

A revision of the Old World species of *Megischus* Brullé, *Stephanus* Jurine and *Pseudomegischus* gen. nov., with a key to the genera of the family Stephanidae (Hymenoptera: Stephanoidea)

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Key words: Hymenoptera; Stephanoidea; Stephanidae; *Megischus*; *Stephanus*; *Pseudomegischus*; *Profoenatopus*; *Afromegischus*; *Schlettererius*; *Foenatopus*; *Parastephanellus*; *Hemistephanus*; *Comnatopus*; *Callomegischus*; Oriental; Australian; Indo-Australian; Afrotropical; Neotropical; Nearctic; Palaeartic; new genus; new species; keys; revision.

The genera of the family Stephanidae Leach, 1815 (Hymenoptera: Stephanoidea), are redefined and keyed. Three new genera and two subgenera are described and illustrated. *Profoenatus* gen. nov. (type species: *Stephanus elliotti* Ceballos, 1926, from Madagascar), with subgenus *Comnatopus* nov. (type species: *Stephanus comma* Morley, 1917, from the African continent), *Afromegischus* gen. nov. (type species: *Stephanus pachylomerus* Schletterer, 1889, from the African continent) and *Pseudomegischus* gen. nov. (type species: *Stephanus sulcifrons* Schletterer, 1889), with the nominate subgenus in the Indo-Australian region and subgenus *Callomegischus* nov. (type species: *Stephanus tibiator* Schletterer, 1889) in the Afrotropical region with an extension to the Arabian Peninsula.

The Indo-Australian and Palaeartic species of the genus *Megischus* Brullé, 1846, are revised, 25 described species are recognised as valid, 22 new synonyms are established (plus 5 likely ones) and 17 new species are added. In addition the species of the genera *Pseudomegischus* gen. nov. and *Stephanus* Jurine (in Panzer), 1801, are keyed, including two new species: *Pseudomegischus celebensis* spec. nov. from Central Sulawesi, and *Stephanus soror* spec. nov. from West Malaysia.

The following new synonyms are established: *Stephanus brevicoxis* Elliott, 1926, and *S. linearis* Elliott, 1927 with *Megischus curtus* (Elliott, 1926); *Stephanus tinctipennis* Kieffer, 1916, *S. pilosus* Elliott, 1921, *S. rugosus* Elliott, 1921, *S. impressus* Elliott, 1926, *S. sulcatus* Elliott, 1926, *S. philippinensis* Ceballos, 1926, *S. similis* Elliott, 1927, *S. ruber* Elliott, 1927, *S. samaris* Elliott, 1927, and *S. glabricoxis* Elliott, 1927, with *Megischus insularis* Smith, 1857; *Stephanus aequalis* Elliott, 1927, *S. aequalis* var. *ruficauda* Elliott, 1927, and *S. petiolatus* Elliott, 1927, with *Megischus rubripes* (Kieffer, 1916) comb. nov.; *Stephanus ceylonicus* Cameron, 1903, with *Megischus nigricans* Sichel, 1866; *Stephanus hirsutus* Elliott, 1927, and *S. punctatus* Elliott, 1927 with *Megischus nigripes* (Elliott, 1927); *Stephanus panayanus* Elliott, 1927, with *Megischus reticulatus* (Elliott, 1926); *Megischus froggattii* Cameron, 1911, and *Stephanus rubripes* Morley, 1917, with *Megischus rufofemoratus* (Szépligeti, 1902) comb. nov.; *Stephanus hornianus* Enderlein, 1912, with *Megischus tortus* (Morley, 1917); *Stephanus quadraticollis* Elliott, 1927, and *Stephanus elegans* Elliott, 1927, with *Stephanus sulcifrons* Schletterer, 1889. The following are new combinations: *Megischus curtus* (Elliott, 1926); *M. lucidus* (Szépligeti, 1902); *M. rufofemoratus* (Szépligeti, 1902); *M. rufus* (Elliott, 1927); *M. tortus* (Morley, 1917), *M. rubripes* (Kieffer, 1916), *Parastephanellus spoliator* (Smith, 1863), *Pseudomegischus insidiator* (Smith, 1863) and *P. rugipleurae* (Elliott, 1928). *Megischus lucidus* (Szépligeti, 1902), *M. rubripes* (Kieffer, 1916) and *M. nigripes* (Elliott, 1927) are re-instated names.

Lectotypes are designated to enhance the future stability of the taxonomy of the following taxa: *Stephanus aequalis* Elliott, 1927; *Stephanus tinctipennis* var. *atriceps* Kieffer, 1916; *Stephanus curtus* Elliott, 1926; *Megischus froggattii* Cameron, 1911; *Megischus insularis* Smith, 1857; *Megischus longicaudatus* Costa, 1866; *Stephanus lucidus* Szépligeti, 1902; *Stephanus petiolatus* Elliott, 1927; *Stephanus reticulatus*

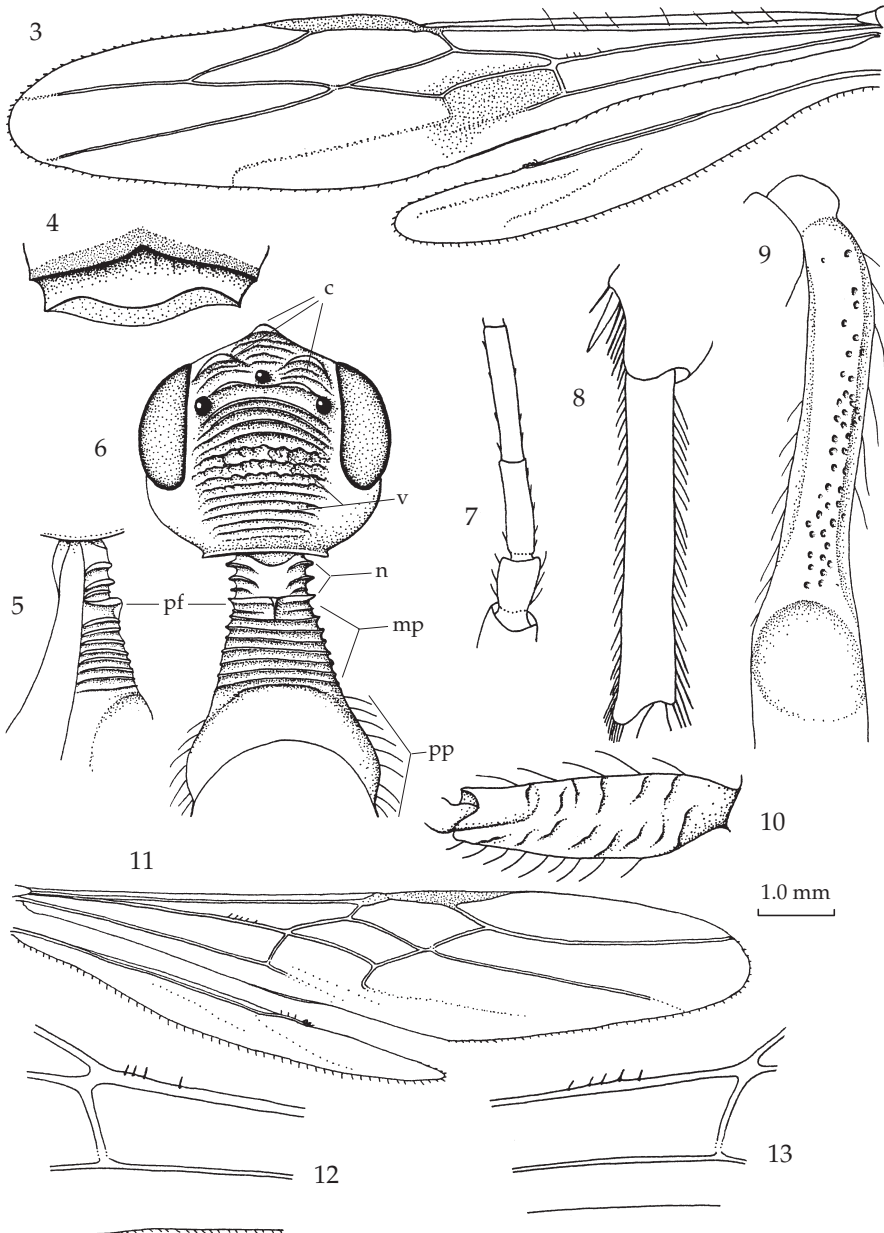


Fig. 1, *Parastephanellus* spec., ♀, Indonesia (Sulawesi); fig. 2, *Foenatopus* spec., ♀, Zimbabwe. 1, habitus, lateral aspect (with ovipositor sheath separately depicted below); 2, wings. Drawings by A. Watsham.

Elliott, 1926; *Stephanus ruber* Elliott, 1927; *Stephanus tinctipennis* var. *rubripes* Kieffer, 1916; *Megischus ruficeps* de Saussure, 1901; *Stephanus samaris* Elliott, 1927; *Stephanus similis* Elliott, 1927; *Stephanus sulcatus* Elliott, 1926 and *Stephanus variantius* Elliott, 1926. Stenophasmidae Benoit, 1949, is a new junior synonym of the tribe Sphathiini Foerster, 1862, of the subfamily Doryctinae Foerster, 1862 (Hymenoptera: Braconidae). The genus *Stenophasmus* Smith, 1859, is re-instated as a valid genus near the genus *Spathius* Nees, 1818.

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Introduction

The family Stephanidae Leach, 1815, is a rather small cosmopolitan family occurring mainly in the subtropical and tropical forests. The species are usually medium-sized to large: length of fore wing ranging from 2-20 mm, body length of the largest species (in the genus *Megischus*) reach (including ovipositor) up to 75 mm. The best estimate for the number of valid species present in collections is about 250, taking into account that its foremost specialist E.A. Elliott described 79 species of which in the genus *Megischus* 81% proved to be synonyms. Stephanidae are conspicuous by the "crown" on the head (fig. 6), the more or less modified pronotum (figs 5, 6) and, especially in species of *Megischus*, *Madegafoenus*, *Foenatopus* and *Hemistephanus*, by the shape of the hind leg (figs 42, 157, 199, 471, 540, 598, 635, 643, 654), the often present ivory subapical band of the ovipositor sheath (figs 25, 52, 78) and their size. Nearly all species of *Megischus* and *Hemistephanus* are black or dark brown with frequently some parts (especially of head and legs) yellowish-, orange- or reddish-brown. Small parts may be ivory, most commonly a subapical band of the ovipositor sheath and a streak behind the eye. Judging from their body colour nearly all species are forest-dwellers, only a few species have the body more extensively yellowish and I predict occur outside the forest in an open savanne-habitat. According to Vilhemsen (1997) the superfamily Stephanoidea (with the only family Stephanidae) is the most basal group of the Hymenoptera-Apocrita. Traditionally, the Stephanidae are included the "Evaniomorpha" (Rasnitsyn, 2002), which are either (together with the Cynipoidea and including the superfamily Ceraphronoidea) the most basal group of the Apocrita (as indicated by analyses of mitochondrial 16S rDNA by Downton et al., 1997; but the Stephanidae itself were not mentioned) or the second group after the Aculeata/Ichneumonoid lineage branched off (according to the analyses of morphological data by Ronquist et al. (1999) and excluding the superfamily Ceraphronoidea). The Apocrita is considered to be the sister-group of the family Orussidae Newman, 1854, which are parasitic woodwasps (Vilhemsen, 1997). The Orussidae lack the typical "wasp waist" of the Apocrita, and have 10 (♀) or 11 (♂) antennal segments (antenna with 12-44 segments in the Stephanidae). The Orussidae share with the Stephanidae the dorsal "corona" of 3-5 teeth on the head, the antenna inserted near the clypeus, the wing venation comparatively reduced (especially of the hind wing), and both parasitise larvae in wood. Stephanidae possess some autapomorphies: e.g., the large more or less circular flagellar sensillae or multiporous plate sensillae (Gauld, 1995; Quicke, 1997; Basibuyuk & Quicke, 1999; figs 425, 426, 477, 572), the twisted aberrant mandibles (figs 129, 177, 280), the small protruding clypeus and the strongly protruding labrum, the large slit-like propodeal spiracle situated posteriorly on the propodeum, the more or less modified pronotum (to facilitate the head when it slants backwards (figs 59, 80, 100, 644, 656), with the posterior part of the pronotum partly covering the mesoscutum anteriorly), the hind coxa often transversely costate or striate (fig. 10), the more or less compressed basal half of the hind tibia (figs 65, 254, 282, 284, 322), inner or dorsal side of hind tibia usually with submedial impression (figs 277, 293, 335), the posterior ocelli very close to eyes and often almost touching them (fig. 6), the often comparatively long postgenal bridge (fig. 163), the presence in females of a triangular or reversed U-shaped pygidial impression (fig. 355) and (in the subfamily Stephaninae) the more or

less elongate (up to 21 times as long as apically wide in the genus *Foenatopus*!) and cylindrical first metasomal tergite (figs 276, 392) possessing a transverse basal carina (fig. 494). Other apomorphies are the comparatively high insertion of the metasoma (fig. 1), the rather small subspherical head (figs 1, 641), the more or less (but in *Stephanus* less!) swollen hind femora with 2 or 3 large teeth and usually several small ones (figs 427, 556, 658), the set of transverse crests crowned by 3-5 teeth of the "corona" (figs 417, 418, 642), the more or less transversely costate first tergite, the third antennal segment shorter than fourth segment (figs 165, 425, 426, 360; rarely equal as in *Megischus ducalis* Westwood, 1851), and the middle antennal segments much longer than basal the ones, and the usually subpetiolate second metasomal tergite.

For a long time Stephanidae and Braconidae Nees, 1812, have been confused (e.g., Kieffer, 1904a; Benoit, 1949). As late as 1949 Benoit named a new family to include the genus *Stenophasmus* Smith, 1859. The genus *Stenophasmus* Smith is re-instated as a valid genus near the genus *Spathius* Nees, 1818, and belongs to the Braconidae (subfamily Doryctinae Foerster, 1862). Consequently, Stenophasmidae Benoit, 1949, is a new junior synonym of the tribe Spathiini Foerster, 1862, of the subfamily Doryctinae.

Note.— This revision started originally as a joint project with Dr Alexandre P. Aguiar (Saõ Paulo). Dr Aguiar supplied a nearly complete catalogue on the genus *Megischus* and a draft of a key to the Indo-Australian species (except Australia) together with elementary descriptions of about half of the species included in this revision. Nearly all species had a letter code because hardly any types of the genus *Megischus* had been examined by Dr Aguiar. Soon after the start of the project it became clear that only the catalogue was a useful tool but that nearly all the revisionary work had to be done from the beginning, also because Dr Aguiar had a different species concept. The collections of BMNH, OUM and USNM (as well part of RMNH) had remained unstudied or largely so. After these collections had been studied and the first draft was ready, discussions on the sequence of authorship of the newly described species ended in the withdrawal of Dr Aguiar. I regret this, considering his important contribution by initiating this study and allowing me to use a limited but important selection of the material of the genus *Megischus* assembled by him from several collections.

Biology

It is surprising that the Stephanidae (which probably have separated from the Apocrita in early Cretaceous or earlier considering their phylogenetic position) are habitually so similar. It may be an indication that little variation in biology occurs in the group and their environment has been a stable one, but also that several lineages have become extinct and that some lineages expanded comparatively recently. The scanty biological information indicates that Stephanidae are idiobiont ectoparasitoids of wood boring larvae (Taylor, 1967). In the tropics and subtropics Stephanidae can be found around tree trunks or branches of trees dead for about one year inhabited by beetle larvae and not yet infested by fungi. Stephanidae are nearly always reported as parasitoids of coleopterous larvae, mainly Buprestidae (e.g., Townes, 1949; Chao, 1964; Pagliano, 1986; Braza, 1989), and Cerambycidae (e.g., Blüthgen, 1953; Völlger, 1994; Visitpanich, 1994). Further references are given by Aguiar (2001). Roman (1917) suggests that Brentidae could be hosts as well. Larvae of wood wasps (family Sirici-

dae Billberg, 1820) are attacked by a member of the most basal genus (*Schlettererius*; Taylor, 1967; Kirk, 1975). The actual biology of nearly all species is unknown or nearly unknown, with exception of the Nearctic *Schlettererius cinctipes* (Cresson, 1880). It was introduced in Tasmania to control the also introduced Palaearctic *Sirex noctilio* Fabricius, 1793 (Siricidae). The female spends relatively little time in examination of the tree before beginning the drilling in the stem for the oviposition, sometimes up to two hours. The egg is laid on the immobilised host larva; the egg hatches within two weeks and after four to five weeks the larva metamorphoses into a naked pupa. The adult gnaws a tunnel up to the surface of the wood, but apparently pushes off the outer layers of bark, leaving an irregular exit hole (Taylor, 1967). In North America it is common on Siridae in *Abies* and *Pinus* species and seems to form an important part of the parasitoid guild (Kirk, 1975). Only for *Schlettererius cinctipes* and *Stephanus serrator* (Fabricius, 1798) more than one host have been recorded and both are obviously polyphagous on holometabolous larvae living in coniferous wood, and larvae of the latter also in angiospermous wood. Hardly any information on the biology of the members of the genus *Megischus* Brullé, 1846, is available, despite the relatively large size of the species. There is only one cursory remark by Berland (1951) on larvae of Apidae (solitary bees: e.g., repeated by Malyshev, 1966) attacked by Stephanidae of unknown genus in the Pacific region. According to Gauld (1995) in Costa Rica *Megischus* (including *Hemistephanus*) is only known below 1400 m, and is perhaps most common below 300 m; in Southeast Asia I found a similar pattern.

The more or less swollen apical half of hind tibia with a depressed and more or less widened submedial part in females, which may be combined with a ventral carina up to apex of tibia, oblique striae and short sturdy spurs is an adaptation to locate hosts by detecting vibrational sounds (Dr D.L.J. Quicke, pers. comm.). Many Hymenoptera are likely to use self-produced vibrational signals; the signals are produced by tapping the substrate with their antenna and the echoes are detected by particularly enlarged subgenual organs of the legs (Broad & Quicke, 2000; Vilhemsen et al., 2001). The hind tibia has been dissected, and it has an apical empty space bordered by a convex membrane (fig. 15) obvious part of a subgenual organ. The part above the membrane was filled with fine tissue up to the widened submedial part of the tibia. Fresh material should be studied to describe the organ in detail. The antennae of the Stephanidae are not adapted for tapping, so either the sounds produced by the host larvae are used or sounds produced by tapping the substrate with the fore and hind tibiae (both being specialised), or by a combination of both.

