostrophus* and *Eustrophus* spp. (all original). 1, 2 - *Holostrophus bifasciatus;* 3-10 - *H. similis;* 11-17 - *H. diversefasciatus;* 18, 19 - *Eustrophus yunnanensis.* 1, 3, 18 - pronotum and elytra; 2, 4, 14, 19 - antenna; 5 - prosternum; 6 - punctation of sides of prosternum (x 20); 7 - aedeagus (dorsal view); 8 - apex of aedeagus (dorsal view); 9 - penis (dorsal view); 10, 13 - segments 2-4 of maxillary palps; 11 - wing; 12 - metendosternite; 15 - abdominal segment 8; 16 - genital segment of abdomen; 17 - ovipositor.

longer than 4th; latter ca. 1.3-1.4 times as long as broad; joints 5-10 more or less distinctly broadened; antennomere 5 barely longer but considerably broader than 4th, weakly longitudinal; joint 6 subequal in length to 5th and ca. 1.15 times as broad as long; joints 7-10 transverse, similar in length and width, each ca. 1.2-1.3 times as broad as long; antennomere 11 oblong-oval, constricted behind middle, with a narrowly rounded apex, ca. 1.7-1.8 times longer than 10th and 1.6-1.7 times as long as broad (Plate 9: 19). Head with dense and fine punctation and finely shagreened.

Pronotum rather weakly shining, ca. 3 times broader than head with eyes and ca. 1.85 times as broad as long, strongly convex, with broadest at base whence strongly and roundly narrowed anteriorly. Posterior corners of pronotum more or less roundly rectangular, distinctly projecting and somewhat enveloping the base of elytra. Base of pronotum not margined at all, its sides and anterior edge fully margined. Pronotum with dense, rather medium-sized punctation (distance between punctures 0.3-1 diameter of a puncture); spaces between punctures finely shagreened. Pair of basal impressions of pronotum very weak, considerably shifted from posterior edge, each represented by 3-5 fairly large punctures. A fine row of punctures situated along the very posterior edge of pronotum. Base of pronotum shallowly bisinuate and with a roundly projecting lobe before scutellum.

Scutellum weakly transverse, roundly triangular, with moderately dense and fine punctation. Elytra shining (without distinct shagreen), oblong-oval, ca. 1.75 longer than maximum width, distinctly narrowed posteriorly, at humeri very slightly narrower than posterior edge of pronotum. Each elytrum with 11 rows of punctures mainly represented by rather fine punctures elongated in longitudinal direction (considerably longer than on pronotum). Distance between rows of punctures not less than 3-4 transverse diameters of a puncture in row. Punctures on spaces between rows of punctures considerably smaller than those in rows and on pronotum, moderately dense.

Sides of prosternum (hypomera) with dense and coarse punctation, the punctures fusing to form longitudinal wrinkles. Prosternum in front of procoxae ca. 2.7 times shorter than longitudinal coxal diameter. Prosternal process margined, triangularly narrowed posteriorly, near midway ca. 3.2 times narrower than coxal transverse diameter; process only slightly not reaching the posterior edge of procoxae. Mesosternal process slightly surpassing midway of mesocoxae. Metasternum more or less shining, markedly more coarsely punctate laterally than medially, its medial longitudinal suture with a small break but extending from posterior part to anterior part of metasternum. Latter between meso- and metacoxae ca. 1.4 times longer than 1st visible abdominal sternite. Metacoxae conspicuously separated by abdominal sternite. Metatibiae subequal in length to metatarsi, their outer surface with 13-14 transverse rows of strong spines. Spurs of metatibiae distinctly but not strongly differing in length, longest among them ca. 2.5 times shorter than metatarsomere 1, latter somewhat shorter than all following joints combined, joint 2 slightly longer than 3rd and considerably broader and hardly shorter than 4th.

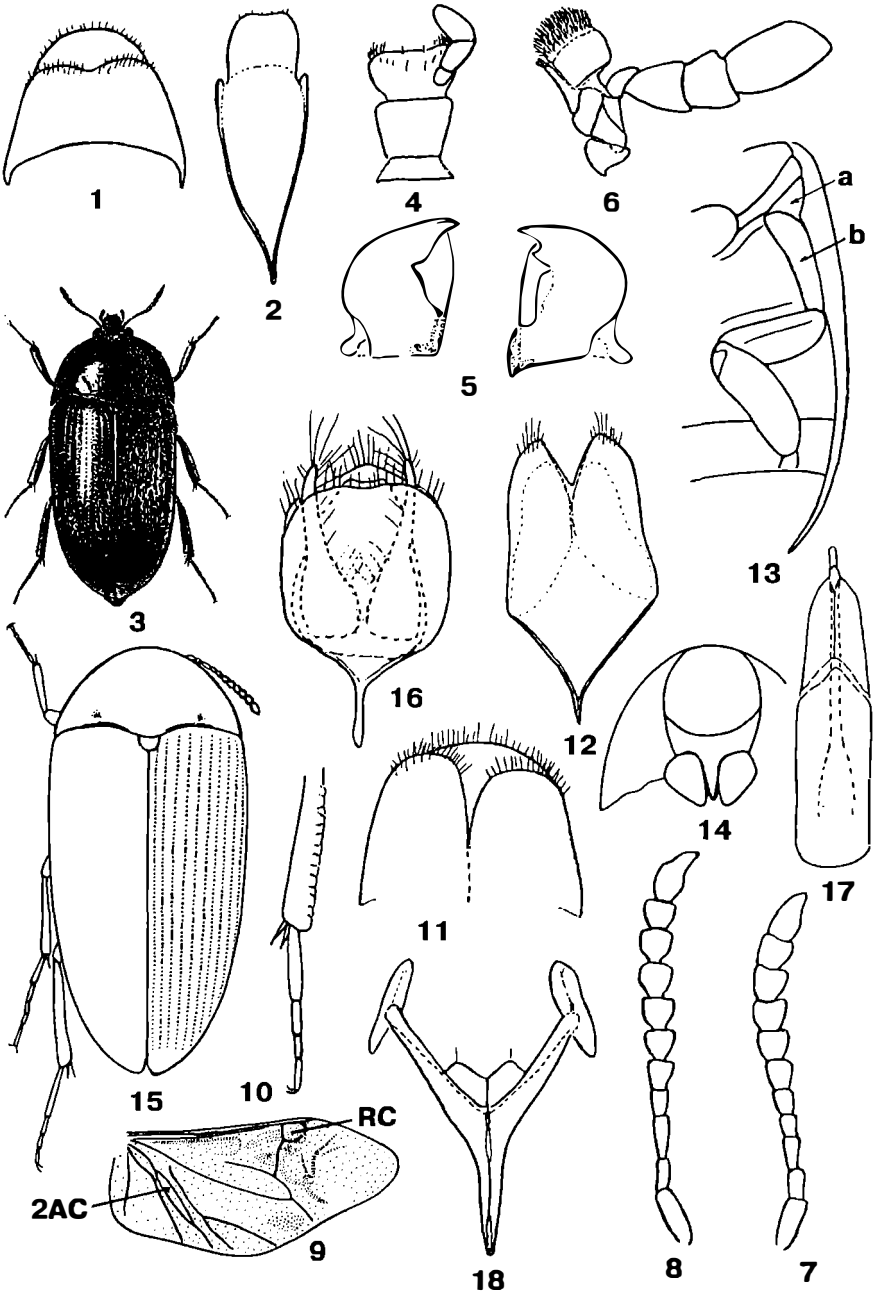

Plate 10. General view and details of structure of Hallomeninae and Eustrophinae (all original). 1 - *Hallomenus binotatus*; 2 - *Mycetoma suturalis*; 3-7 - *Eustrophus dermestoides;* 8-14 - *E. niponicus* Lewis, 1895; 15-18 - *Synstrophus macrophthalmus*. 1, 11 - abdominal segment 8 of male; 2, 12 - genital segment of male abdomen; 3, 15 - general view; 4 - labium; 5 - mandibles; 6 - maxilla; 7, 8 - antenna; 9 - wing; 10 - metatibia and metatarsus; 13 - lateral edge of mesosternum and metasternum; 14 - prosternum; 16 - pregenital and genital segments of abdomen; 17 - aedeagus (dorsal view); 18 - metendosternite; a - triangular area of anterior part of metepisternum; b - metepisternum.

Body length: 5.5 mm.

Diagnosis: This species differs well from congeners by the complete absence of edging at the base of pronotum and the slightly more strongly approximate eyes, with the distance between them ca. 2.3 times less than the transverse ocular diameter (while in the other species this index is less than 2).

Genus *Synstrophus* Seidlitz, 1898

Plate 10: 15-18

Type-species: *Eustrophus macrophthalmus* Reitter, 1887 (Plate 10: 15-18)

The genus includes five species distributed in China, Japan, the Oriental Region and North America. Based on the structure of the prothorax and some other characters, the only Nearctic member of this genus, *S. repandus* (Horn, 1888), seems the most disjunct. Because of this, it might prove to deserve promotion to a genus-group taxon of its own.

Genus *Eustrophopsis* Champion, 1889

Plate 11: 1-14

Type-species: *Orchesia quindecimmaculata* Laporte de Castelnau, 1840 (Plate 11: 1-4)

Eustrophinus Seidlitz, 1898 (type-species: *Mycetophagus bicolor* Fabricius, 1792), Naturg. Ins. Deutschl., 5, 2: 438, 440, syn. nov.

Based on the description, it seems highly probable that also the monotypic genus *Pseudorchesia* Fairmaire, 1883 (type-species: *P. nigrosignata* Fairmaire, 1883), described from Misiones, Argentine is a senior subjective synonym of *Eustrophopsis* Champion, 1889, but unfortunately, we have failed to receive the type for restudy.

Eustrophopsis is represented in the world fauna by 55-56 species distributed in the Neotropical and Afrotropical (including Madagascar) regions as well as in the Nearctic where its comparatively poor fauna is known to occur. It is remarkable that *Eustrophopsis* seems to be absent both from the Oriental Region and Palearctic. It may be so that it is replaced there by species of the genera *Holostrophus* and *Synstrophus* unknown from the Neotropical and Afrotropical regions. The Nearctic is the sole realm where representatives, however few, of all three genera of the tribe occur together.

Larva as in Plate 21: 1-10.

Eustrophopsis similis sp. nov.

Plate 11: 6-8

Holotype female, Lulua, Kapanga, Congo Belge, XI.1932, G. F. Overlaet leg.
The type is kept in the Muséum national d'Histoire naturelle in Paris.

Description. Red-brown; mesosternum, metasternum, femora and tibiae as well as antennomeres 5-10 and basal part of antennal joint 11 black; antennomeres 1-4 and apex of antennal joint 11 red-brown. Upperside covered with long, fairly dense, yellowish-grey pubescence.

Antennae short and surpassing posterior edge of pronotum only by their apical joint; antennomere 1 subequal in length to two following joints combined; joint 2 short, ca. 1.3-1.4 times as long as broad and ca. 1.15-1.2 times shorter than 3rd; latter ca. 1.5-1.6 times as long as broad and ca. 1.3-1.4 times longer than a weakly longitudinal 4th one; joints 5-11 distinctly broadened; antennomere 5 weakly longitudinal, ca. 1.6 times as broad as and ca. 1.4-1.5 times longer than 4th; joints 6-10 similar in size, each a little shorter than 5th and 1.2-1.4 times as broad as long, joint 11 oval, ca. 1.5 times longer than 10th and 1.25-1.3 times as long as broad (Plate 11: 8). Eyes separated by a very narrow patch of frons, markedly narrower than width of antennal joint 2.

Pronotum convex, ca. 2.7 times as broad as head with eyes and 2 times as broad as long, with rectangularly obtuse posterior corners, its base bisinuate and distinctly margined in sinuate places, basal edging disappearing toward sides of pronotum; medial lobe more or less straight truncate at posterior edge (Plate 11: 6). Pronotal disk weakly shining, with fine punctation and very finely shagreened, distance between punctures in longitudinal direction ca. 1 diameter of a puncture. Pair of basal impressions of pronotum more weakly developed, each one represented only by several large punctures.

Scutellum roundly triangular (ca. 1.2 times as broad as long), finely and densely punctured and distinctly transversely shagreened. Elytra convex, oblong-oval, ca. 1.45-1.5 times longer that maximum width (Plate 11: 6). Each elytrum with 10 rows of punctures (regardless of a shortened presutural row), formed by rather medium-sized punctures, distance between these 3-4 times as much as diameter of a puncture in rows. Rows of punctures almost not weakened towards apex of elytra. Spaces between punctures rather weakly shining, with fine, moderately dense punctation and very finely shagreened similar to than of pronotum; size of punctures subequal to that on pronotum and ca. 1.5-2.0 times less than diameter of punctures in rows. Epipleura of elytra distinct up to last visible abdominal sternite.

Prosternum before procoxae ca. 3 times shorter than coxal longitudinal diameter. Prosternal process strongly notched at posterior edge, far from reaching the hind edge of procoxae, its sides margined over most of its extent (except for the very top), more

or less parallel in posterior part (Plate 11: 7). Prosternal process near its midway ca. 2,6 times narrower than coxal transverse diameter. Metepisterna ca. 2.3 times longer than maximum width. Spurs of metatibiae subequal in length, 3 times as short as joint 1 of metatarsus; tarsomere 2 subequal in length to 4th. Abdomen with fine punctation, distinctly and finely shagreened.

Body length: 5.8 mm regardless of strongly declinate head, 6.9 mm together with head.

Diagnosis: This species differs from congeners in combining the following characters first of all: prosternal process deeply notched at posterior edge; coloration of upperside and that of antennae; well-developed elytral rows of punctures; very strongly approximate eyes, etc. *E. similis* sp. nov. is similar to *Eustrophinus lesnei* Pic, 1937 from Mozambique but, unfortunately, the type could not be received for revision.

The holotype of *E. similis* sp. nov. bears the following labels: "genre Curteustrophinus Pic, possible", "overlaeti Pic" (handwritten by Pic himself), "Lulua, Kapanga, Congo Belge, XI.1932, G. F. Overlaet" (printed), and "type" printed on a red square. However, the status of *Curteustrophinus overlaeti* Pic, 1952 requires special attention (see below).

Due to several observations, the female holotype of *E. similis* sp. nov. has been designated as the type of *Curteustrophinus overlaeti* Pic, 1952 apparently by someone else, not Pic himself. Regrettably, the original description of *overlaeti* contains no indication whatever, how many specimens have served Pic as the type series. So the word "possible" on one of the labels suggests that Pic could have felt inclined to exclude this particular specimen from the type series. Secondly, even the short diagnosis of this species as given by Pic (1952) contains some discrepancies from the above female. Thus, the holotype of *E. similis* sp. nov. is more uniform in elytral coloration as mentioned by Pic; it has four, not three, clarified basal antennomeres; its eyes are almost contiguous, very poorly separated, on the frons, while Pic stated that the eyes are a little approximate anteriorly; the size of the female is 5.8 mm discarding the strongly declinate head, 6.9 mm together with the head, while Pic gave only 7 mm mentioning nothing as to how he measured the length. Besides this, the original description of *C. overlaeti* states explicitly that the elytra are devoid of rows of punctures (Pic, 1952). Ultimately, the true type of *C. overlaeti* has been located in the collection of the Musée Royal de l'Afrique centrale, Tervuren (see below).

In other words, there are a number of very strong indications that the type specimen of *E. similis* sp. nov. does not actually belong to the type series of *Curteustrophinus overlaeti* Pic dealt with.

Eustrophopsis sexmaculata sp. nov.

Plate 11: 9-12

Holotype male, Mexico, Teiupilco, Temescaltepec, ca. 4000 ft., 1933, H. E. Hinton & R. L. Usinger Collectors.