Taxonomy

Schletterer (1889) was the first to summarize the group, with all 42 species included in one genus "*Stephanus* Panzer, 1805" (= *Stephanus* Jurine (in Panzer), 1801; = "*Stephanus* Jurine, 1807" (cf. Aguiar, 1998)) and in a key to species level. Although Jurine (1807) referred to Panzer, Jurine is the author of the genus because Panzer (1801) clearly indicated the description is by Jurine. Elliott (1922) gave the latest general review and supplied a very useful compilation, but of little use for the taxonomy of the group. Many of the treated species are synonyms and several important characters are overlooked. Since Elliott's review several additional species have been described

from the Indo-Australian region and the Neotropics. The genus *Foenatopus* as treated in this paper is split by Elliott in three genera solely based on the gradual reduction of the first subdiscal cell of the fore wing. As could be expected it is impossible to hold these as valid and the genus *Stephanus* sensu Elliott is a mix of not closely related groups as *Stephanus* s.s., *Megischus* and *Pseudomegischus* gen. nov. For instance, in Elliott's 1926-1928 review of Philippine Stephanidae, he included one species in *Stephanus* and another very closely related one in *Parastephanellus*, but both belonging to *Pseudomegischus* gen. nov.!

Additional keys are found in Townes (1949; key to Nearctic species), Chao (1964; key to species from South China), Madl (1991; key to Palaearctic species, incomplete), Belokobylskij (1995; review of East Palaearctic and northeastern Oriental species) and Aguiar (1998: revision of *Hemistephanus* and 2001: revision of the Australian Stephanidae). There is no recent key to the genera and the latest general key (Elliott, 1922) is almost useless because of too much reliance on vein reduction. Most of the species belong to the genera *Foenatopus* Smith, 1860 (circumtropical, containing medium-sized to rather small species with most species in the Palaetropics), *Parastephanellus* Enderlein, 1906 (medium-sized to rather small species with a pale yellowish streak behind eyes and with an Indo-Australian distribution) and *Megischus* Brullé, 1846 (generally conspicuous species and circumtropical (except for the Afrotropical region, and with most species in the Indo-Australian region). *Megischus* species are collected rather frequently by non-hymenopterists, because the genus contains the largest species of the Stephanidae (length of fore wing usually 10-18 mm).

The ivory subapical band of the ovipositor sheath is a basal character-state since it occurs in the genus *Schlettererius* Ashmead. Most likely it is part of the recognition mechanisms for parasitoid Hymenoptera living in rainforests with only dim light available. In some groups of *Foenatopus* it occurs together with an ivory streak behind the eyes, in others the ovipositor sheath is completely blackish and rarely both ivory parts are absent. In *Parastephanellus* and in two related new genera (*Profoenatopus* [but present in type species!] and *Afromegischus*) the ovipositor sheath has no ivory band but the streak behind the eyes is more or less conspicuously developed. In *Megischus* and *Hemistephanus* the ovipositor sheath always have an ivory band, but there is no ivory streak behind the eyes. In the W. Palaearctic *Stephanus serrator* (Fabricius) the ovipositor sheath has no ivory band but the legs possess conspicuous ivory patches (figs 622, 629). In some aberrant Afrotropical species of *Foenatopus* the first metasomal tergite is basally, and more or less also apically, ivory and some Indo-Australian species have the large teeth of the hind femur ivory.

The proposed generic division is made after examining about 75% of the described species (which is presumably about 90% of the valid taxa) and most type specimens.

Fossils

The oldest fossils of Stephanidae are known from Eocene (Rasnitsyn, 2002), while the earliest fossils of Apocrita are early Jurassic (Zessin, 1985; Rasnitsyn, 2002). Rasnitsyn (2002) and Schulmeister et al. (2002) consider the Stephanidae to have branched off from the family Megalyridae Schletterer, 1889; the Megalyridae are known since early Jura and are therefore, the oldest known (since about 210 million years) extant

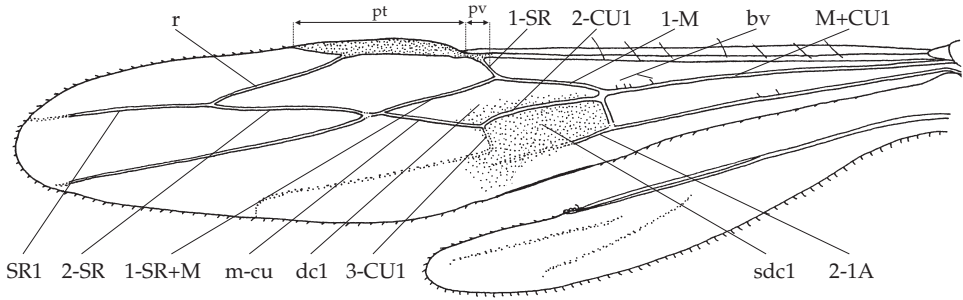


Fig. 14, used nomenclature of wing: pt = pterostigma; pv = parastigmal vein; bv = spiny setae or bristles near apex of vein M+CU1; dc1 = first discal cell; sdc1 = first subdiscal cell.

family of the Hymenoptera-Apocrita.

The little that is known about fossil Stephanidae is summarized by and commented on by Aguiar & Janzen (2000). Two fossil genera of Stephanidae are known: *Protostephanus* Cockerell, 1906 (only the type species, *P. ashmeadi* Cockerell, 1906) from Miocene shales of the Florissant formation in Colorado, U.S.A. and *Electrostephanus* Brues, 1933 (type species: *E. brevicornis* Brues, 1933, from Baltic amber). The five known species of *Electrostephanus* (all from Baltic amber) are keyed by Aguiar & Janzen (2000). *Chosia* Fujiyama, 1994 (type species: *C. yamedai* Fujiyama, 1994, from Lower Cretaceous amber in Japan is excluded because it lacks the synapomorphies of the family (as indicated by Fujiyama, 1994) and because of its size; the fore wing is 2.6 mm!).

Protostephanus Cockerell is incompletely known but important features are the 3-segmented tarsi, the hind tibia strongly dilated apically, vein 1-M of fore wing distinctly curved and about 3.3 times as long as vein 1-SR, vein 1-SR of fore wing straight, and basal half of vein 2-CU1 of fore wing vertical and sclerotized (as e.g., in the genus *Stephanus*), however, the shape of the first metasomal tergite and the number of large teeth on the hind femur is unknown. The strongly dilated hind tibia combined with the comparatively small discal cell of the fore wing links this genus with *Madegafoenus* Benoit (figs 643, 645, 654 and figs 646, 652, respectively) from Madagascar. *Madegafoenus* differs by having vein 1-M of fore wing straight or nearly so and vein 3-CU1 of fore wing unsclerotized.

The genus *Electrostephanus* Brues is difficult to characterize because only males are

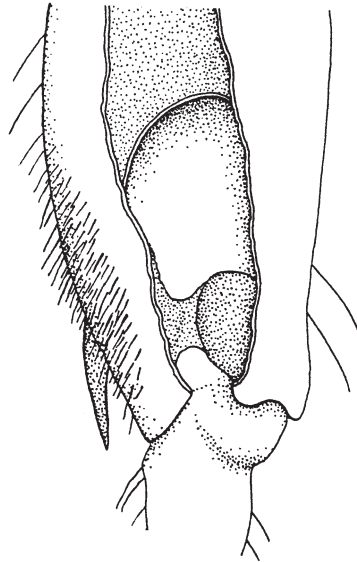


Fig. 15, *Megischus insularis* Smith, ♀, Sabah; apical third of hind tibia with part of exoskeleton removed to show empty space bordered dorsally by a convex membrane (= cm).

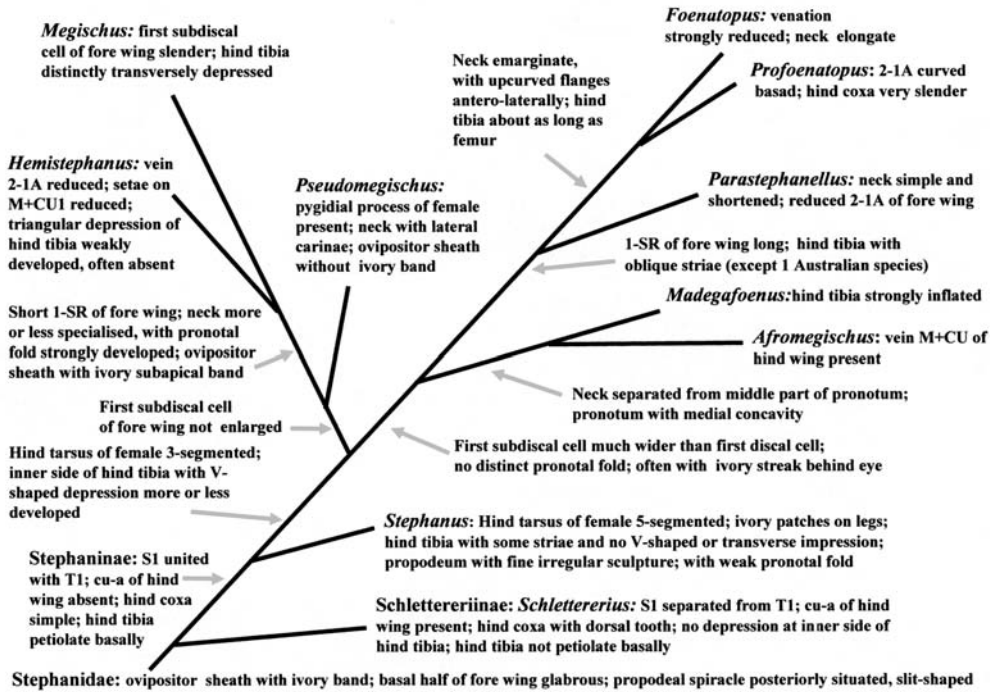


Fig. 16, handmade cladogram to show most likely phylogenetic relationships of the genera of Stephanidae.

known and the genus is mixed. The group including the type species (*Electrostephanus* Brues s.s.) has the notum of the first metasomal tergite distinctly separated from its sternite, which now is known only from the genus *Schlettererius* Ashmead (subfamily Schlettereriinae Belokobylskij, 1995). This group has the first discal cell of fore wing small (fig. 12 in Aguiar & Janzen, 2000), vein 1-M of fore wing curved and 1.7 times as long as vein 1-SR, vein 1-SR of fore wing straight, vein 3-CU1 of fore wing sclerotized and spiny setae present on base of vein 1-CU1 of fore wing. The separate sternite of the first metasomal tergite and the curved vein 1-M of the fore wing indicate that *Electrostephanus* belongs to the subfamily Schlettereriinae. It is distantly related to the genus *Schlettererius* Ashmead, but this genus has the first discal cell of fore wing distinctly elongate (in *Electrostephanus* almost square), the spiny setae absent on vein 1-CU1 of fore wing (but present near it), the hind femur less strongly swollen, and the hind femur with several small teeth (in *Electrostephanus* only with two large teeth) and vein 1-SR much shorter compared with vein 1-M (fig. 675). The unknown female should have 5-segmented hind tarsi as other members of the subfamily.

The remaining three species of the genus *Electrostephanus* belong to the subfamily Stephaninae; the first metasomal sternite is united with the notum and the first discal cell of fore wing is comparatively elongate (fig. 6 in Aguiar & Janzen, 2000) and seems to fit in the genus *Pseudomegischus* nov. As far as can be judged from the descriptions there are no important differences. For example, both have the spiny setae of vein

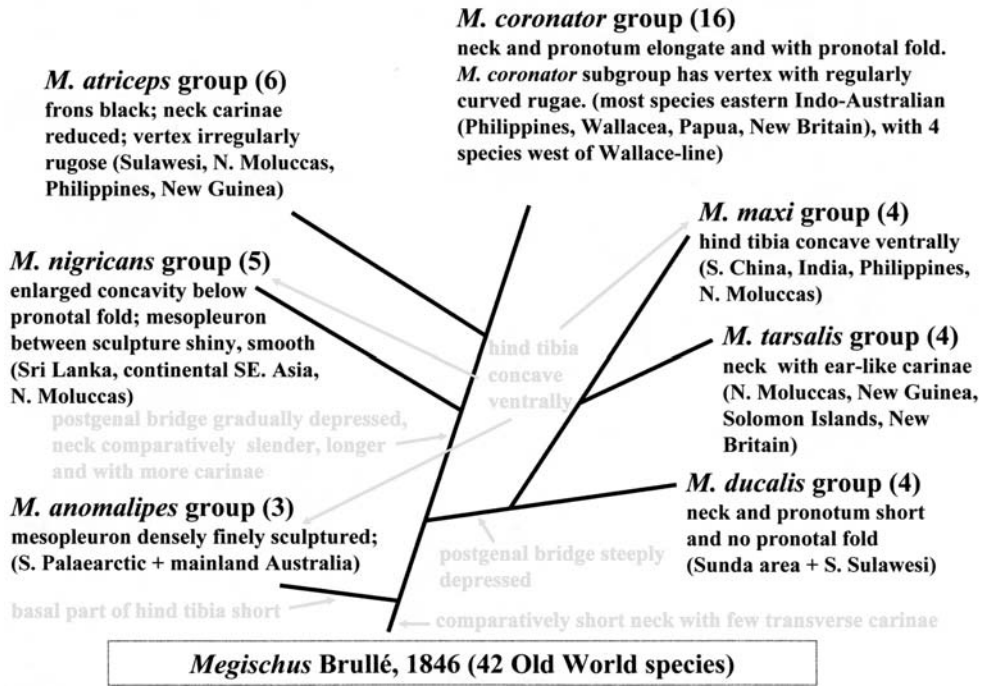


Fig. 17, handmade cladogram to show most likely phylogenetic relationships of the Old World species of the genus *Megischus* Brullé.

M+CU1 of fore wing situated apically. This placement is provisional as long as no females are known; females of the latter group of *Electrostephanus* should have 3-segmented hind tarsi and are not congeneric with *Electrostephanus* s.s. The suggestion that genus *Protostephanus* Cockerell may be a synonym of *Electrostephanus* s.s. (Aguiar & Janzen, 2000) is incorrect; the latter is a less derived genus and belongs to a different subfamily as defined in this paper. *Protostephanus* is most likely a separate genus near the genus *Madegafoenus* Benoit.

Phylogeny

Within the Stephanidae a comparatively limited number of characters can be used for a phylogenetic analysis and a manually made cladogram is proposed for the genera (fig. 16) and the Old World species groups of the genus *Megischus* (fig. 17). An extensive phylogenetical analysis has to wait till molecular data become available. The following characters have been considered for the construction of fig. 16 (first the derived state in the family Stephanidae).

1. Ivory band of ovipositor sheath absent/ present.
2. Basal half of fore wing glabrous/ setose
3. First metasomal sternite immovably/movably joined to first tergite.
4. Vein cu-a of hind wing absent/ present.

5. Hind coxa with/ without dorsal tooth.
6. Depression at inner side of hind tibia large/ absent or minute.
7. Hind tibia distinctly narrowed/ non-petiolate basally.
8. Apical half of hind tibia with/ without oblique striae and/or ventral carina.
9. Hind tarsus of ♀ 3-segmented/ 5-segmented.
10. Ivory patches on legs present/ absent.
11. First subdiscal cell of fore wing much wider than first discal cell/ about equal.
12. Ivory streak behind eye present/ absent.
13. Vein 1-SR of fore wing comparatively short or long/ medium-sized.
14. Neck distinctly differentiated/ not differentiated.
15. Apical half of hind tibia strongly inflated/ moderately convex.
16. Vein 2-1A basally curved/ straight.
17. Hind coxa very slender/slender.
18. Venation of fore wing strongly reduced/ complete.
19. Neck anteriorly emarginate/ truncate.
20. Neck with/ without upcurved anterior flange.
21. Hind tibia as long as femur/ somewhat longer.
22. Pygidial protuberance of ♀ absent/ present.

For fig. 17 the following characters have been used (with the derived state in the genus listed first):

1. Narrowed part of hind tibia short (figs 313, 377)/ comparatively long (figs 440, 453, 471).
2. Postgenal bridge steeply depressed and short (figs 472, 510)/ subhorizontal and medium-sized to comparatively long (figs 526, 552).
3. Neck elongate (figs 45, 63)/short (figs 18, 72).
4. Number of transverse carinae of neck reduced (figs 197, 224)/ moderate (figs 188, 215, 233).
5. Transverse carina of neck absent medially and one carina enlarged laterally into "ears" (figs 197, 340)/ carinae more or less equally developed (figs 18, 29, 64, 152).
6. Pronotal fold reduced (figs 20, 185)/ distinct (figs 31, 64, 80).
7. Sides of apical half of hind tibia distinctly concave (figs 42, 58, 174)/ straight or nearly so (figs 23, 47, 65, 121).
8. Rugosity of vertex regular (figs 19, 44, 62)/irregular (figs 37, 53, 161).
9. Sculpture of mesopleuron very dense and fine (figs 321, 381)/ coarse and sparse (fig. 553).
10. Concavity below pronotal fold comparatively large (figs 46, 119)/ small or absent (figs 20, 54, 62).

According to the resulting cladogram the concave side of the apical half of the hind tibia has developed three times in the genus *Megischus*. This indicates a high evolutionary pressure on the character which seems related to the detection of the host larvae in wood. The alternative (to consider it developed only once) result in a much less parsimonious cladogram and is therefore rejected.

The Old World groups (fig. 17) consists of the following species (in brackets the derived states of the group):

M. anomalipes group (3 species: basal part of hind tibia short; mesopleuron densely and finely sculptured): *M. anomalipes* (Foerster, 1855); *M. ceneonatrix* Aguiar, 2001; *M. crassicauda* (Morley, 1917).

M. ducalis group (4 species: postgenal bridge steeply depressed; neck and pronotum robust and no pronotal fold): *M. angitibialis* spec. nov.; *M. curtus* (Elliott, 1926); *M. ducalis* Westwood, 1851; *M. planifrons* spec. nov.