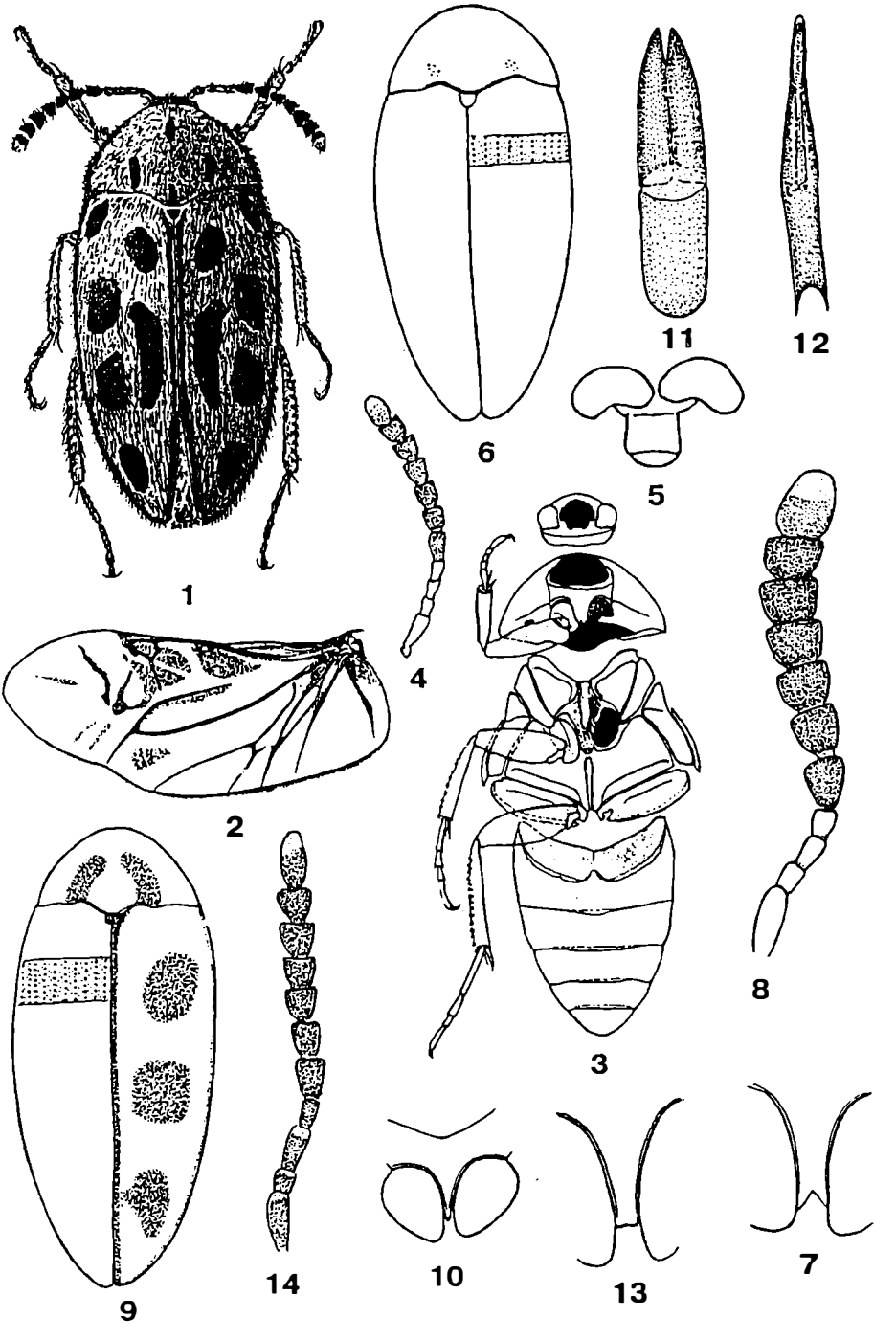

Plate 11. General view and details of structure of *Eustrophopsis* spp. (1-4 - after Wegrzynowicz 1995, others original). 1-4 - *Eustrophopsis quindecimmaculata;* 5 - *E. subaxillaris* (Fairmaire, 1869); 6-8 - *E. similis*, 9-12 - *E. sexmaculata;* 13-14 - *E. ochracea*. 1 - general view; 2 - wing; 3 - general view (ventral); 4, 8, 14 - antenna; 5 - head (frontal view); 6, 9 - pronotum and elytra; 7, 10, 13 - prosternal process; 11 - tegmen; 12 - penis.

The type is kept in the Natural History Museum in London.

Description. Elytra red-brown, each with three large black spots situated in fore, middle and hind part of elytra respectively, apical spot being more or less connected with a blackened suture; head and pronotum red-brown, latter with two black longitudinal spots bending toward medial part and reaching the base of pronotum (Plate 11: 9). Underside mainly red-brown, only sides and tibiae distinctly infuscate; antennomeres 1-4 red-brown, joint 11 reddish-brown. Maxillary palps infuscate with clarified apices of joints. Body oblong-oval, more or less convex, covered with dense decumbent hairs: yellowish-grey against a light background and black-brown or blackish against a dark one.

Head with small dense punctures; eyes very strongly approximate to each other, almost contiguous, distance between them much less than width of antennomere 2. Antennae when stretched back along body surpassing base of elytra by ca. 4 apical joints, reaching ca. anterior 1/5 length of elytra; antennal joint 1 ca. 2.4 times as long as a shortened 2nd; antennomere 3 strongly elongate, ca. 1.6-1.7 times as long as 2nd and its own width; joint 4 slightly broadened and subequal in length to 2nd; joints 5-11 fairly strongly broadened, joint 5 ca. 1.6-1.7 times broader and longer than 4th, about as long as broad; antennomere 6 barely shorter but considerably broader than 5th, both subequal in length; joints 6-10 only barely shortened toward antennal apex, 1.2-1.35 times as broad as long; joint 11 oval, 1.3-1.4 times longer than 10th and 1.25-1.3 times as long as broad.

Pronotum ca. 1.75 times as broad as long, its base distinctly but shallowly bisinuate, margined in middle part, posterior corners of pronotum rectangularly obtuse, anterior ones entirely rounded. Medial part of pronotum shallowly sinuate posteriorly. Pair of basal impressions very weak and each represented only by several punctures. Pronotal surface more or less shining, microsculpture very weak, punctation fine and moderately dense, distance between punctures up to 1-2 diameters of a puncture.

Scutellum transverse (ca. 1.7-1.8 times as broad as long), more or less straight truncate at posterior edge, finely punctured. Elytra oblong-oval, with a distinctly reflexed lateral edging, their length ca. 1.75-1.8 times as great as maximum width; elytra shining, virtually not shagreened, their rows of punctures marked, distance between them ca. 1-1.7 diameters of a puncture in row. Spaces between rows of punctures covered with very small, moderately dense punctures, latter being ca. 3-3.5 times less than diameter of punctures in row.

Prosternum before procoxae ca. 2.5 times as short as their longitudinal diameter. Prosternal process narrow, sharply rounded at apex, not sinuate, non-margined only in apical 1/4 extent, ending between posterior 1/4-1/5 extent of procoxae. Mesocoxae distinctly separated. Metasternum more or less shining, moderately finely and densely punctured, smooth in posterior part, not shagreened. Metasternum between meso- and metacoxae ca. 1.2 times as long as 1st visible abdominal sternite. Metatibiae with 11 transverse rows of strong spines, their spurs being subequal in length, ca. 3.0 times

shorter than metatarsomere 1, latter considerably longer than two following joints combined. Abdomen shining, with dense and rather fine punctation, its sternite 1 subequal in length to 2nd.

Aedeagus as in Plate 11: 11, 12.

Body length: 6.5 mm.

Diagnosis: This species differs from congeners in the characteristic coloration of the upperside, the shape of the prosternal process, etc.

Eustrophopsis ochracea (Motschoulsky, 1872), comb. nov.

Plate 11: 13, 14

Eustrophus ochraceus Motschoulsky, 1872, Bull. Soc. Natural. Moscou, 45, 2: 42

Eustrophinus bombinus Seidlitz, 1898, Naturg. Ins. Deutschl., 5, 2: 441, 442, syn. nov.

We have studied the holotype of *Eustrophus ochraceus* Motsch. with the label reading "Brasilia", kept in the Motschoulsky Collection of the Zoological Museum of the State University of Moscow, and the lectotype of *Eustrophinus bombinus* Seidl. (designated herewith), housed in the Naturhistorisches Museum in Vienna. Their complete synonymy has been established, syn. nov. This was difficult to reveal earlier due to the highly deficient descriptions of both species.

Genus *Curteustrophinus* Pic, 1952

Type-species: *C. overlaeti* Pic, 1952

Based on our restudy of the true type of this species (see above under *Eustrophopsis similis* sp. nov.), kept in the collection of the Musée Royal de l'Afrique centrale, Tervuren, the genus *Curteustrophinus* appears to actually belong in Tenebrionidae. The original description of *C. overlaeti* by Pic (1952), however deficient, fully agrees with the type at hand, including the broad body, considerably separated eyes, absence of elytral rows of punctures, etc.

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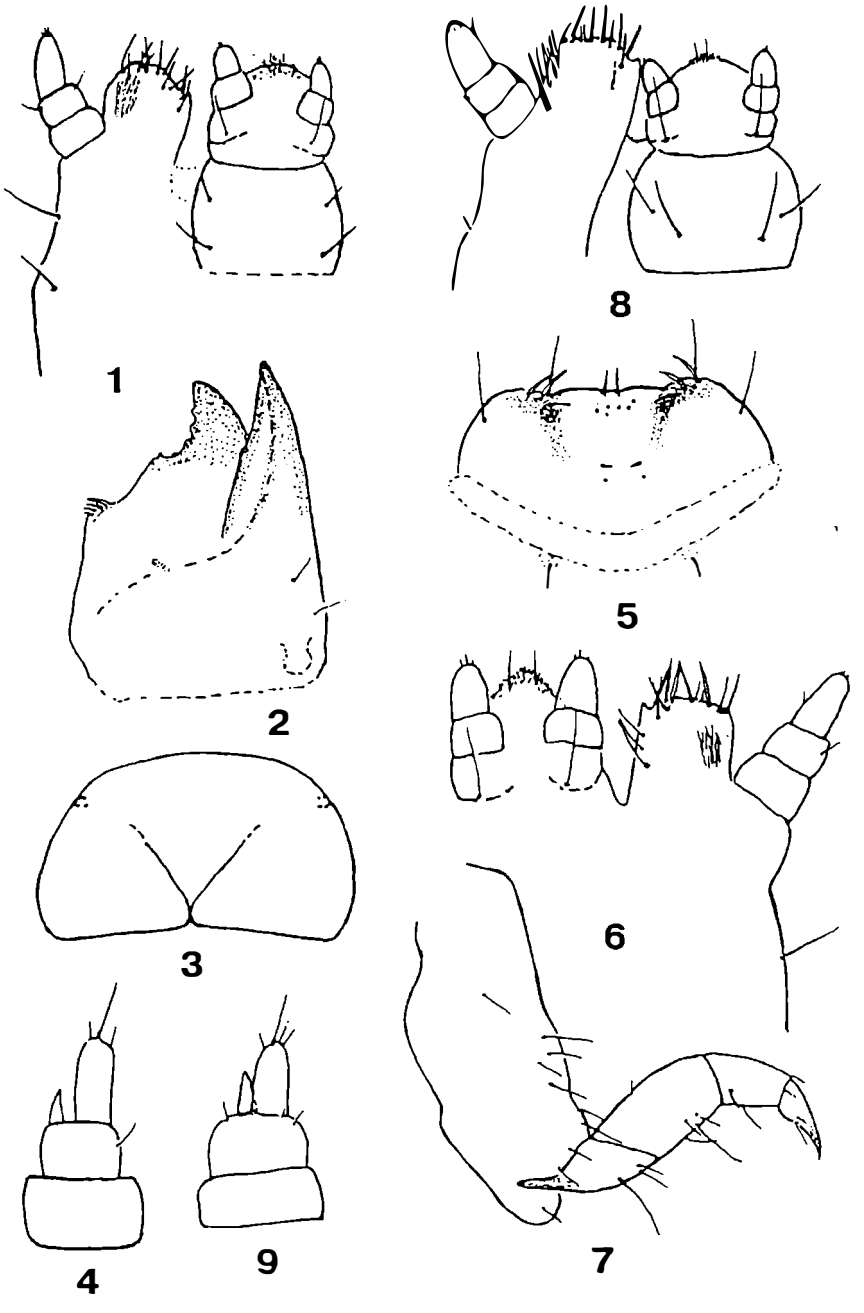

Plate 12. Details of larval structure of *Tetratoma* spp. (all original). 1-5 - *Tetratoma (Abstrulia) ancora;* 6, 7, 9 - *T. (Tetratoma) fungorum;* 8 - *T. (Falsoxanthalia) desmarestii.* 1, 6, 8 - maxilla and labium; 2 - mandible; 3 - head; 4, 9 - antenna; 5 - epipharynx; 7 - middle leg.

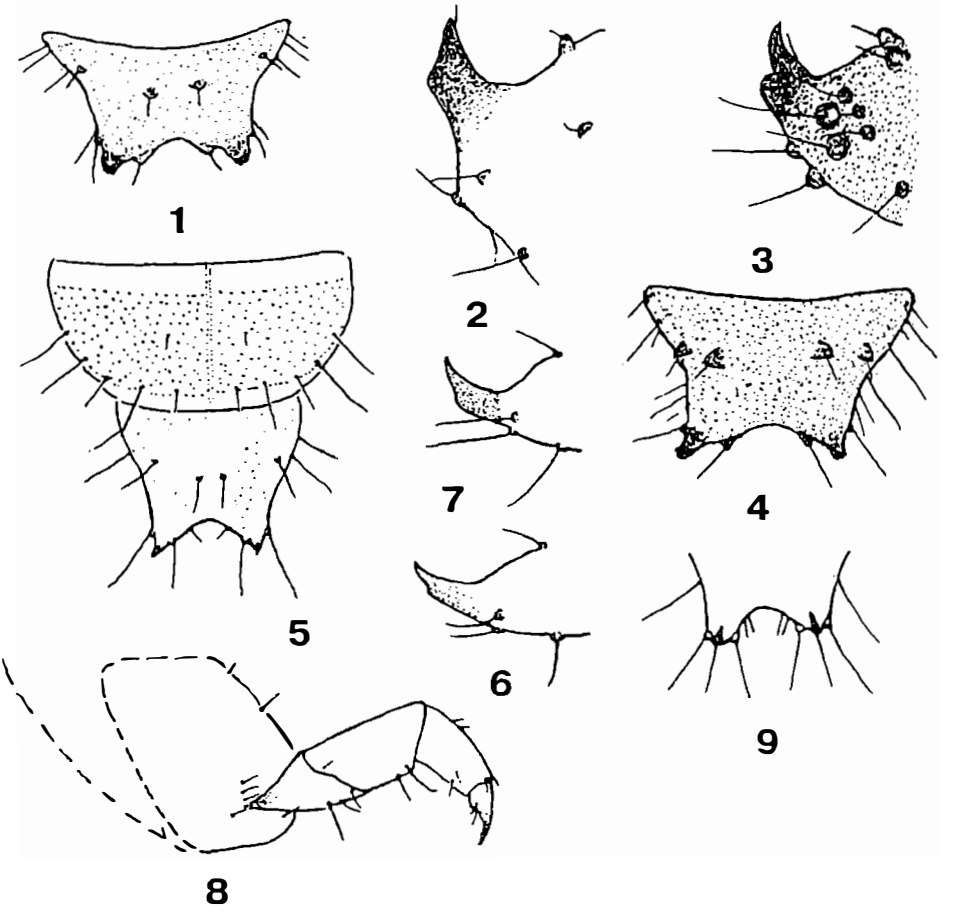

Plate 13. Details of larval structure of *Tetratoma* spp. (all original). 1, 2 - *Tetratoma (Tetratoma) fungorum;* 3, 4 - *T. (Falsoxanthalia) desmarestii;* 5, 6 - *T. (Abstrulia) ainu;* 7-9 - *T. (A.) ancora.* 1, 4, 9 - abdominal tergite 9; 2, 3 - abdominal segment 9 (lateral view); 5 - abdominal tergites 8 & 9; 6, 7 - urogomphus (lateral view); 8 - middle leg.