M. tarsalis group (4 species: postgenal bridge steeply depressed; neck with pair of ear-like carinae): *M. lieftincki* spec. nov.; *M. rufofemoratus* (Szépligeti, 1902); *M. tarsalis* Smith, 1861; *M. violaceipennis* Cameron, 1901.

M. maxi group (4 species: postgenal bridge steeply depressed; hind tibia concave ventrally): *M. carolinae* spec. nov.; *M. glabricephalus* spec. nov.; *M. maxi* Schönmann, 1991; *M. ptosimae* Chao, 1964.

M. nigricans group (5 species: enlarged cavity below pronotal fold; mesopleuron smooth and shiny between sculpture): *M. breviannulatus* spec. nov.; *M. krombeini* spec. nov.; *M. nigricans* Sichel, 1866; *M. saussurei* (Schulz, 1907); *M. tortus* (Morley, 1917).

M. atriceps group (6 species: neck carinae reduced; frons black): *M. atriceps* (Kieffer, 1916); *M. bungaensis* spec. nov.; *M. emarginaticollis* spec. nov.; *M. fransseni* spec. nov.; *M. luzonicus* spec. nov.; *M. reticulatus* (Elliott, 1926).

M. coronator group (16 species: neck and pronotum elongate and with strongly developed pronotal fold): *M. angularis* spec. nov.; *M. exilis* spec. nov.; *M. inaequalis* (Elliott, 1927); *M. longicaudatus* Costa, 1866; *M. nigripes* (Elliott, 1927); *M. rubripes* (Kieffer, 1916); *M. rufus* (Elliott, 1927); *M. tangkokoensis* spec. nov.; *M. tarsatus* Sichel, 1866; *M. tonkinensis* spec. nov. The following species form the *M. coronator* subgroup (vertex densely and regularly curved rugose): *M. cambaensis* spec. nov.; *M. coronator* (Fabricius, 1804); *M. haematipoda* (Montrouzier, 1857); *M. insularis* Smith, 1857; *M. nigripoides* spec. nov.; *M. lucidus* (Szépligeti, 1902).

Distribution

Stephanidae are cosmopolitan but occur mainly in the subtropical and tropical regions. However, they are not evenly distributed as might be expected for such an old group. The most conspicuous difference is between the Afrotropical and Indo-Australian regions. Normally (e.g., in the family Braconidae) these regions share widely distributed genera or possess very similar sister-genera. In the Stephanidae the genus *Megischus* occurs in the Neotropical and West Palaearctic regions, but is absent from the Afrotropical and East Palaearctic regions. There are Afrotropical species which are superficially similar to the genus *Megischus* but these are not closely related and belong to new genera described in this paper. The genus *Foenatopus* is the only genus shared by the Indo-Australian, Oriental, South Palaearctic and Neotropical regions (in the latter two regions with only a few species, and possibly by later invasions). However, the Afrotropical species of the genus *Foenatopus* belong mainly to aberrant species-groups, of which one (figs 633-640) has been named as *Neostephanus* Kieffer, 1904. Its recognition probably will make the remainder of the genus paraphyletic and it is therefore, treated provisionally as a synonym.

Terminology and depositories

For terminology not explained in this paper, see Richards (1956, 1976) and van Achterberg (1979, 1988). The abbreviations for the wing venation are as in van Achterberg (1988) which differs slightly from Wharton et al. (1997) as follows (fig. 14; abbreviations according to Wharton et al. in brackets): 1-M (= 1M), 1-SR (= 1RS), m-cu (= 1m-cu), 2-SR (= 2RS), and 1-SR+M ((RS+M)a) of the fore wing. The nomenclature of the venation of the hind wing is (as far as used) the same. In addition the following terms may need explanation.

Hypostomal flange.— Flange below the mandibles being part of the hypostomal carina or lamella (fig. 111). The anterior part may be more or less disconnected and has been named occipital flange (van Achterberg, 1988).

Neck.— Modified and more or less narrowed anterior part of pronotum, usually in *Megischus* posteriorly bordered by the pronotal fold (“n” in fig. 6). Named “colo” by Aguiar (1998).

Postgenal bridge.— Area between hypostomal carina and foramen magnum (= near anterior end of neck; figs 40, 48, 124). Normally in Stephanidae it is gradually depressed, but in both *Megischus* and *Hemistephanus* it may be steeply depressed to accommodate the neck. This important character was first used in the genus *Hemistephanus* by Aguiar (1998) and was well illustrated (Aguiar, 1998: 407, figs 115, 116 as “ponte pós-genal”). That the derived character state occurs also in *Hemistephanus* is not surprising; according to Vavilov’s law this can be expected in a sister group.

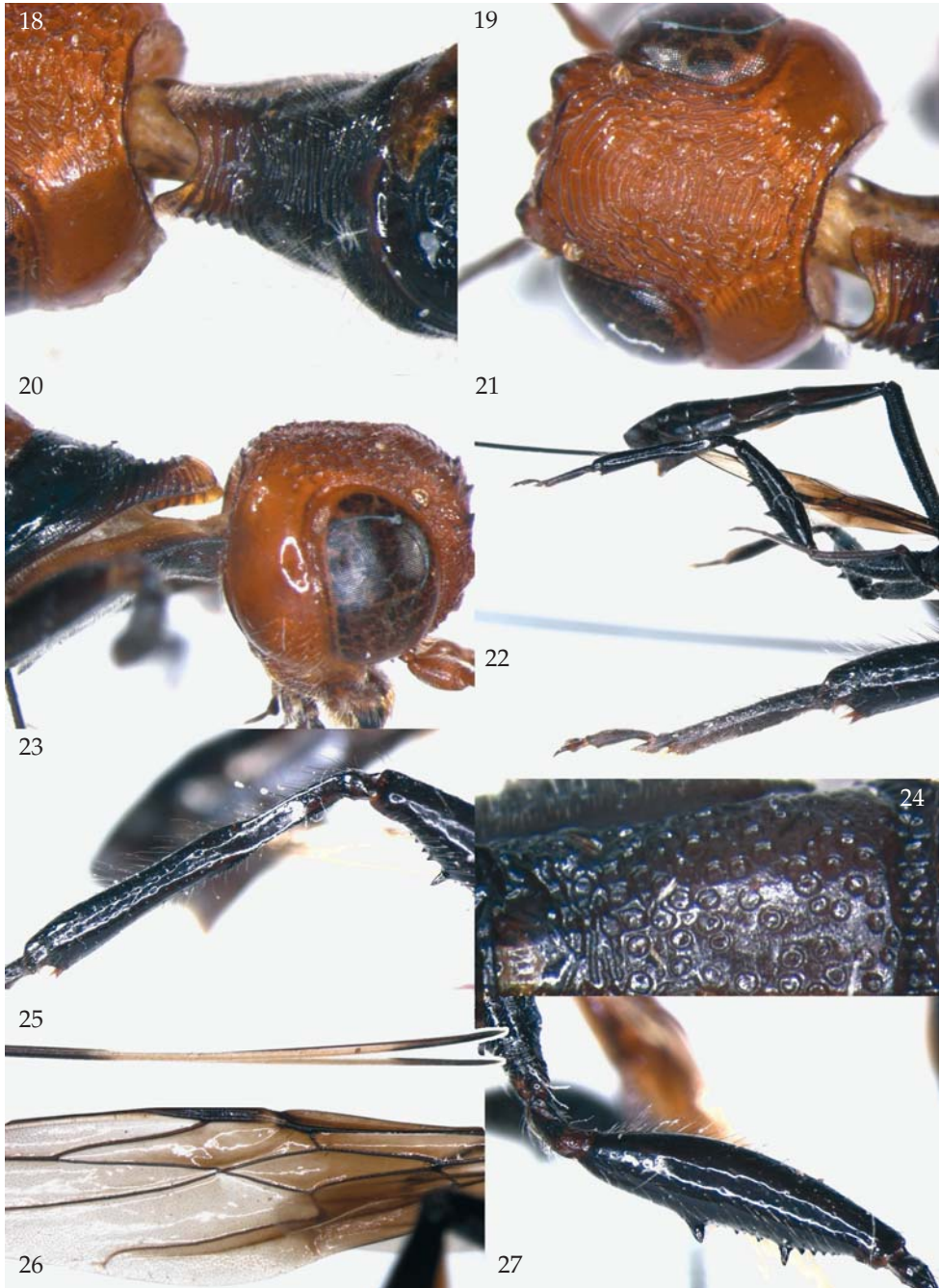
Pronotal fold.— A usually strong transverse crest- or lamella-like elevation which forms the anterior margin of the middle part of the pronotum (“pr” in figs 5, 6). Referred to by some authors as the “central fold”.

Middle part of pronotum.— The part of pronotum from (and more or less contiguous with) the pronotal fold up to the posterior part of the pronotum (“mp” in fig. 6). Named “preannular” by Aguiar (1998). Often strongly transversely costate or carinate (figs 5, 6).

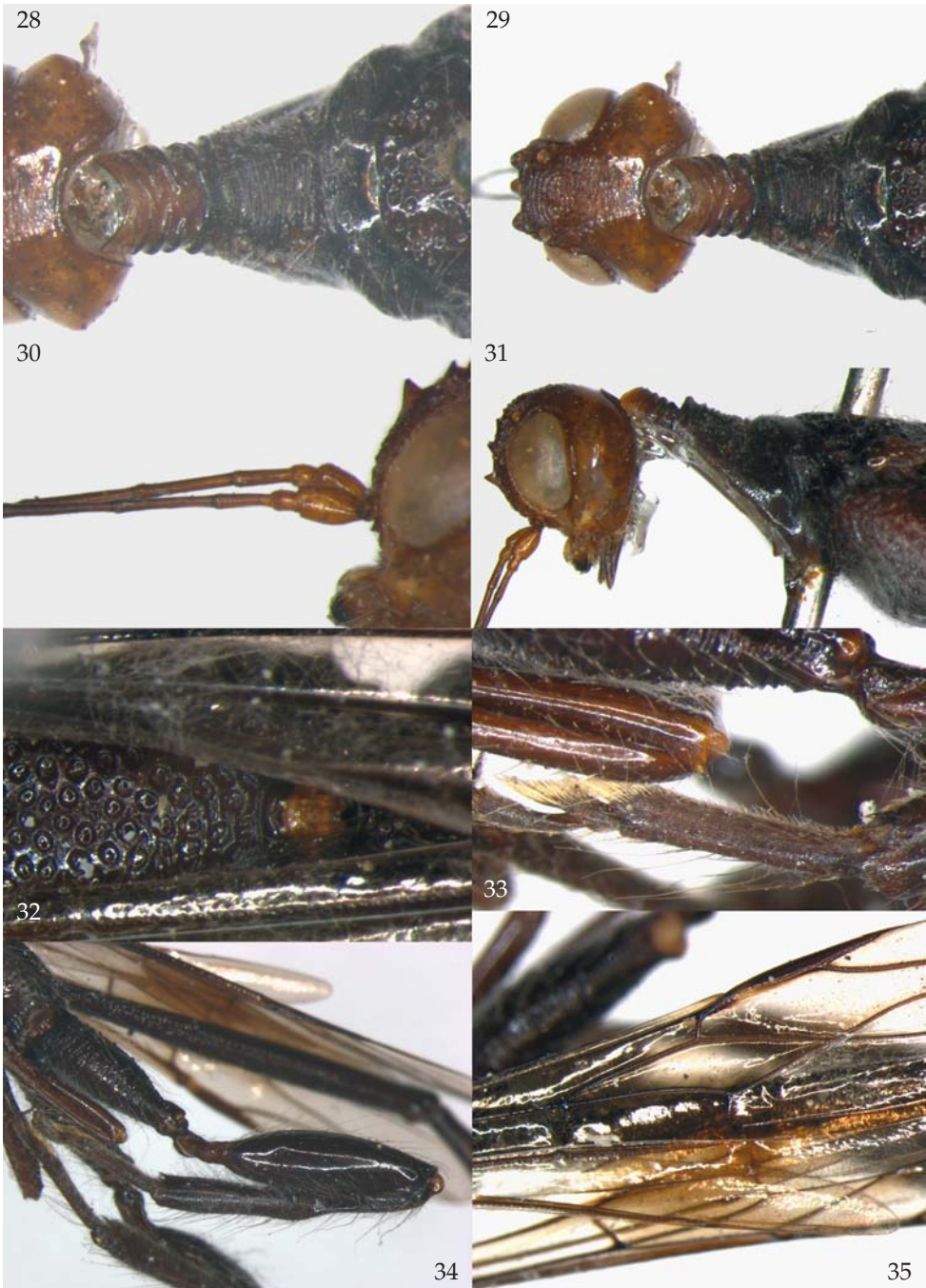
Posterior part of pronotum.— The postero-dorsal (= widened part) of the pronotum covering mesoscutum anteriorly (“pp” in fig. 6). Named “semiannular” by Elliott (1922), and Aguiar (1998).

Pygidial impression.— A reversed U- or V-shaped depression apico-dorsally on the eighth metasomal tergite of females (figs 319, 355), rarely widely transversely depressed (fig. 3).

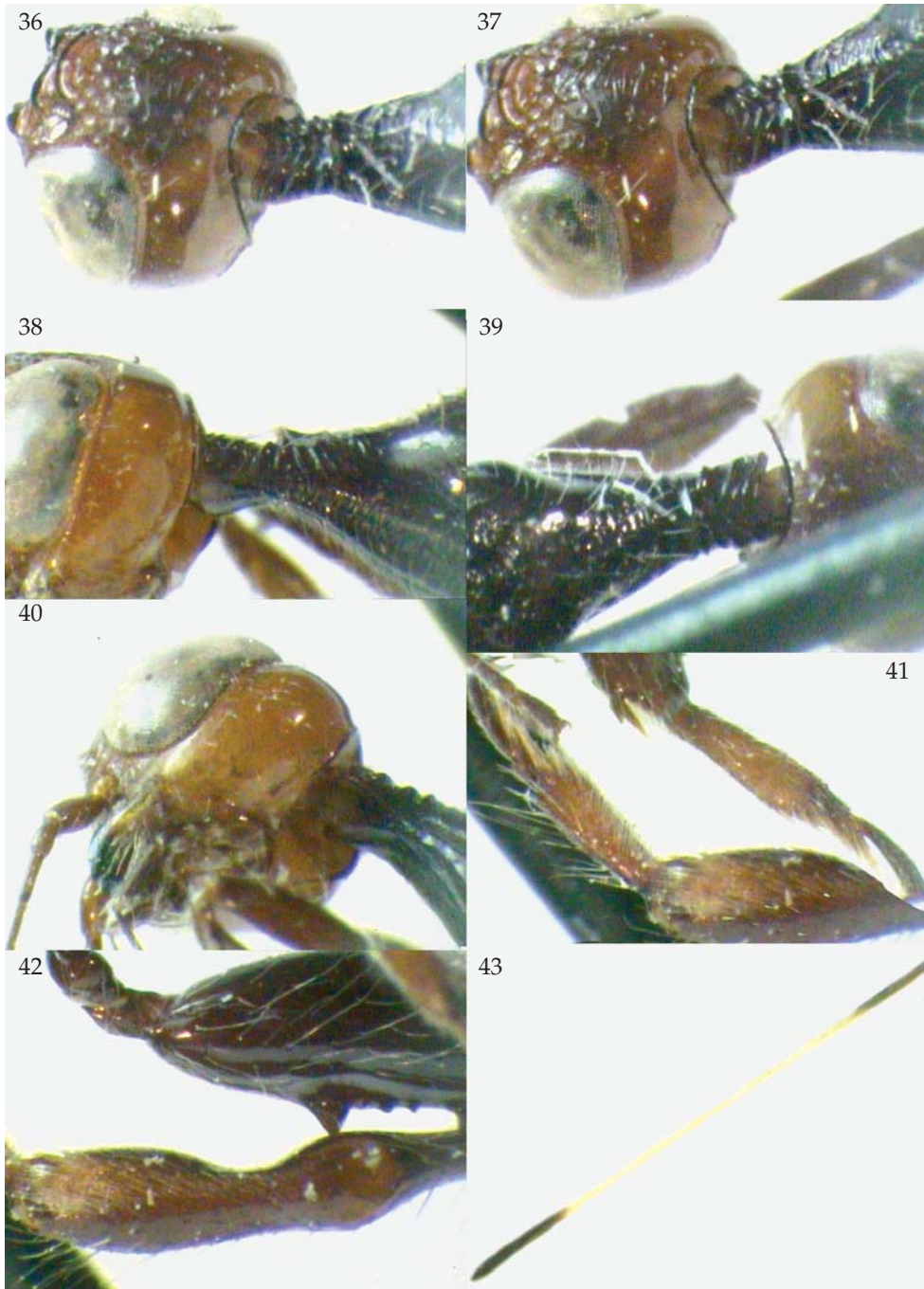
Pygidial process.— A small projection dorso-apically on the eighth metasomal tergite of ♀ and usually preceded by the pygidial impression (figs 610, 611). Named “pygidium” by Aguiar (1998), but this is generally incorrect (according to Torre-Bueno (1989) it is “the tergum of the last visible segment of the abdomen”), although the term has been used for a confusing set of parts of the abdomen.