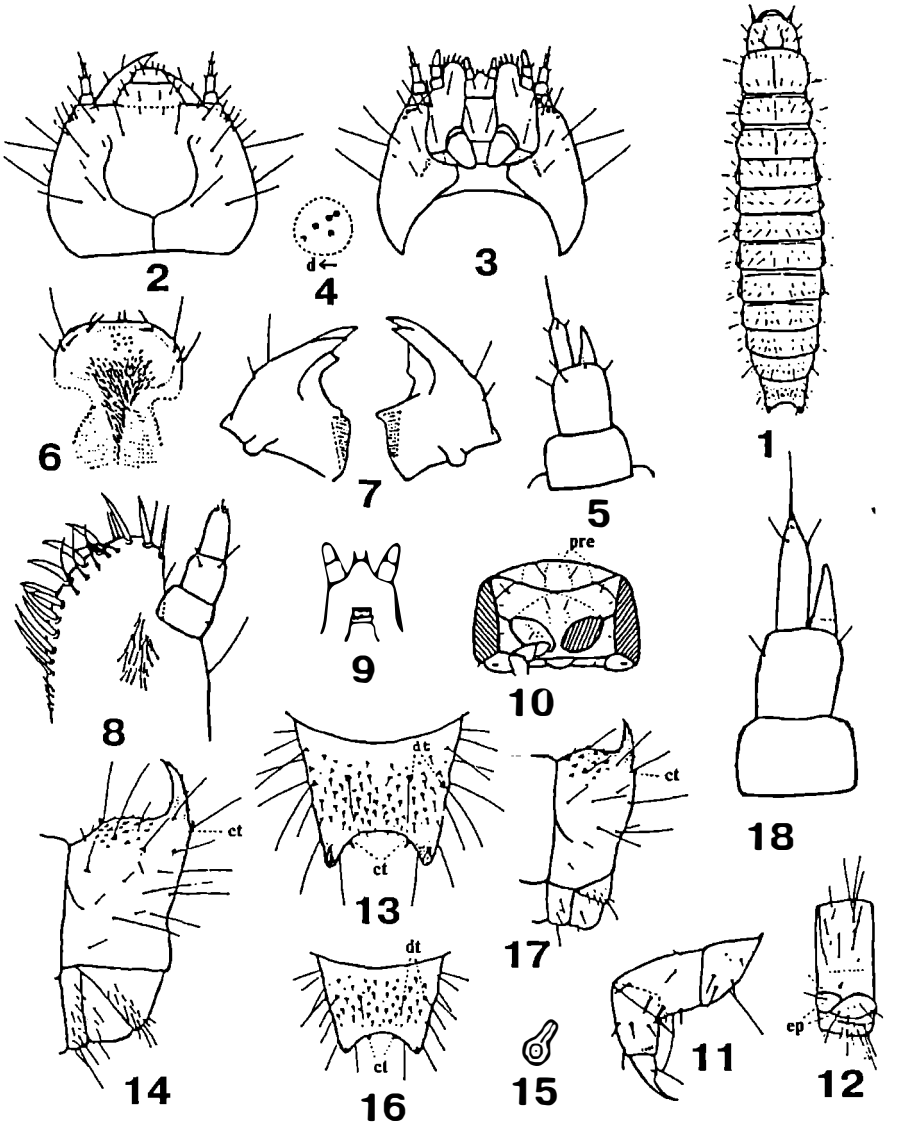

Plate 14. General view and details of larval structure of *Piscnus* spp. (1-17 - after Hayashi, 1972, 18 original). 1-15 - *Pisenus rufitarsis;* 16, 17 - *P. insignis;* 18 - *P. chujoi.* 1 - general view; 2 - head (dorsal view); 3 - same (ventral view); 4 - ocelli; 5, 18 - antenna; 6 - epipharynx; 7 - mandibles (ventral view); 8 - maxilla (ventral view); 9 - labium; 10 - segment of prosternum (ventral view); 11 - hind leg; 12 - abdominal segment 3 (lateral view); 13, 16 - abdominal tergite 9; 14, 17 - same (lateral view); 15 - spiracle of abdominal segment 3.

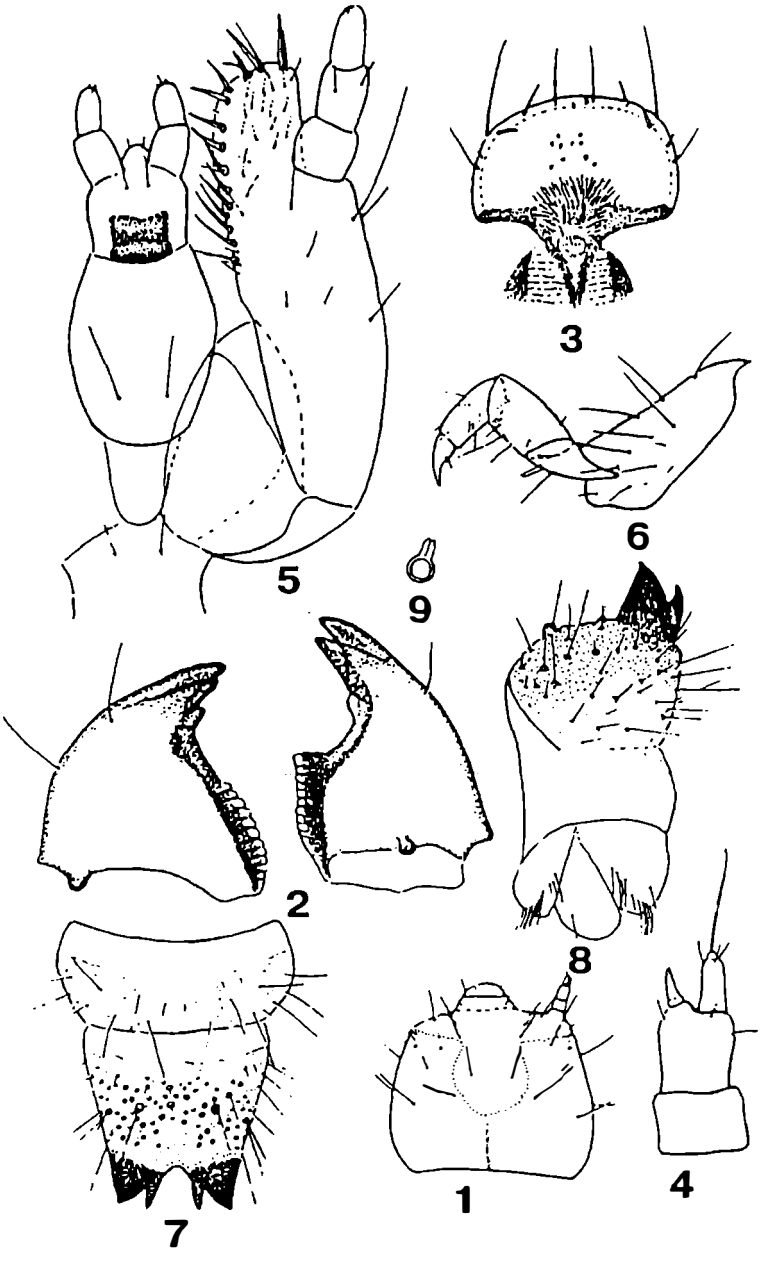

Plate 15. Details of larval structure of *Triphyllia koenigi* (all original): 1 - head; 2 - mandibles (ventral view); 3 - epipharynx; 4 - antenna; 5 - maxilla and labium (ventral view); 6 - middle leg; 7 - abdominal tergites 8 & 9 (dorsal view); 8 - abdominal segment 9 (lateral view); 9 - spiracle of abdominal segment 3.

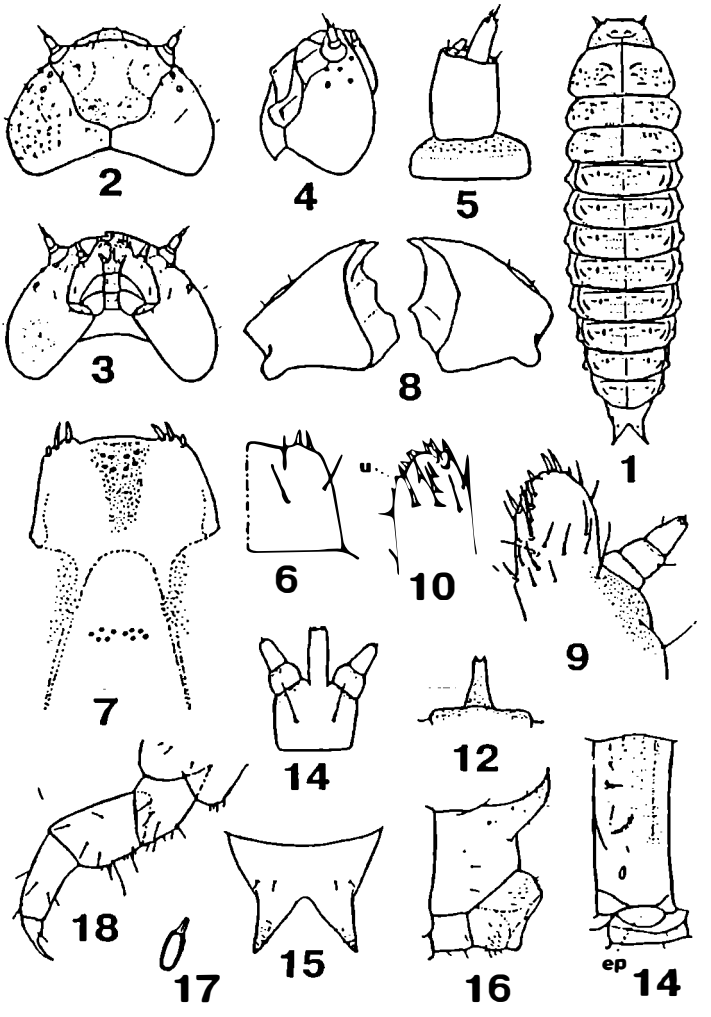

Plate 16. General view and details of larval structure of *Penthe japana* (all after Hayashi, 1972). 1 - general view; 2 - head (dorsal view); 3 - same (ventral view); 4 - same (lateral view); 5 - antenna; 6 - labrum (right part); 7 - epipharynx; 8 - mandibles (ventral view); 9 - maxilla; 10 - mala (ventral view); 11 - labium (anterior part, ventral view); 12 - hypopharynx; 13 - hind leg; 14 - abdominal segment 3 (lateral view); 15 - abdominal tergite 9 (dorsal view); 16 - same (lateral view); 17 - spiracle of abdominal segment 3.

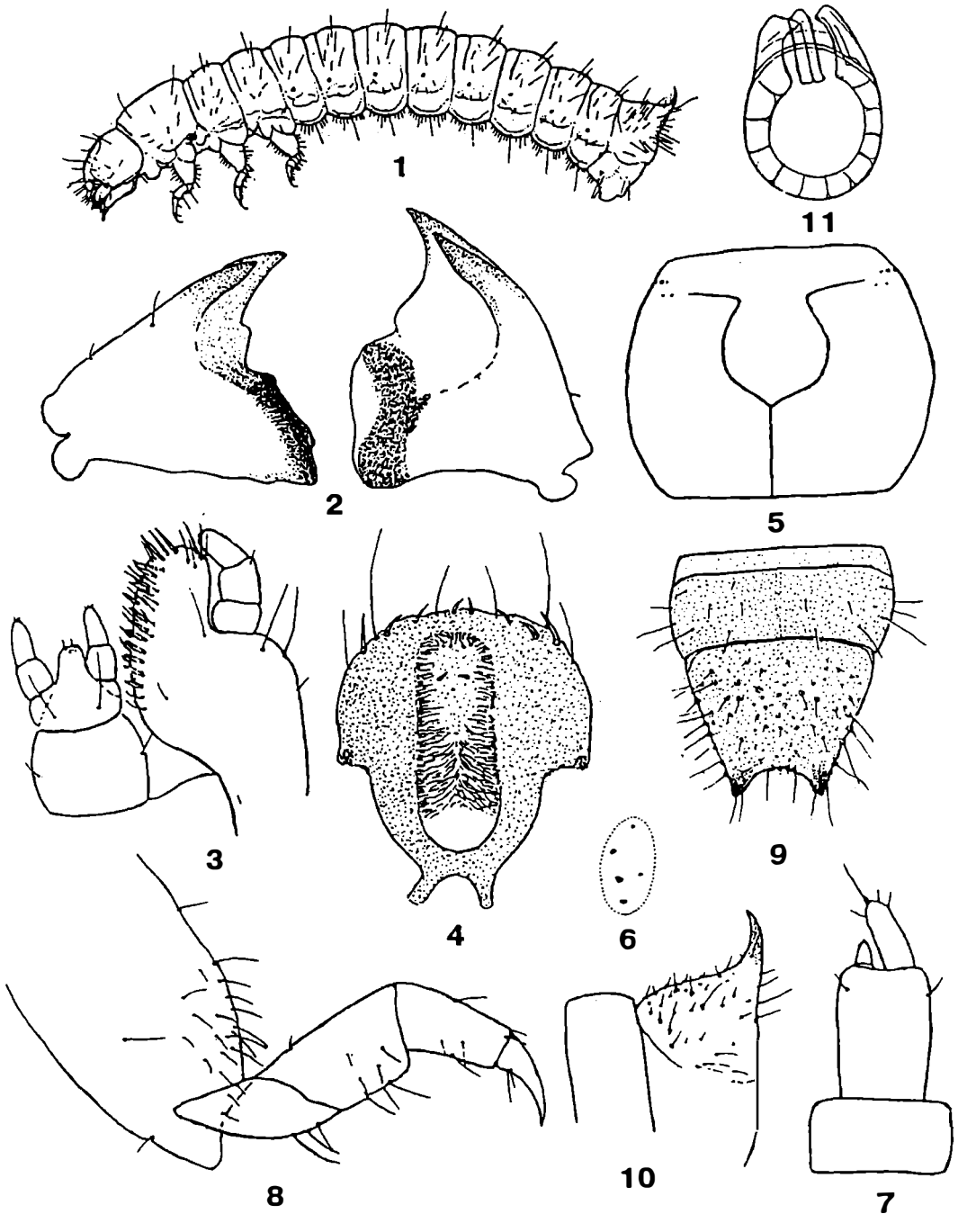

Plate 17. General view and details of larval structure of *Mycetoma suturalis* (1, 11 - after Viedma, 1966, others original). 1 - general view; 2 - mandibles (ventral view); 3 - maxilla and labium (ventral view); 4 - epipharynx; 5 - head; 6 - ocelli; 7 - antenna; 8 - middle leg; 9 - abdominal tergites 8 & 9 (dorsal view); 10 - same (lateral view); 11 - spiracle of abdominal segment 3.