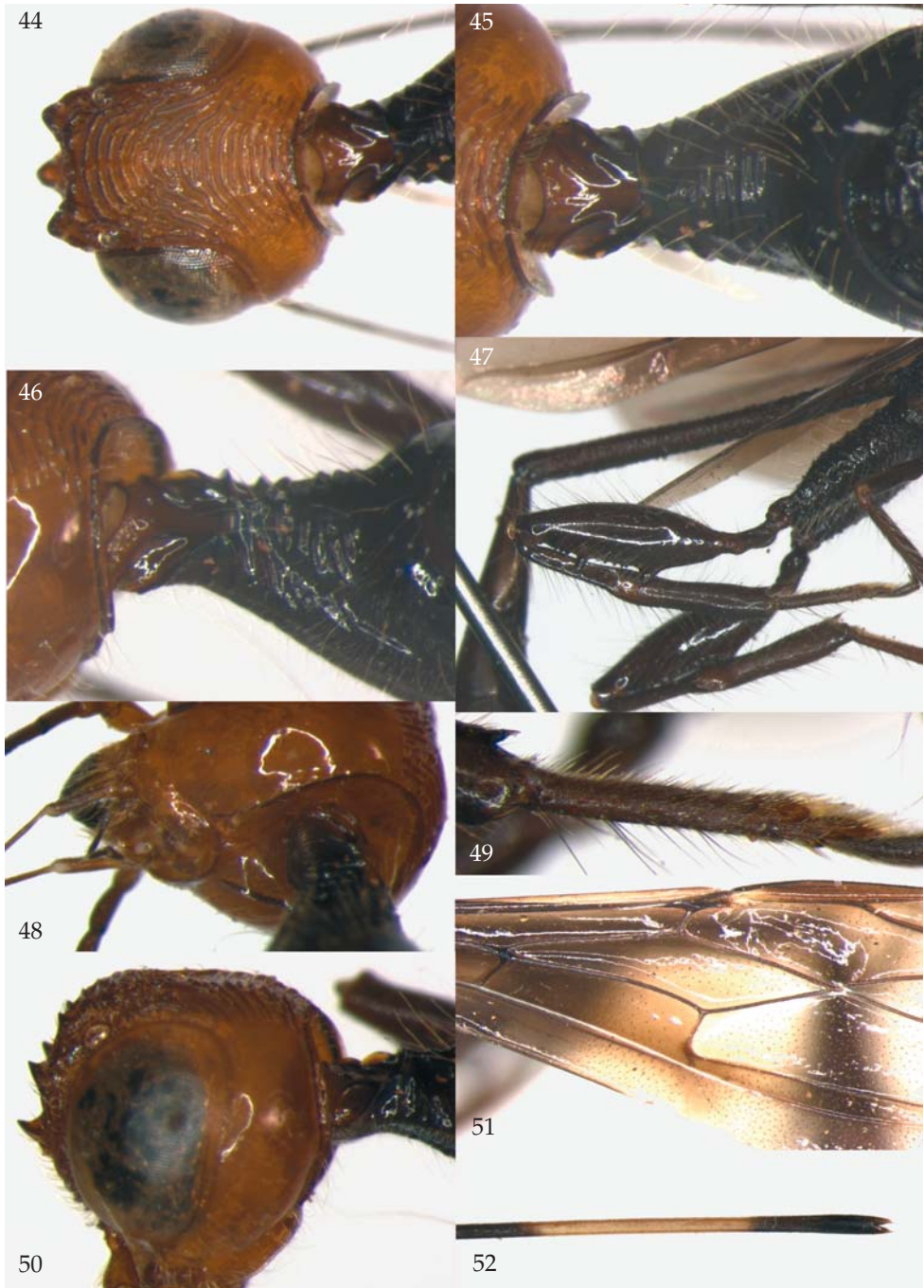
Figs 18-27, *Megischus angitibialis* spec. nov., ♀, holotype. 18, pronotum, dorsal aspect; 19, head, dorsal aspect; 20, pronotum and head, lateral aspect; 21, hind leg; 22, hind basitarsus; 23, hind tibia; 24, propodeum, dorsal aspect; 25, apex of ovipositor sheath; 26, part of fore wing; 27, hind femur.



Figs 28-35, *Megischus angularis* spec. nov., ♀, holotype. 28, temple and pronotum, dorsal aspect; 29, head and pronotum, dorsal aspect; 30, basae of antenna; 31, pronotum and head, lateral aspect; 32, propodeum, dorsal aspect; 33, hind basitarsus; 34, hind leg; 35, part of fore wing.



Figs 36-43, *Megischus breviannulatus* spec. nov., ♀, holotype. 36, 37, head and pronotum, dorsal aspect; 38, pronotum and head, lateral aspect; 39, pronotum, dorsal aspect; 40, head, latero-ventral aspect; 41, hind basitarsus; 42, hind tibia; 43, apex of ovipositor sheath.



Figs 44-52, *Megischus cambaensis* spec. nov., ♀, holotype. 44, head, dorsal aspect; 45, pronotum, dorsal aspect; 46, pronotum, dorso-lateral aspect; 47, hind leg; 48, head, latero-ventral aspect; 49, hind basitarsus; 50, head and neck, lateral aspect; 51, part of fore wing; 52, apex of ovipositor sheath.



Figs 53-61, *Megischus carolinae* spec. nov., ♀, holotype. 53, head and pronotum, dorsal aspect; 54, pronotum, dorsal aspect; 55, pronotum, dorso-lateral aspect; 56, head, latero-ventral aspect; 57, 58, hind leg; 59, head and pronotum, lateral aspect; 60, apex of ovipositor sheath; 61, hind basitarsus.



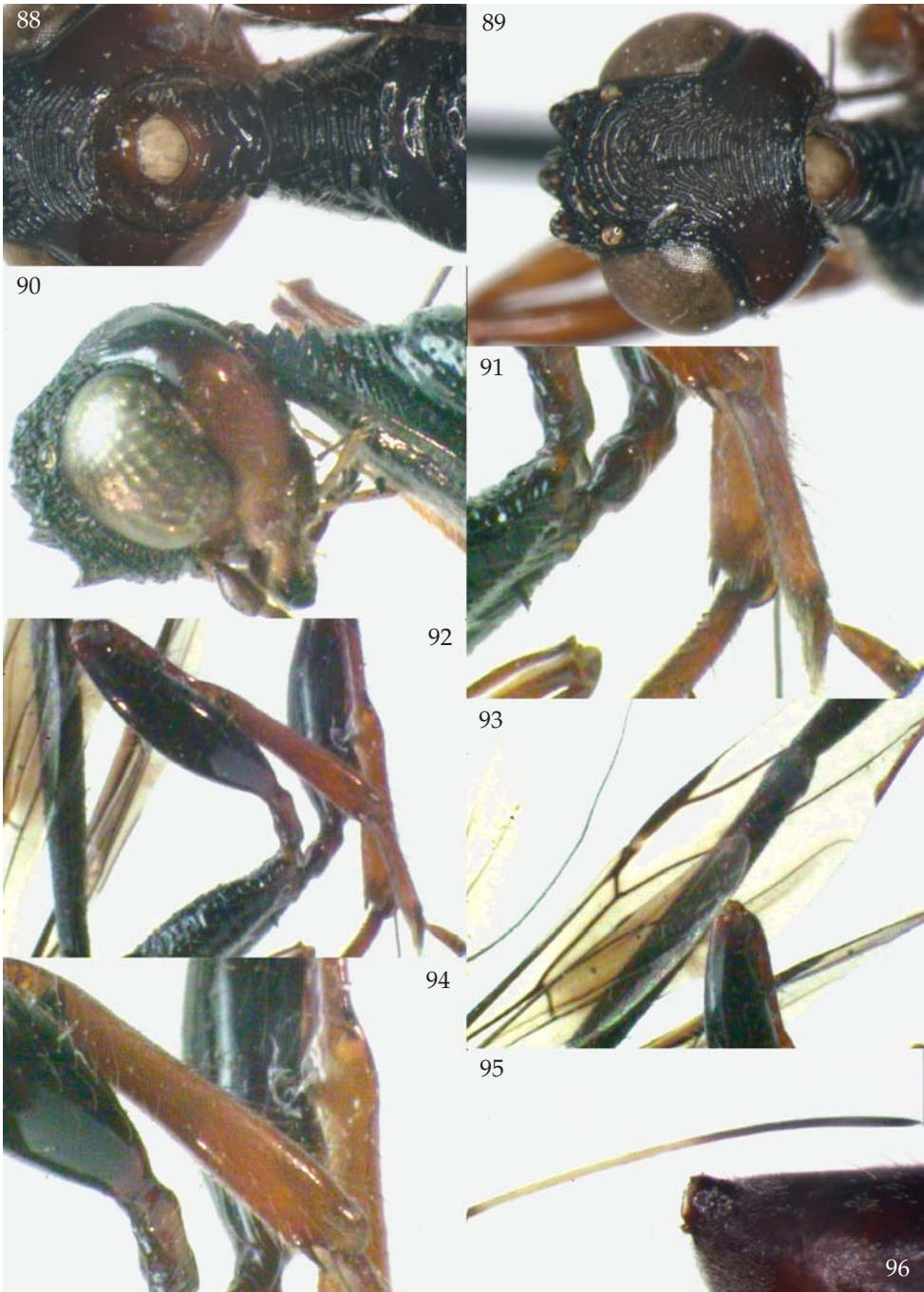
Figs 62-70, *Megischus coronator* (Fabricius), ♀, Ambon. 62, head and neck, dorsal aspect; 63, head and pronotum, dorsal aspect; 64, pronotum, dorso-lateral aspect; 65, hind leg; 66, hind basitarsus; 67, propodeum, dorsal aspect; 68, pronotum, dorsal aspect; 69, head, ventral aspect; 70, apex of ovipositor sheath.



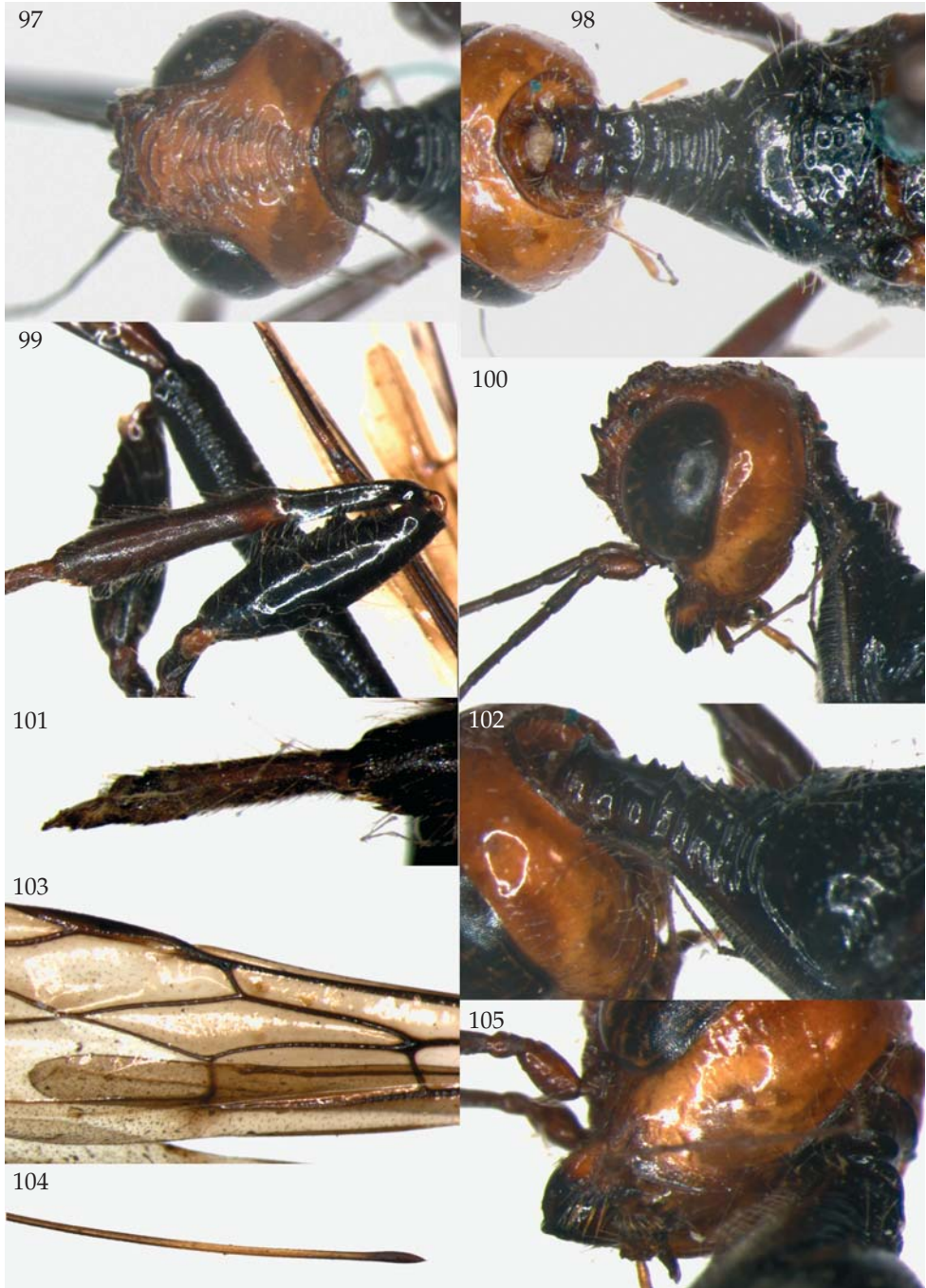
Figs 71-78, *Megischus ducalis* Westwood, ♀, W Malaysia. 71, head and neck, dorsal aspect; 72, pronotum, dorsal aspect; 73, head and neck, lateral aspect; 74, pronotum, lateral aspect; 75, hind leg; 76, hind basitarsus; 77, part of fore wing; 78, apex of ovipositor sheath.



Figs 79-87, *Megischus glabricephalus* spec. nov., ♀, holotype. 79, head and pronotum, dorsal aspect; 80, head and pronotum, lateral aspect; 81, pronotum, lateral aspect; 82, vertex, dorsal aspect; 83, detail of hind tibia; 84, pronotum, dorsal aspect; 85, hind basitarsus; 86, apex of ovipositor sheath; 87, head, dorsal aspect.



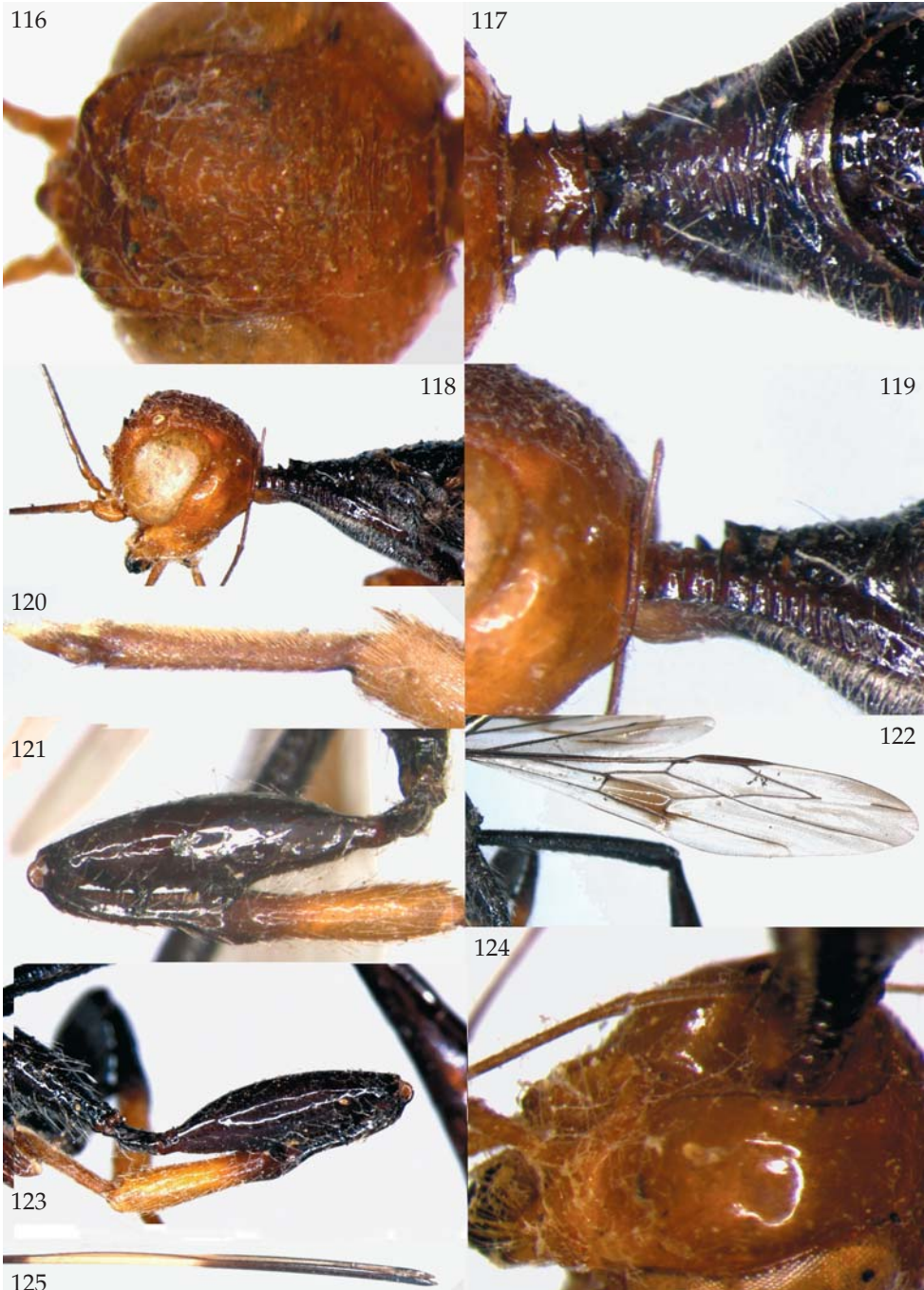
Figs 88-96, *Megischus haematipoda* (Montrouzier), ♀, Papua New Guinea. 88, head and pronotum, dorsal aspect; 89, head, dorsal aspect; 90, head and neck, lateral aspect; 91, hind basitarsus; 92, hind leg; 93, part of fore wing; 94, detail of hind tibia; 95, apex of ovipositor sheath; 96, hypopygium, latero-dorsal aspect.