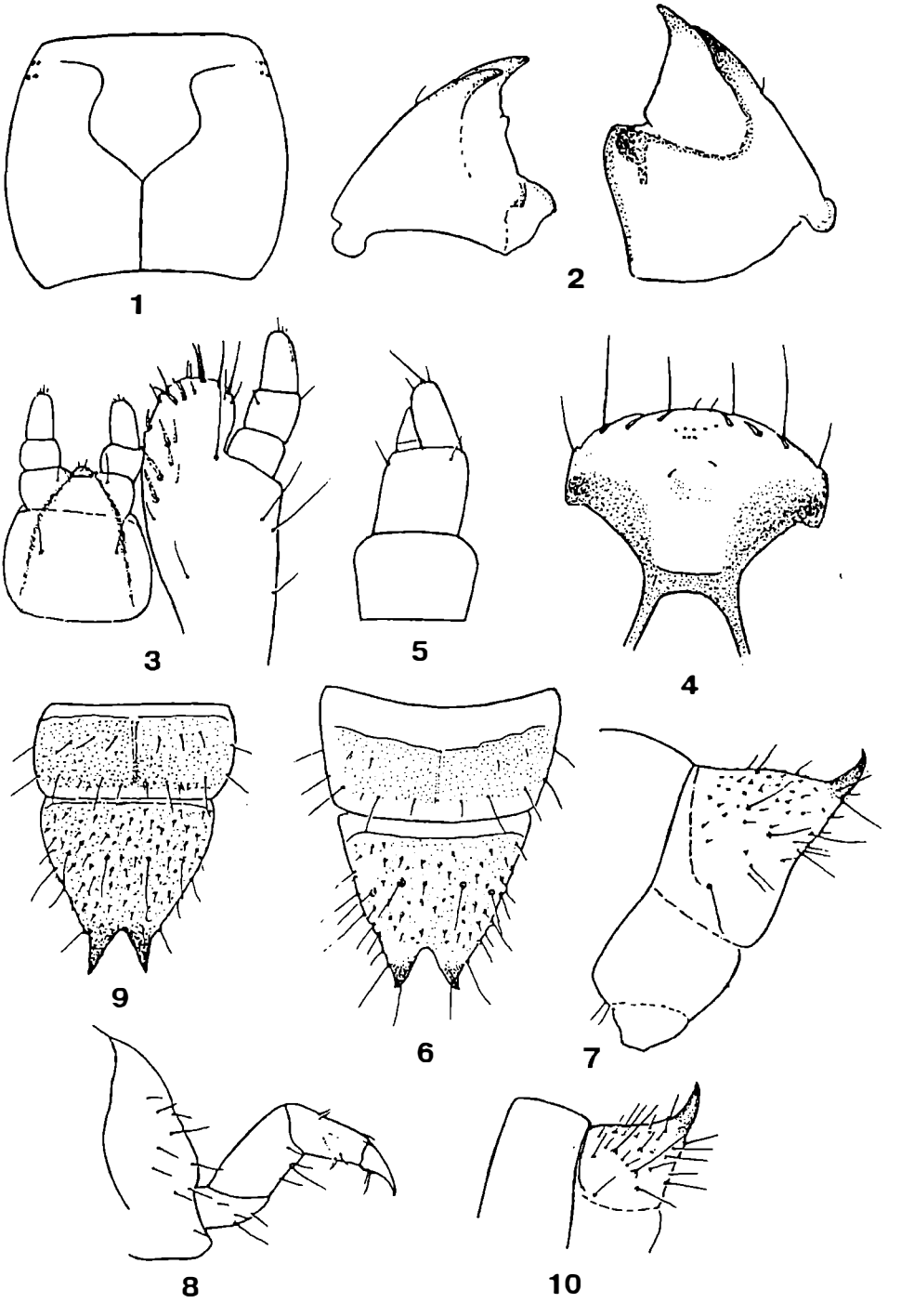

Plate 18. Details of larval structure of *Hallomenus binotatus* (1-8) and *H. axillaris* (9, 10) (all original). 1 - head; 2 - mandibles (ventral view); 3 - maxilla and labium (ventral view); 4 - epipharynx; 5 - antenna; 6, 9 - abdominal tergites 8 & 9 (dorsal view); 7, 10 - abdominal segments 8 & 9 (lateral view); 8 - middle leg.

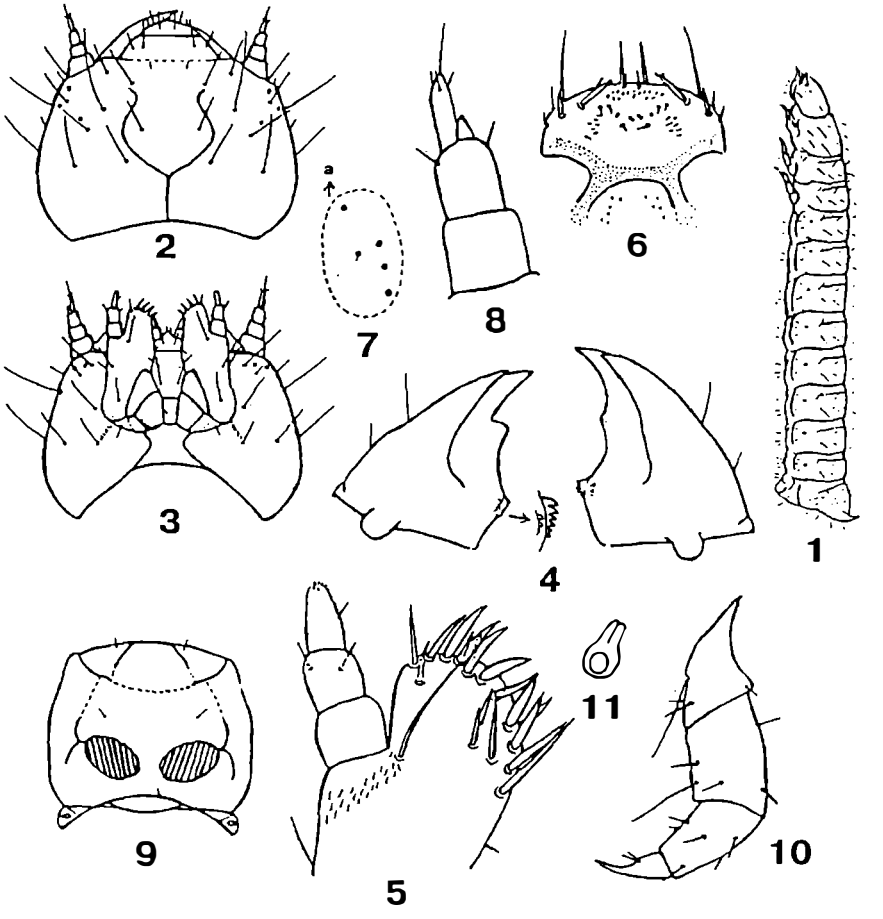

Plate 19. General view and details of larval structure of *Holostrophus orientalis* (all after Hayashi, 1975). 1 - general view; 2 - head (dorsal view); 3 - same (ventral view); 4 - mandibles (ventral view); 5 - maxilla; 6 - epipharynx; 7 - ocelli; 8 - antenna; 9 - prosternum (ventral view); 10 - hind leg; 11 - spiracle of abdominal segment 3.