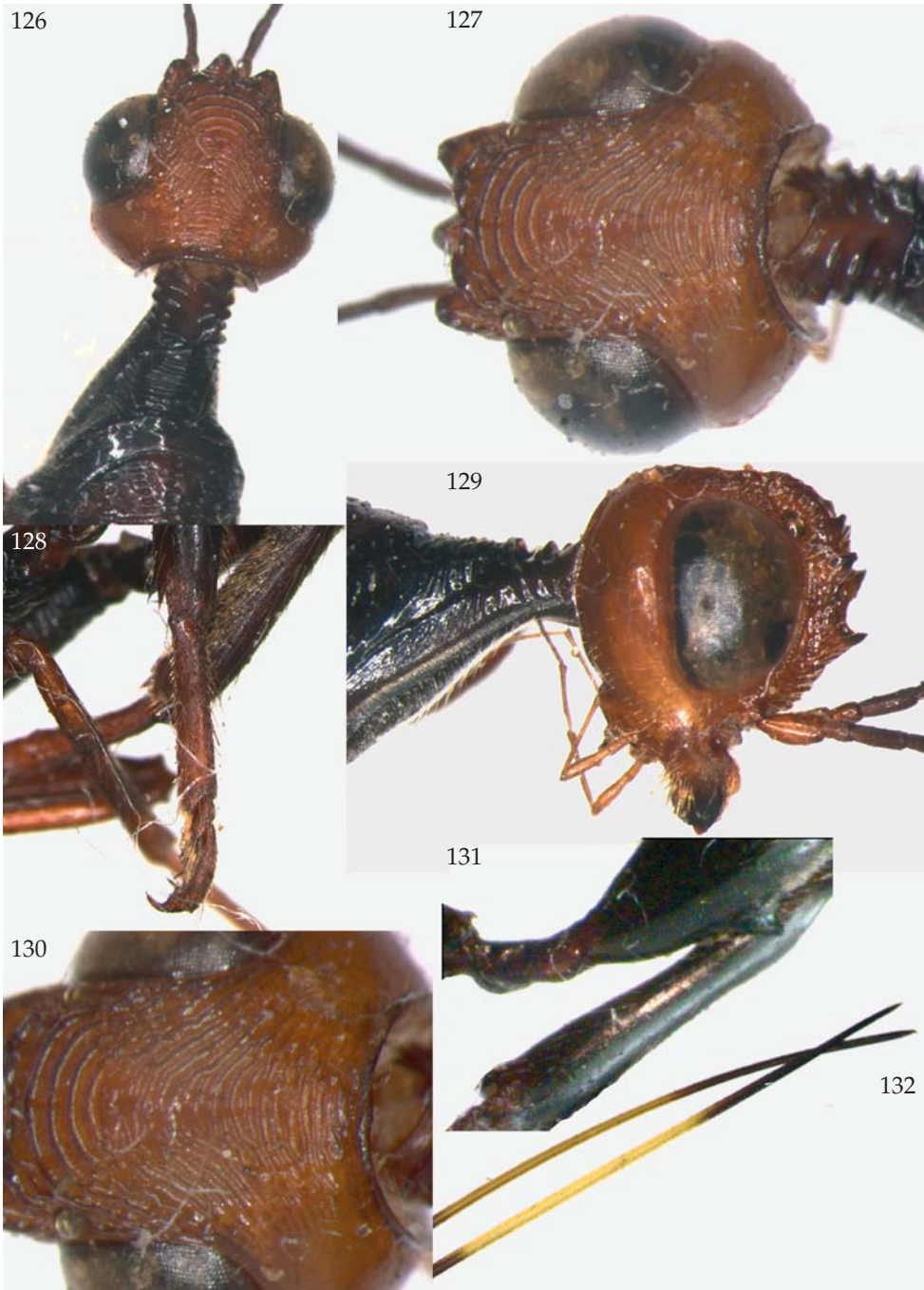
Figs 97-105, *Megischus inaequalis* (Elliott), ♀, holotype. 97, head and neck, dorsal aspect; 98, pronotum, dorsal aspect; 99, hind leg; 100, head and neck, lateral aspect; 101, hind basitarsus; 102, pronotum, dorso-lateral aspect; 103, part of fore wing; 104, apex of ovipositor sheath; 105, head, ventro-lateral aspect.



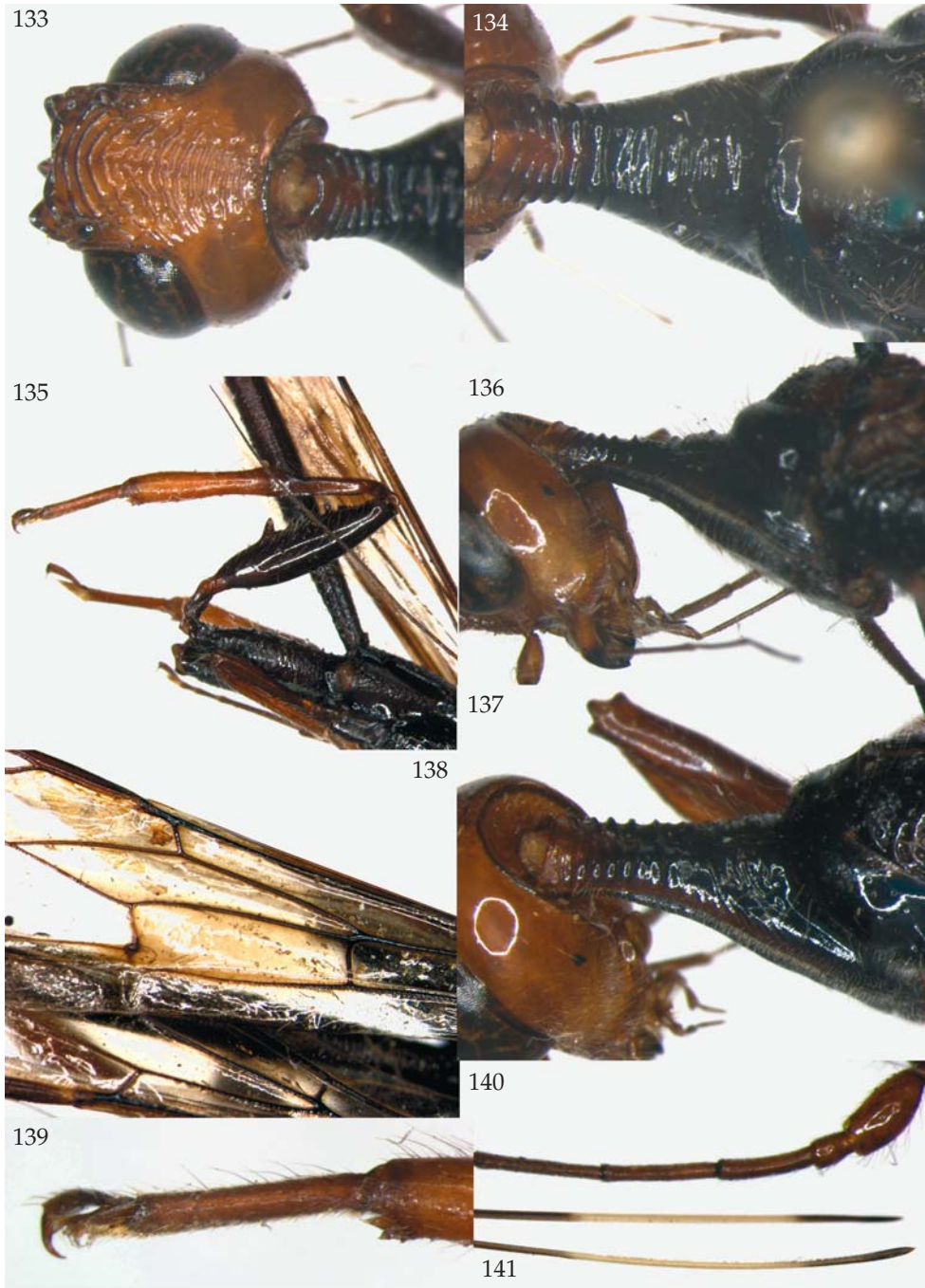
Figs 106-115, *Megischus insularis* Smith, ♀, holotype of *M. glabricoxis* (Elliott). 106, head, dorsal aspect; 107, head and pronotum, dorsal aspect; 108, pronotum, dorsal aspect; 109, head and pronotum, lateral aspect; 110, head, latero-frontal aspect; 111, head, ventro-lateral aspect; 112, hind femur; 113, hind basitarsus; 114, part of fore wing; 115, apex of ovipositor and sheath.



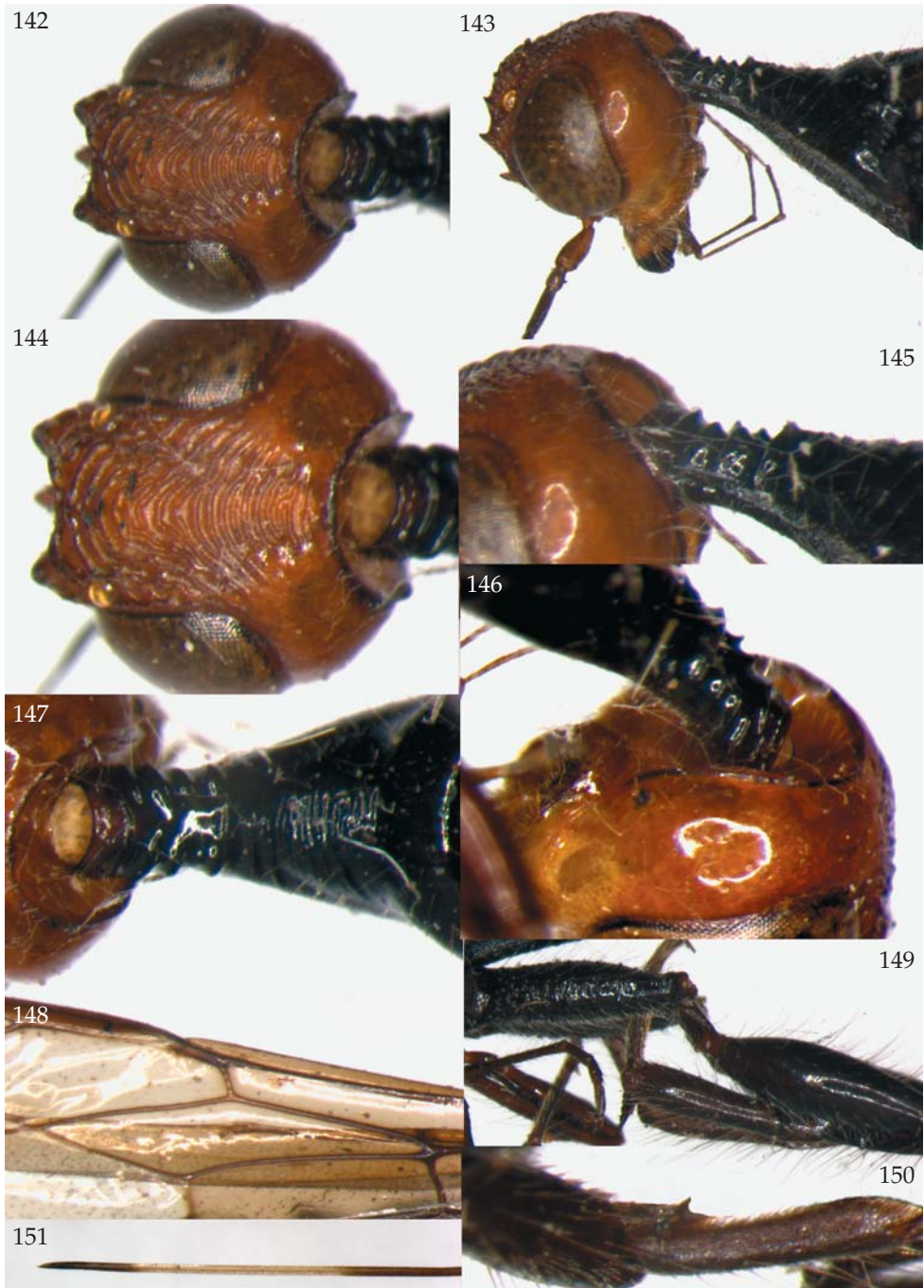
Figs 116-125, *Megischus longicaudatus* Costa, ♀, lectotype. 116, head, dorsal aspect; 117, pronotum, dorsal aspect; 118, head and pronotum, dorsal aspect; 119, pronotum, lateral aspect; 120, hind basitarsus; 121, hind femur and tibia, inner aspect; 122, fore wing; 123, hind leg; 124, head, ventro-lateral aspect; 125, apex of ovipositor sheath.



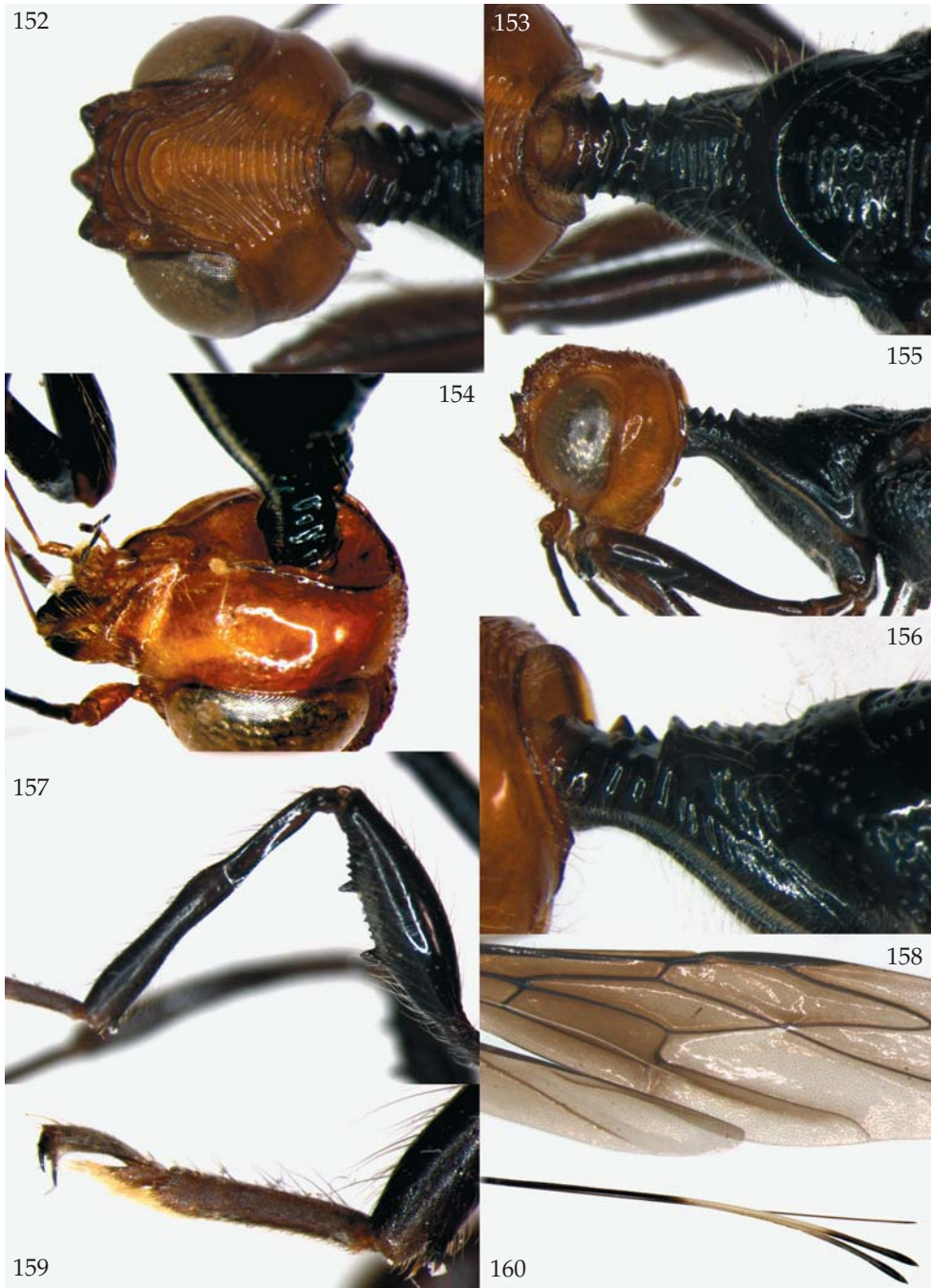
Figs 126-132, *Megischus lucidus* (Szépligeti), ♀, Papua New Guinea (Sattelberg). 126, head and pronotum, dorsal aspect; 127, head and neck, dorsal aspect; 128, hind tarsus; 129, head and pronotum, lateral aspect; 130, vertex, dorsal aspect; 131, detail of part of hind femur and tibia; 132, apex of ovipositor sheath.



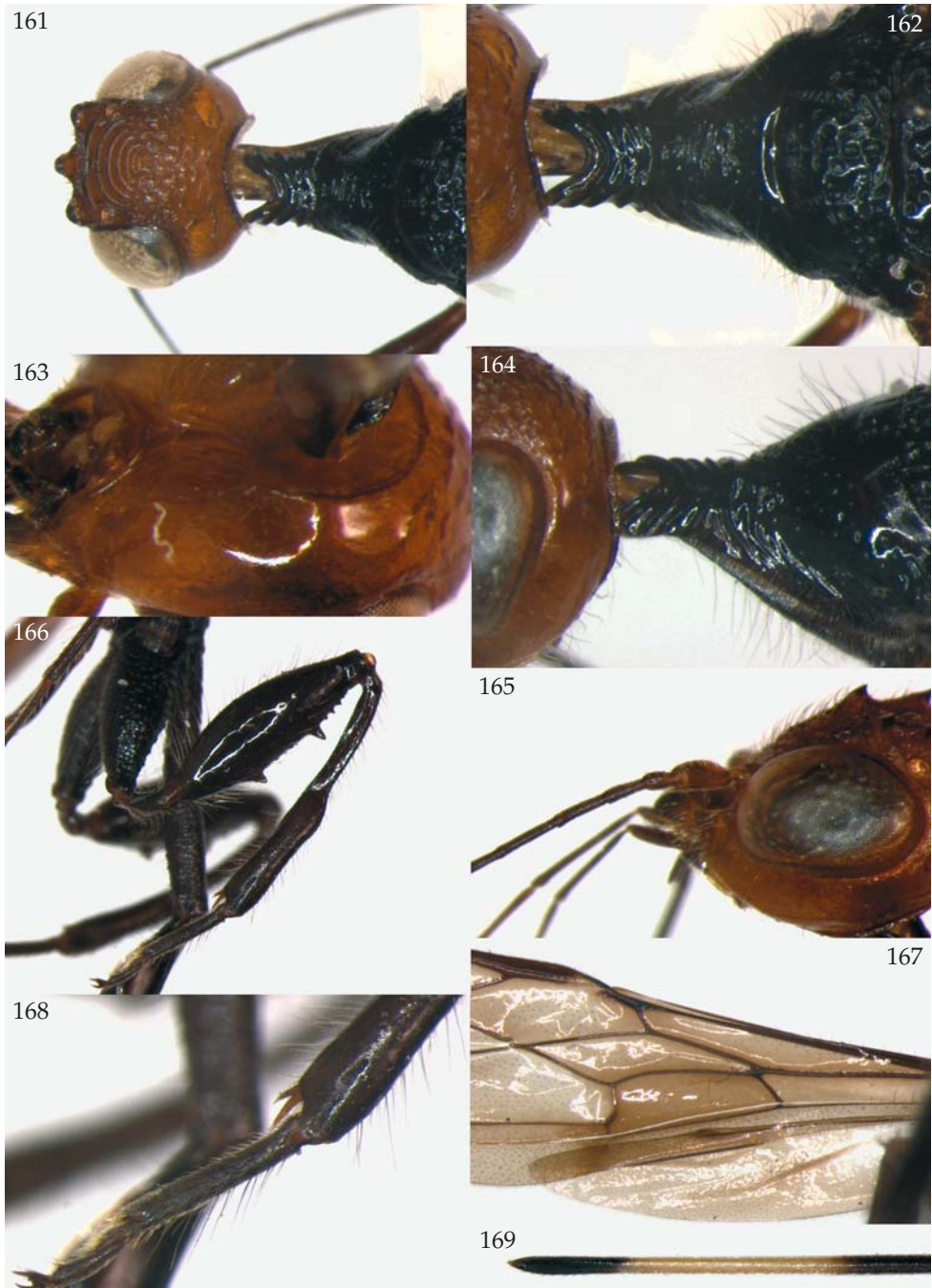
Figs 133-141, *Megischus luzonicus* spec. nov., ♀, holotype. 133, head and neck, dorsal aspect; 134, pronotum, dorsal aspect; 135, hind leg; 136, head and pronotum, lateral aspect; 137, pronotum, latero-dorsal aspect; 138, part of fore wing; 139, hind tarsus; 140, base of antenna; 141, apex of ovipositor sheath.