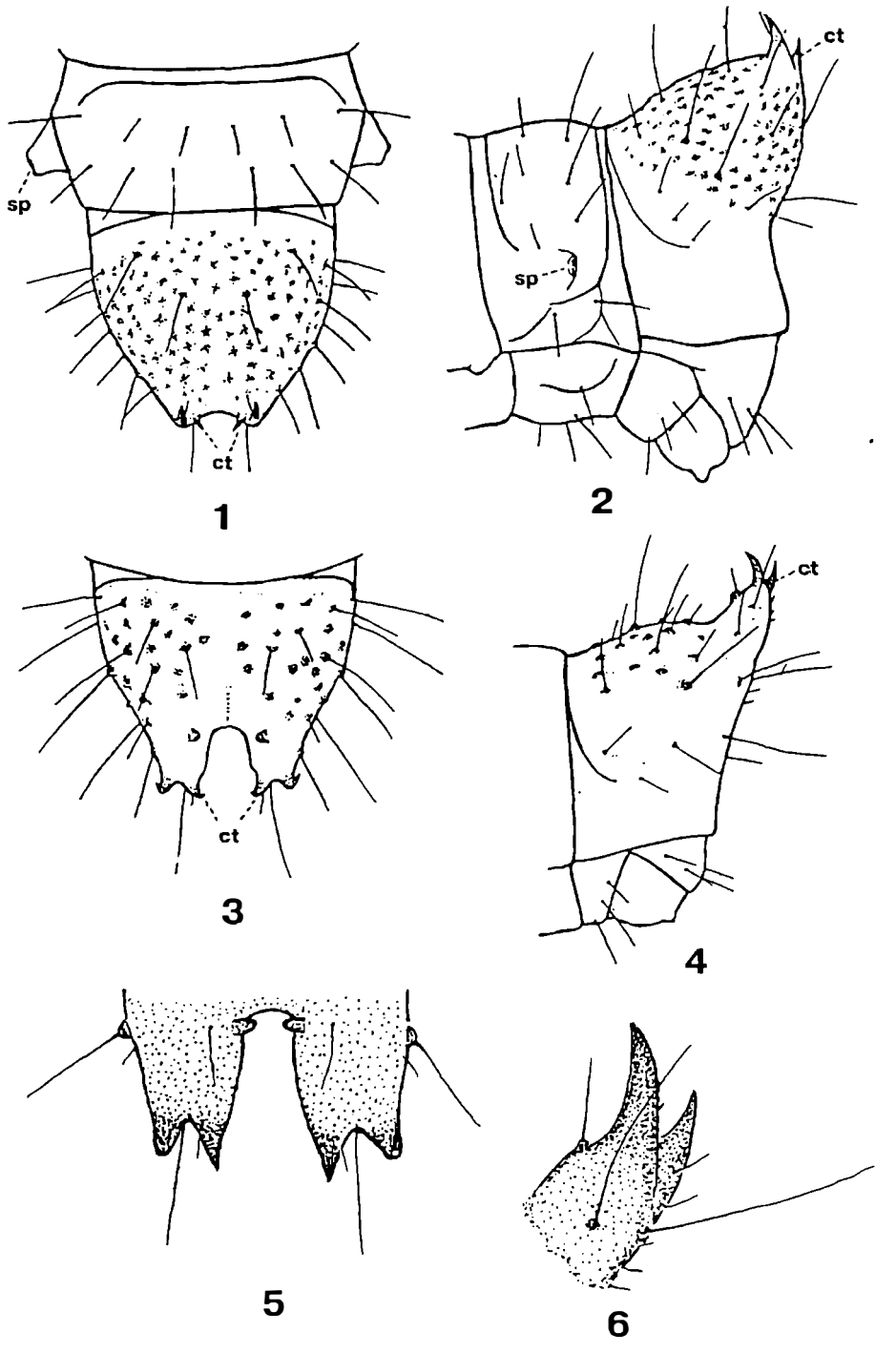

Plate 20. Details of larval structure of *Holostrophus* spp. (1-4 - after Hayashi, 1975, others original. 1, 2 - *Holostrophus orientalis;* 3, 4 - *H. lewisi;* 5, 6 - *H. diversefasciatus.* 1 - tergites 8 & 9 of abdomen; 2 - abdominal segments 8 & 9 (lateral view); 3 - abdominal tergite 9; 4 - same (lateral view); 5 - urogomphi (dorsal view); 6 - urogomphus (lateral view).

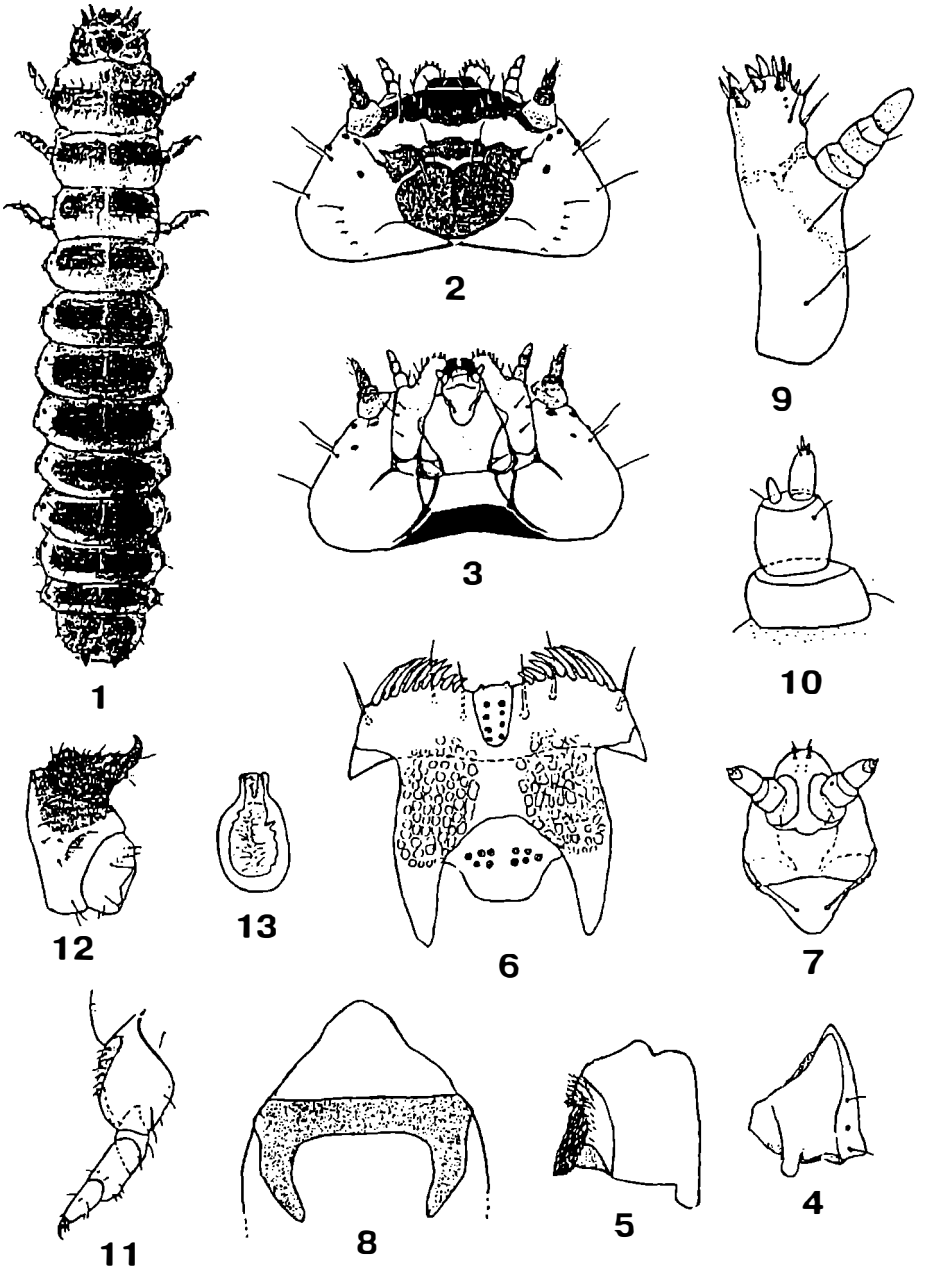

Plate 21. General view and details of larval structure of *Eustrophopsis quindecimmaculata* (all after Wegrzynowicz, 1995). 1 - general view; 2 - head (dorsal view); 3 - same (ventral view); 4 - mandible (dorsal view); 5 - same (lateral view); 6 - epipharynx; 7 - anterior part of labium; 8 - hypopharynx; 9 - maxilla (ventral view); 10 - antenna; 11 - middle leg; 12 - abdominal segments 9 & 10 (lateral view); 13 - spiracles of mesosternum.

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A new classification of the poorly-known mycetophilous and mycetoxylophilous beetle family Tetratomidae is advanced in the scope of the world fauna. Detailed descriptions and accounts are given, and keys are presented both to adults and larvae, so far as known. Numerous taxonomic novelties are proposed. This book is basic for a complete revision of the family, a pattern to follow when preparing any coleopterological treatise.

Prof. Gleb S. Medvedev
President of the Russian Entomological Society