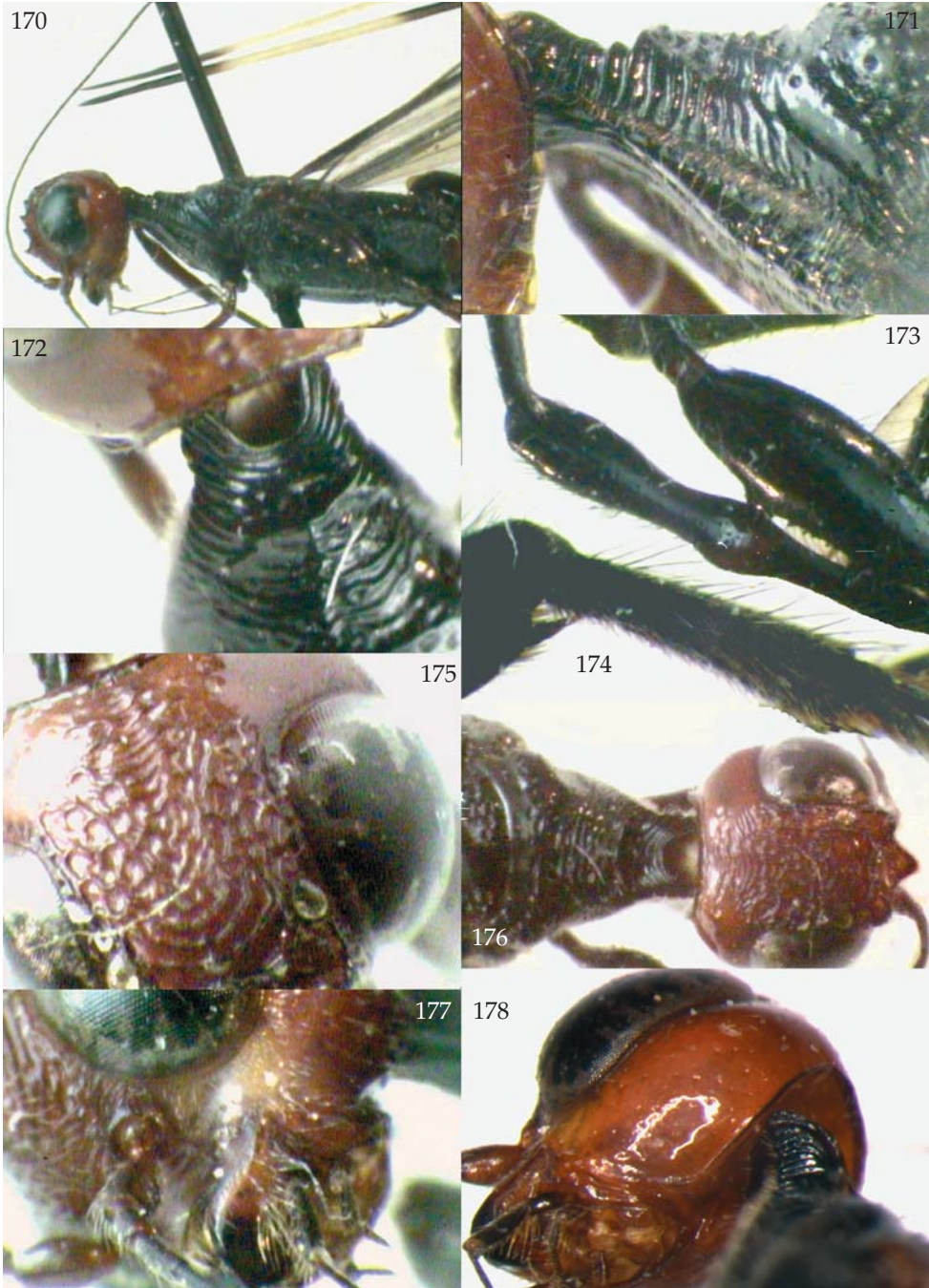
Figs 142-151, *Megischus nigripes* (Elliott), ♀, holotype. 142, head and neck, dorsal aspect; 143, head and pronotum, lateral aspect; 144, head, dorsal aspect; 145, neck, lateral aspect; 146, 147, pronotum, dorsal aspect; 148, part of fore wing; 149, hind leg; 150, hind basitarsus; 151, apex of ovipositor sheath.



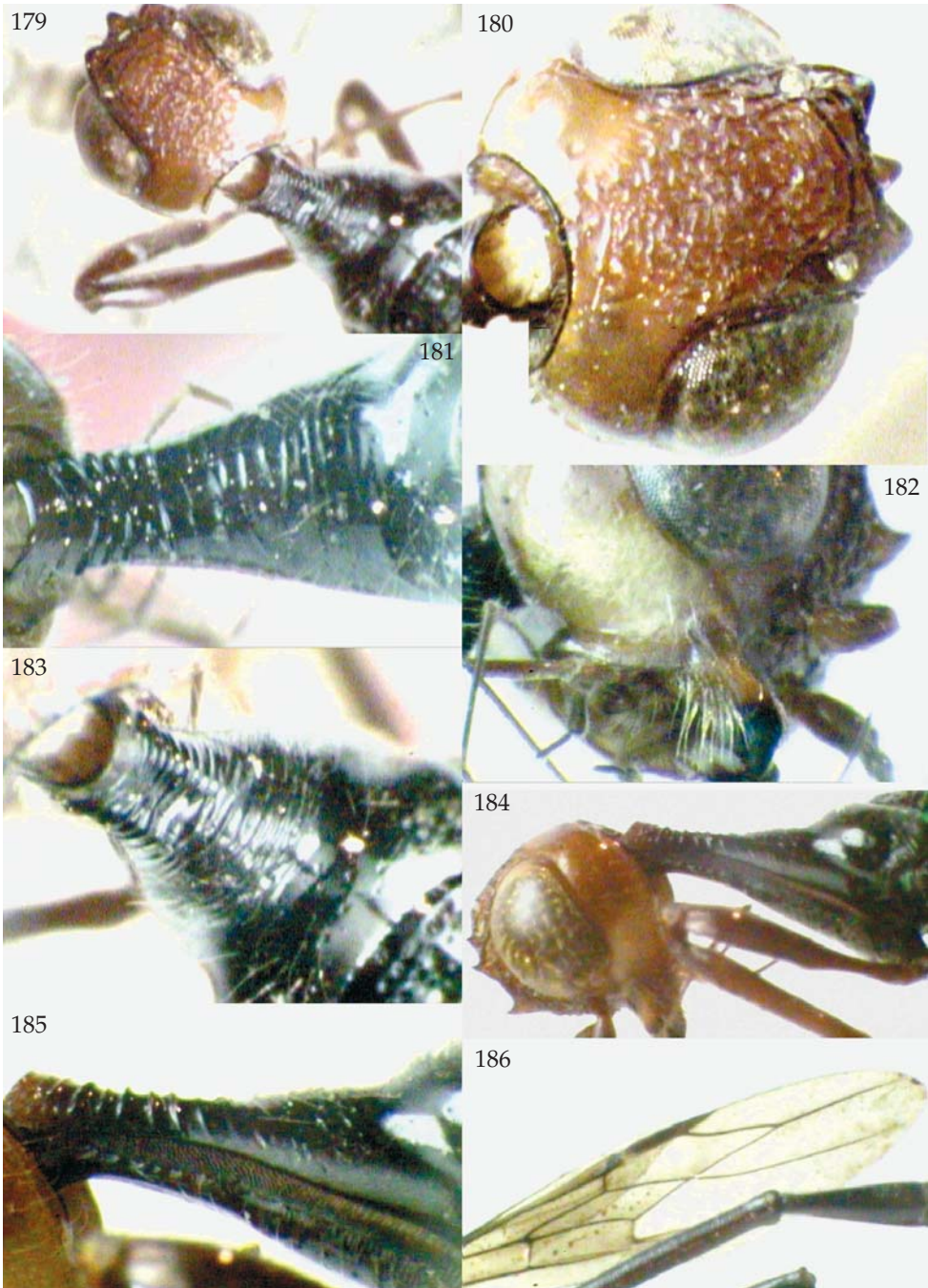
Figs 152-160, *Megischus nigripoides* spec. nov., ♀, holotype. 152, head and neck, dorsal aspect; 153, pronotum, dorsal aspect; 154, head, ventro-lateral aspect; 155, head and pronotum, lateral aspect; 156, pronotum, latero-dorsal aspect; 157, hind leg; 158, part of fore wing; 159, hind tarsus; 160, apex of ovipositor sheath.



Figs 161-169, *Megischus planifrons* spec. nov., ♀, holotype. 161, head and pronotum, dorsal aspect; 162, pronotum, dorsal aspect; 163, head, ventro-lateral aspect; 164, pronotum, latero-dorsal aspect; 165, head, lateral aspect; 166, hind leg; 167, part of fore wing; 168, hind tarsus; 169, apex of ovipositor sheath.



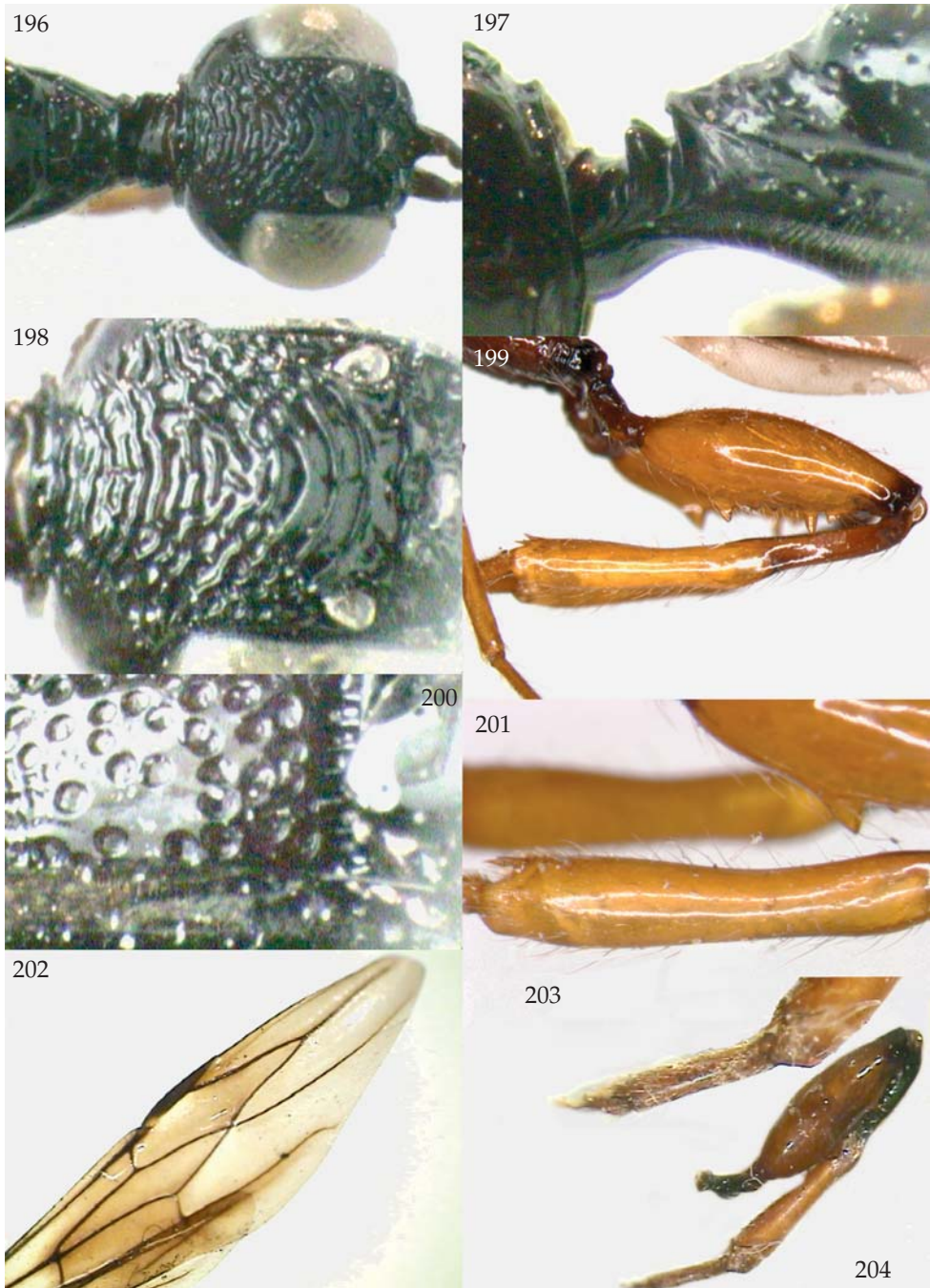
Figs 170-178, *Megischus ptosimae* Chao, ♀, India. 170, head, mesosoma and apex of ovipositor sheath, lateral aspect; 171, pronotum, lateral aspect; 172, pronotum, antero-dorsal aspect; 173, hind femur and tibia; 174, hind basitarsus; 175, vertex, dorsal aspect; 176, head and pronotum, dorsal aspect; 177, face, antero-lateral aspect; 178, head, ventro-lateral aspect.



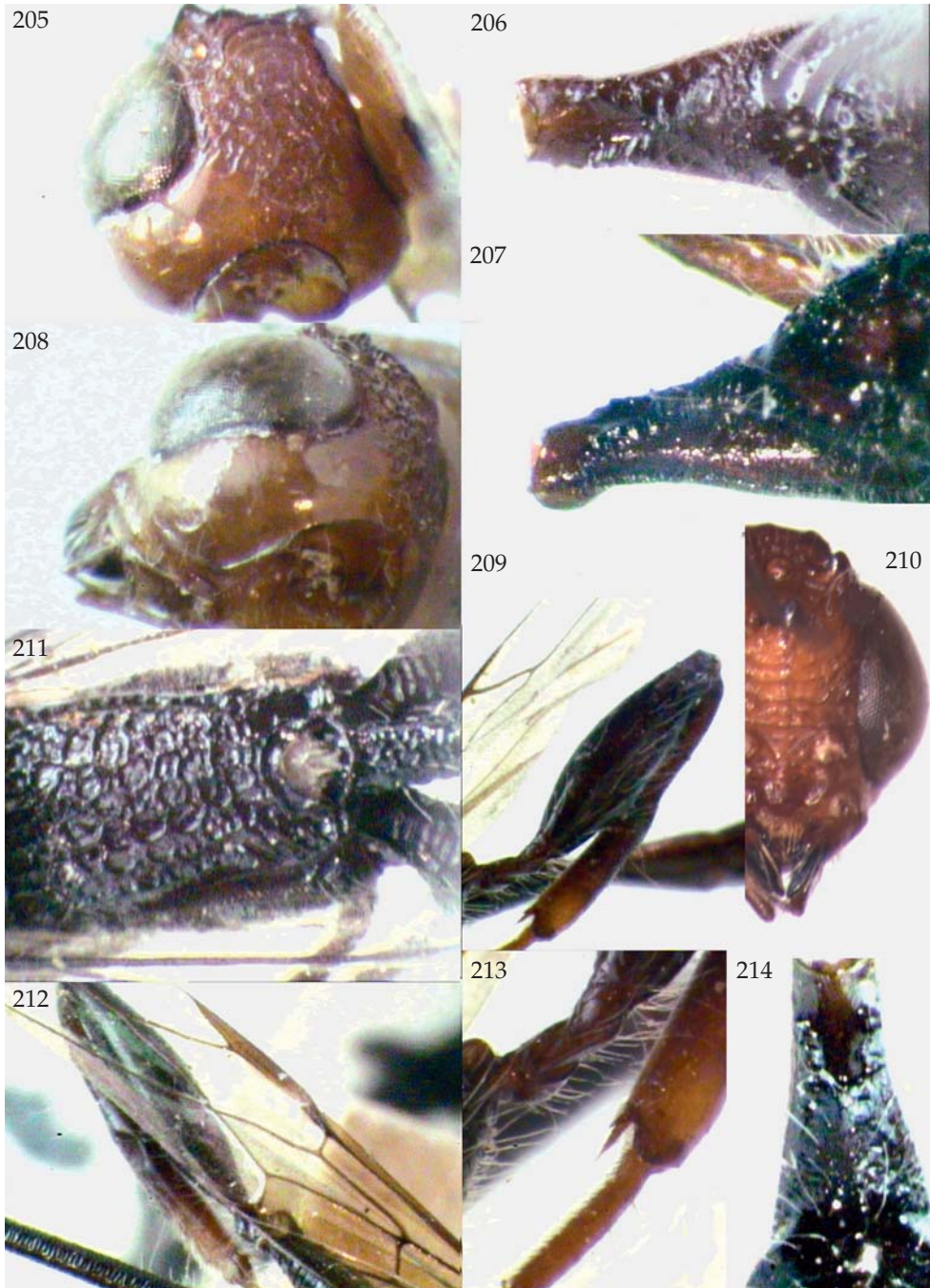
Figs 179-186, *Megischus reticulatus* (Elliott), ♀, holotype. 179, head and pronotum, dorsal aspect; 180, head, dorsal aspect; 181, pronotum, dorsal aspect; 182, head, ventro-lateral aspect; 183, pronotum, antero-dorsal aspect; 184, head and pronotum, lateral aspect; 185, pronotum, lateral aspect; 186, part of fore wing.



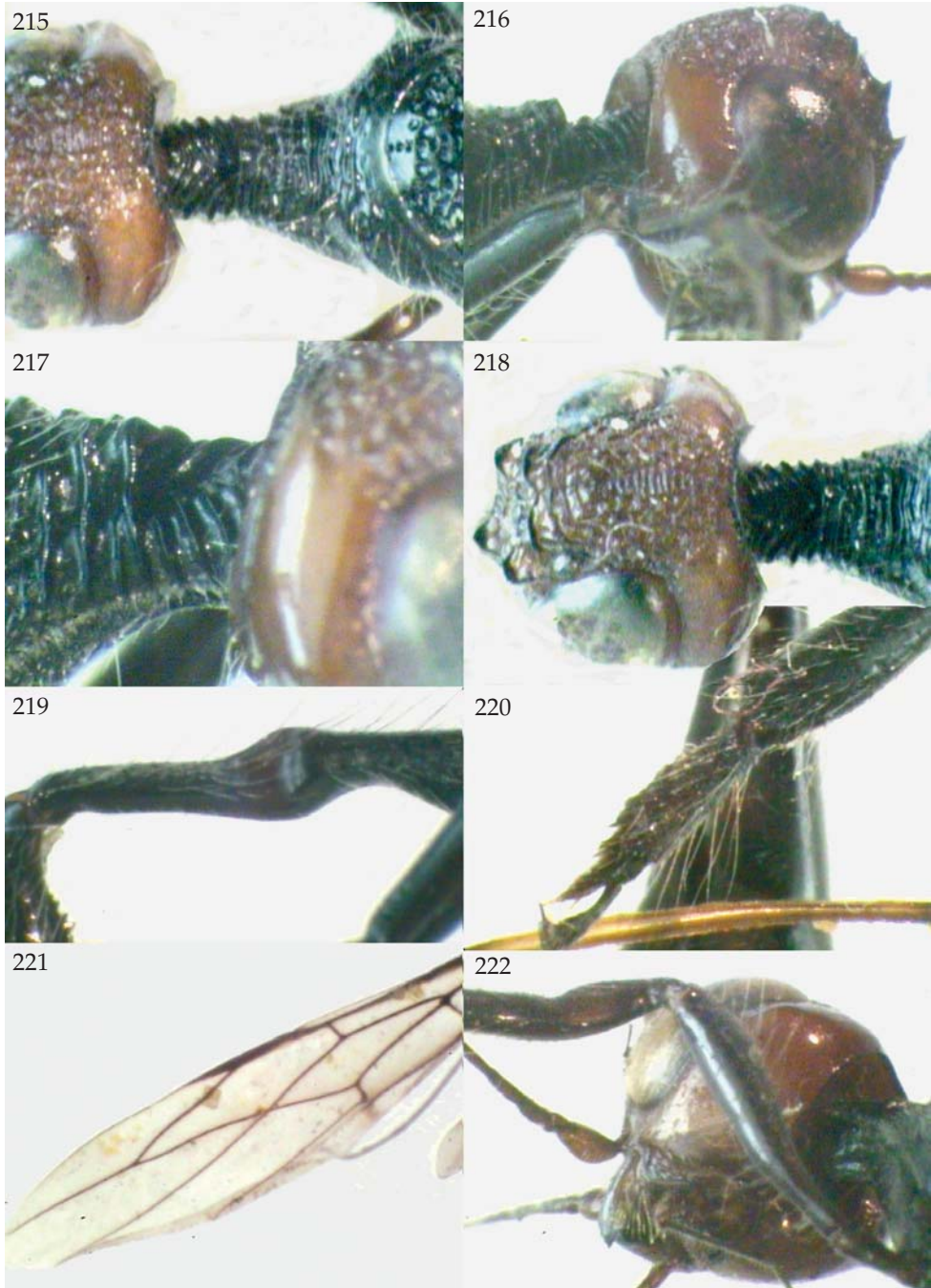
Figs 187-195, *Megischus rubripes* (Kieffer), ♀, lectotype. 187, head and neck, dorsal aspect; 188, pronotum, dorsal aspect; 189, head and neck, lateral aspect; 190, pronotum, latero-dorsal aspect; 191, hind leg; 192, pronotum, lateral aspect; 193, apex of ovipositor sheath; 194, fore wing; 195, hind tarsus.



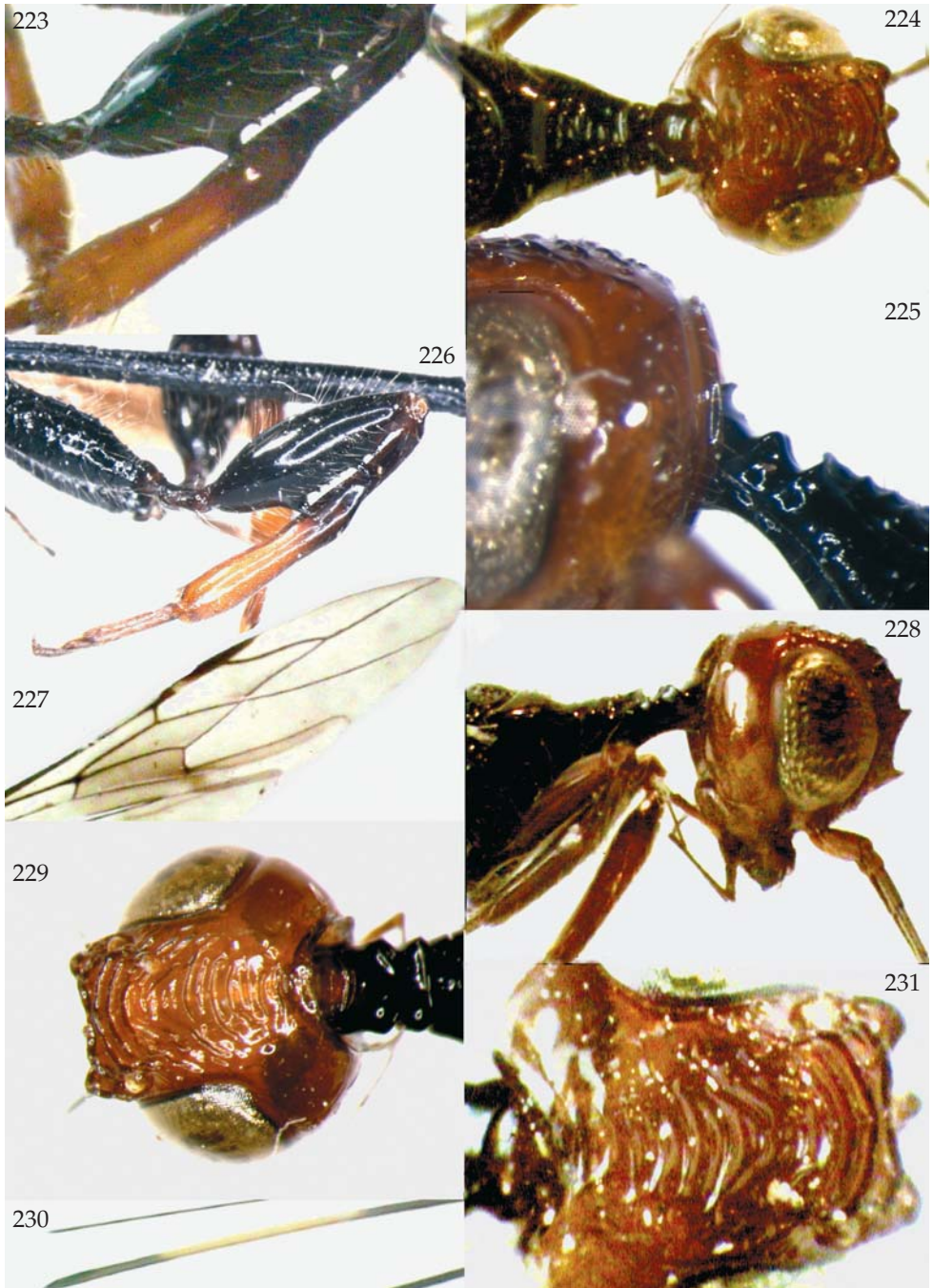
Figs 196-204, *Megischus rufofemoratus* (Szépligeti), ♀, Solomon Islands, but 202-204 of lectotype of *M. froggattii* Cameron. 196, head and neck, dorsal aspect; 197, neck, lateral aspect; 198, vertex, dorsal aspect; 199, hind femur and tibia; 200, propodeum, dorsal aspect; 201, detail of hind tibia; 202, part of fore wing; 203, hind basitarsus; 204, hind leg.



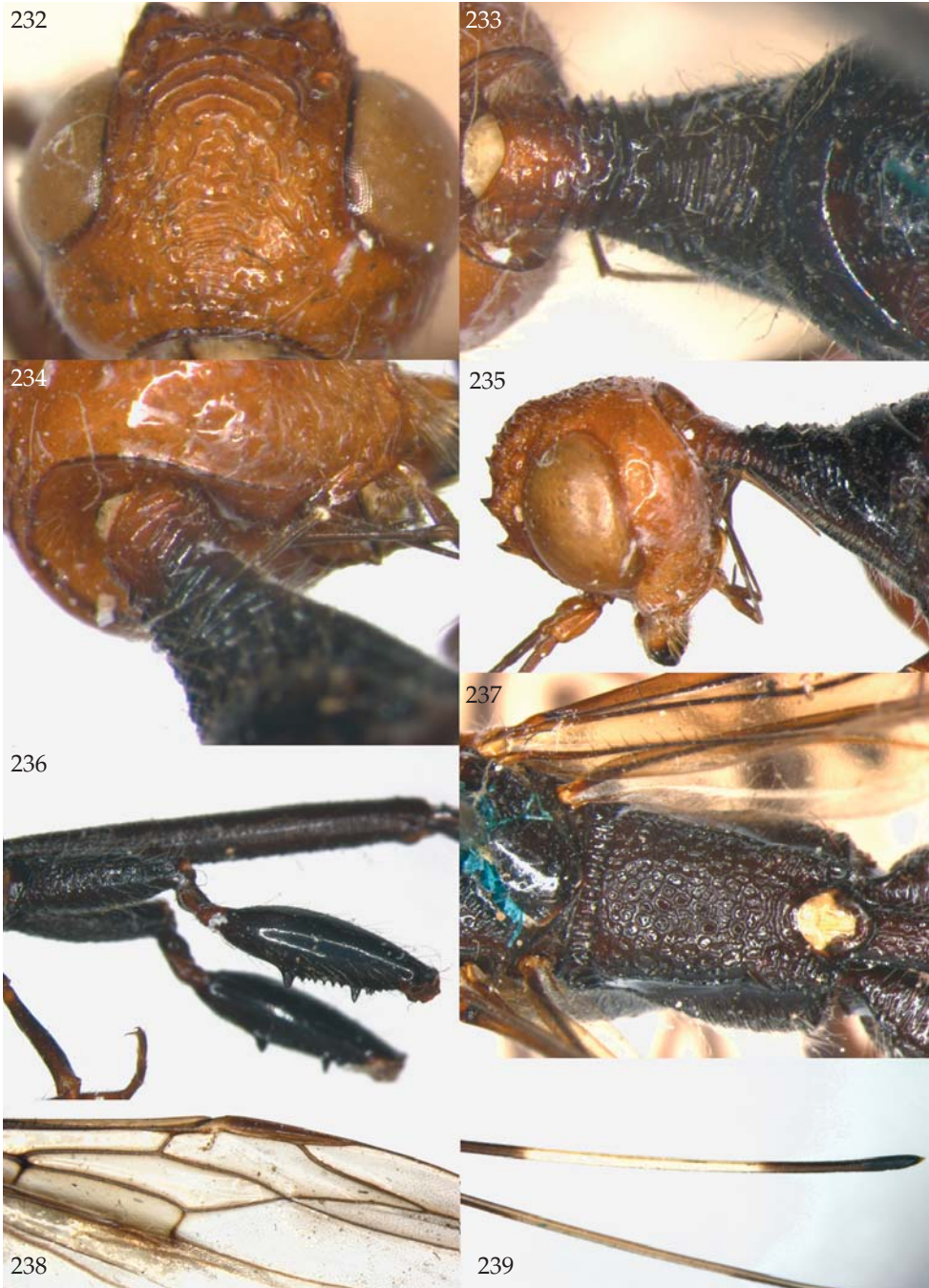
Figs 205-214, *Megischus rufus* (Elliott), ♂, holotype. 205, head, dorsal aspect; 206, pronotum, dorsal aspect; 207, pronotum, latero-dorsal aspect; 208, head, ventro-lateral aspect; 209, hind femur and tibia; 210, left part of head, frontal aspect; 211, propodeum, dorsal aspect; 212, part of fore wing; 213, hind basitarsus; 214, pronotum, antero-dorsal aspect.



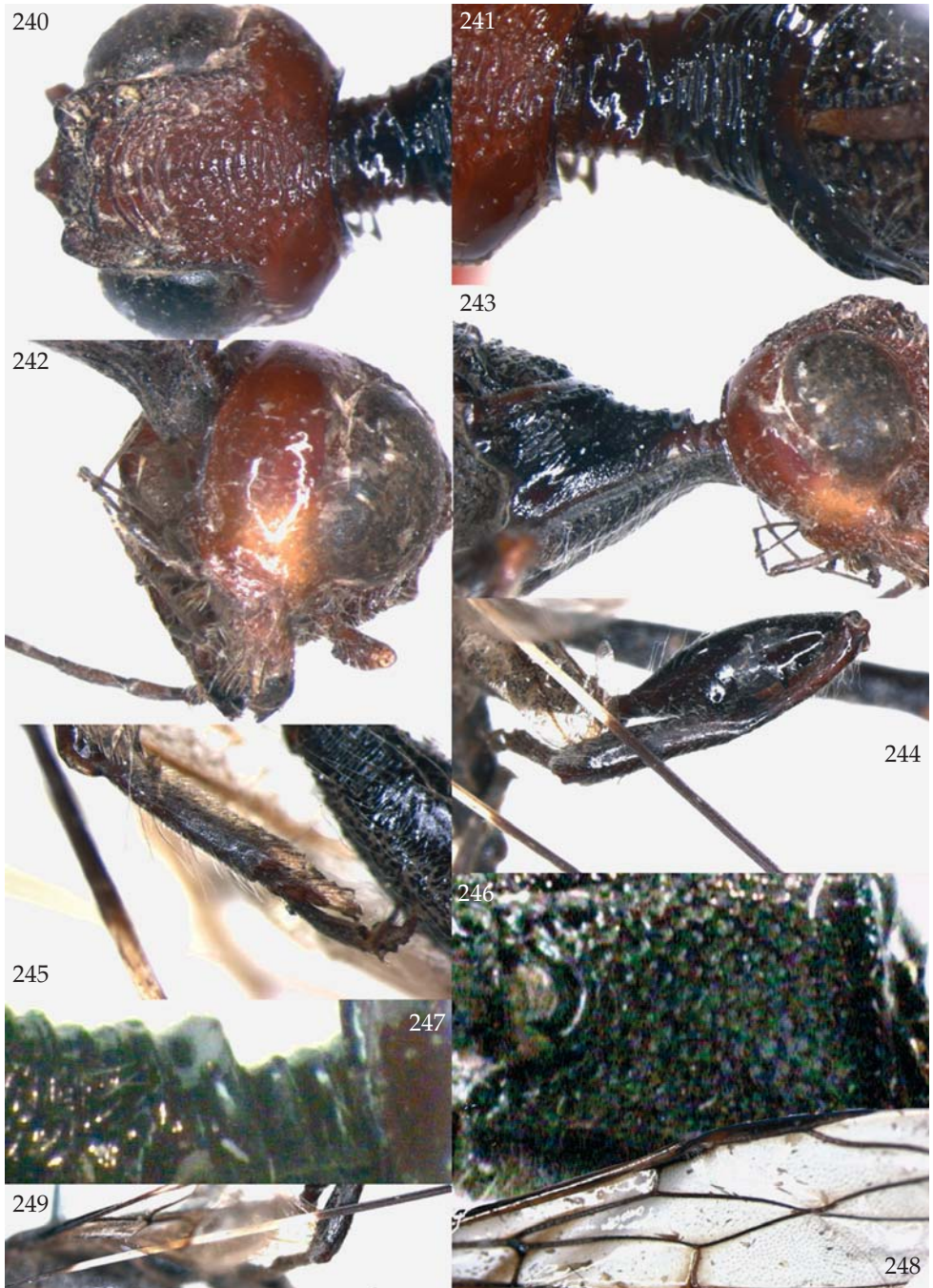
Figs 215-222, *Megischus saussurei* (Schulz), ♀, lectotype. 215, pronotum, dorsal aspect; 216, head and neck, lateral aspect; 217, neck, latero-dorsal aspect; 218, head and pronotum, dorsal aspect; 219, detail of hind tibial 220, hind basitarsus; 221, part of fore wing; 222, head, ventro-lateral aspect.



Figs 223-231, *Megischus tangkokoensis* spec. nov., ♀, holotype. 223, hind femur and tibia; 224, head and pronotum, dorsal aspect; 225, neck, lateral aspect; 226, hind leg; 227, fore wing; 228, head and pronotum, lateral aspect; 229, head and neck, dorsal aspect; 230, apex of ovipositor sheath; 231, vertex, dorsal aspect.



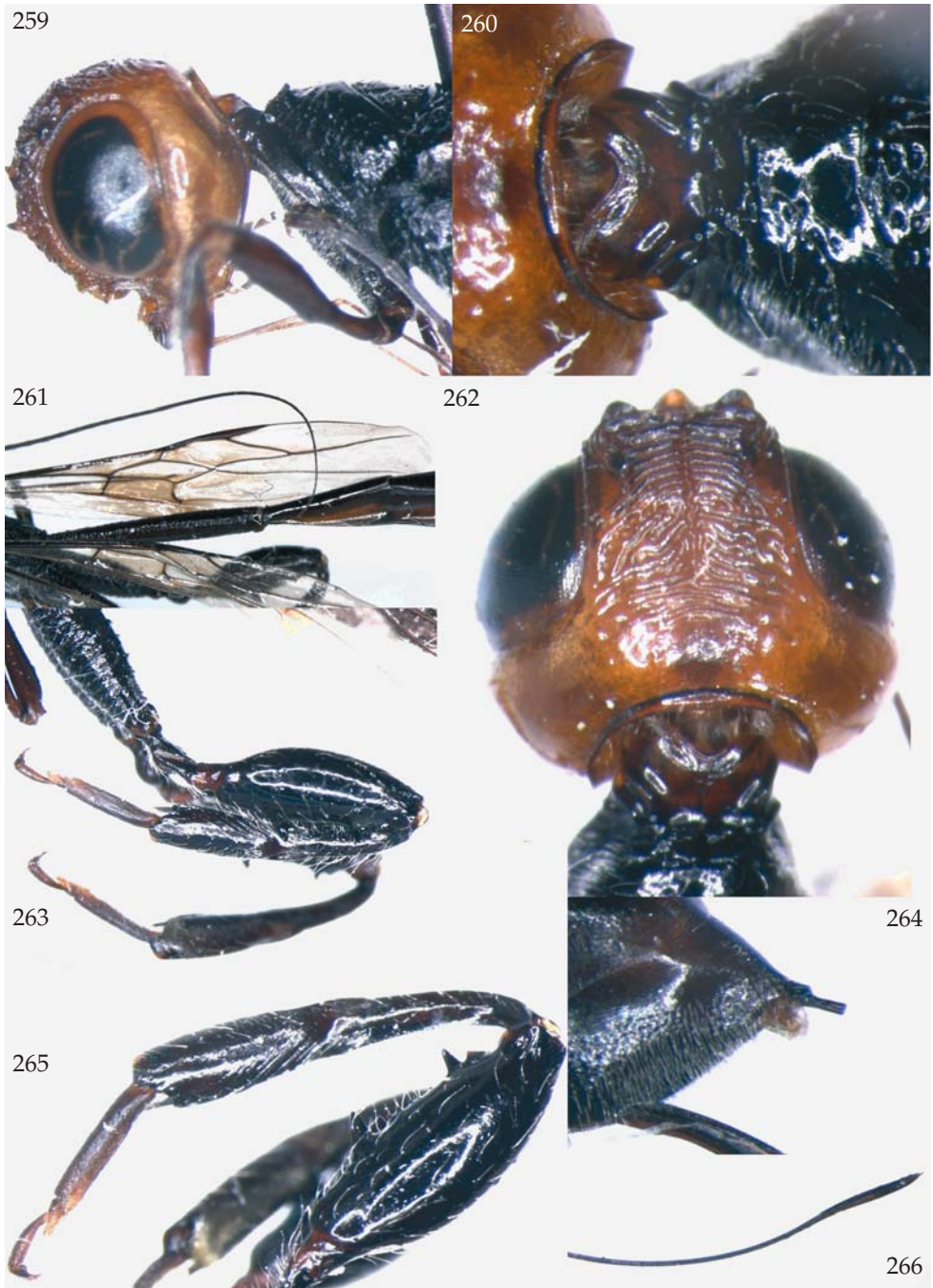
Figs 232-239, *Megischus tarsatus* Sichel, ♀, lectotype. 232, head, dorsal aspect; 233, pronotum, dorsal aspect; 234, pronotum, latero-dorsal aspect; 235, head and pronotum, lateral aspect; 236, hind leg (incomplete); 237, propodeum, dorsal aspect; 238, part of fore wing; 239, apex of ovipositor sheath.



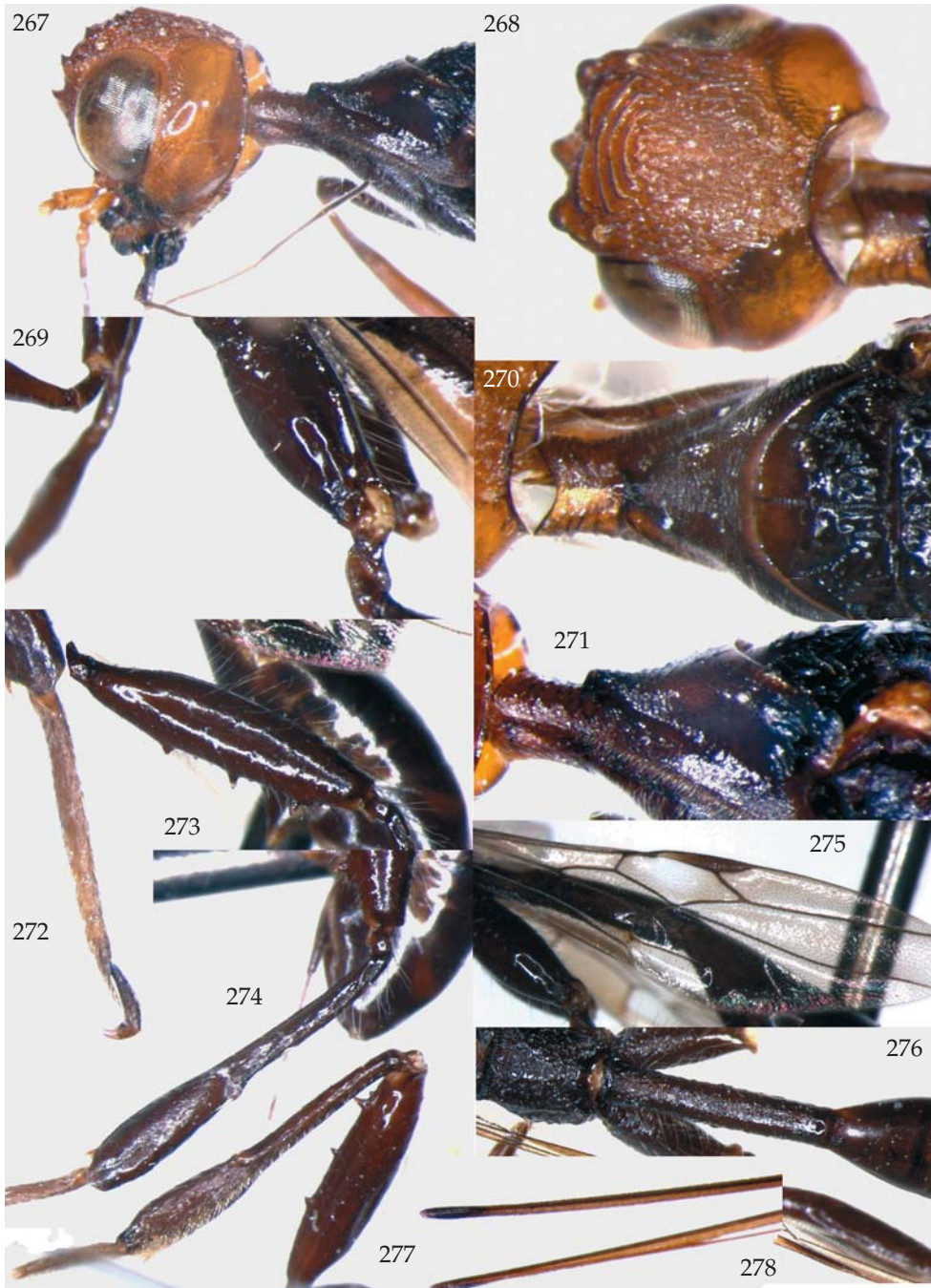
Figs 240-249, *Megischus tonkinensis* spec. nov., ♀, holotype. 240, head and neck, dorsal aspect; 241, pronotum, dorsal aspect; 242, head, ventro-lateral aspect; 243, head and pronotum, lateral aspect; 244, hind leg; 245, hind tarsus; 246, propodeum, dorsal aspect; 247, neck, latero-dorsal aspect; 248, part of fore wing; 249, apex of ovipositor sheath.



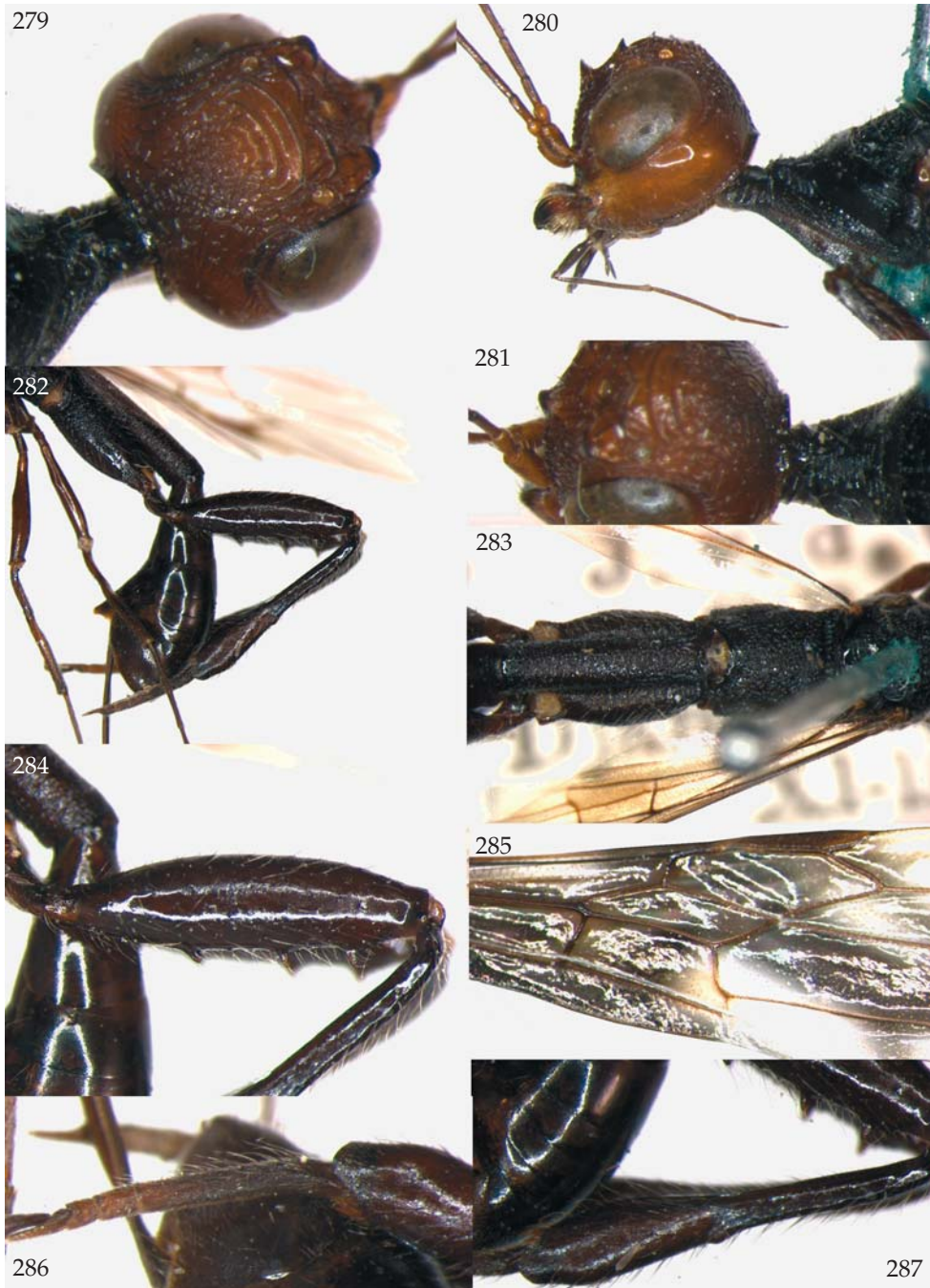
Figs 250-258, *Pseudomegischus celebensis* gen. nov. & spec. nov., ♀, holotype. 250, neck, lateral aspect; 251, pronotum, dorsal aspect; 252, head, lateral aspect; 253, head, dorsal aspect; 254, hind leg; 255, hind tarsus; 256, propodeum, dorsal aspect; 257, part of fore wing; 258, apex of ovipositor sheath.



Figs 259-266, *Pseudomegischus sulcifrons* (Schletterer), ♀, Philippines (Quezon). 259, head and pronotum, lateral aspect; 260, pronotum, dorsal aspect; 261, fore wing; 262, head and neck, dorsal aspect; 263, hind leg; 264, hypopygium, lateral aspect; 265, detail of hind leg; 266, apex of ovipositor sheath.



Figs 267-278, *Stephanus soror* spec. nov., ♀, holotype. 267, head and pronotum, lateral aspect; 268, head, dorsal aspect; 269, hind coxa; 270, pronotum, dorsal aspect; 271, pronotum, lateral aspect; 272, hind tarsus; 273, hind femur; 274, hind femur, outer aspect; 275, part of fore wing; 276, first metasomal tergite, dorsal aspect; 277, hind tibia, inner aspect; 278, apex of ovipositor sheath.



Figs 279-287, *Stephanus borneensis* (de Saussure), ♀, Java. 279, head and neck, dorsal aspect; 280, head and pronotum, lateral aspect; 281, vertex and pronotum, dorsal aspect; 282, hind leg; 283, first metasomal tergite and hind coxae, dorsal aspect; 284, hind femur; 285, part of fore wing; 286, hind tarsus; 287, hind tibia, inner aspect.



Figs 288-293, *Afromegischus pachylomerus* (Schletterer), ♀, Ivory Coast, but 292 and 293 from Nigeria; figs 294-295, *Madegafoenus seyrigi* Benoit, ♀, holotype. 288, head and neck, dorsal aspect; 289, pronotum, lateral aspect; 290, hind leg; 291, fore wing; 292, hind femur and tibia, outer aspect; 293, hind femur and tibia, inner aspect; 294, head and pronotum, dorsal aspect; 295, hind leg.



Figs 296-304, *Profoenatopus elliotti* (Ceballos), ♀, holotype. 296, head and neck, dorsal aspect; 297, pronotum, dorsal aspect; 298, hind leg; 299, head and pronotum, latero-dorsal aspect; 300, hind tarsus; 301, propodeum, dorsal aspect; 302, apex of ovipositor sheath; 303, part of fore wing; 304, head, latero-frontal aspect.

Abbreviations of depositories:

- AEI = American Entomological Institute, Gainesville, Florida;
 AMNH = American Museum of Natural History, New York;
 BMNH = The Natural History Museum, London;
 BPBM = Bernice P. Bishop Museum, Honolulu, Hawaii;
 CAS = California Academy of Sciences, San Francisco;
 CNC = Canadian National Museum, Ottawa;
 DEI = Deutsches Entomologisches Institute, Eberswalde;
 DEZA = Dipartimento di Entomologia e Zoologia Agraria, Università di Napoli
 "Federico II", Portici;
 LEW = Laboratorium voor Entomologie, University of Wageningen;
 MNCN = Museo Nacional de Ciencias Naturales, Madrid;
 MHNG = Muséum d'Histoire Naturelle, Genève;
 MNHN = Muséum National d'Histoire Naturelle, Paris;
 OUM = Hope Department, University Museum, Oxford;
 RMNH = Nationaal Natuurhistorisch Museum, Leiden;
 SAMA = South Australian Museum, Adelaide;
 TMA = Természettudományi Múzeum Allatára, Budapest;
 USNM = National Museum of Natural History, Smithsonian Institution,
 Washington, D.C.;
 ZMA = Zoologisch Museum, University of Amsterdam, Amsterdam,
 ZMB = Zoological Museum, Bogor (partly now in Cibinong);
 ZMC = Zoologisk Museum, University of Copenhagen, Copenhagen;
 ZSM = Zoologische Staatssammlung, München.

The photographs are made with an Euromex videocam mounted on a Wild M5 binocular microscope with a diaphragm (the photos taken from types in BMNH are taken without diaphragm; despite the lower quality some are included because the primary type is depicted) or taken by a Zeiss Axiocam videocamera on a Zeiss Stemi SVII binocular microscope.

Subfamily Stephaninae Leach, 1815

Diagnosis. Head with "corona" (figs 1, 6, 19), subspherical (figs 1, 641); third and following antennal segments with large and more or less circular sensillae (= multiporous plate sensillae; fig. 477) ventrally; third antennal segment shorter than fourth segment (figs 165, 425, 426, 360; rarely equal as in *Megischus ducalis* Westwood, 1851), and middle antennal segments much longer than basal ones; mandibles twisted (figs 129, 177, 280); clypeus small and protruding; labrum strongly protruding; propodeal spiracle large and slit-like, situated posteriorly on the propodeum; pronotum more or less modified (to facilitate the head when slants backwards (figs 59, 80, 100, 644, 656); posterior part of pronotum partly covering the mesoscutum anteriorly; hind coxa often transversely costate or striate (fig. 10); basal half of hind tibia more or less compressed (figs 65, 254, 282, 284, 322); inner or dorsal side of hind tibia usually with a submedial impression (figs 277, 293, 335); posterior ocelli very close to eyes and often almost touching them (fig. 6); postgenal bridge often comparatively long (fig. 163);

females possesses a triangular or reversed U-shaped pygidial impression (fig. 355); (in the subfamily Stephaninae) first metasomal tergite more or less elongate (up to 21 times as long as apically wide) and cylindrical (figs 276, 392), more or less transversely costate, and possessing a transverse basal carina (fig. 494); metasoma comparatively highly inserted (fig. 1); hind femora more or less (but in e.g., *Stephanus* less!) swollen and dentate, usually with 2 or 3 large teeth and several small ones (figs 427, 556, 658);

Distribution.—Cosmopolitan, but mainly restricted to tropical and subtropical areas.

Key to genera of the family Stephanidae

1. Sternite of first metasomal tergite differentiated from its tergite, and tergite 2.4-2.6 times as long as its apical width (fig. 674), not cylindrical (fig. 670), about as long as second tergite; second tergite sessile and smooth basally (fig. 624); vein cu-a of hind wing present as pigmented vein (fig. 676); hind coxa with small subapical dorsal tooth (fig. 670); hind tarsus of ♀ 5-segmented (fig. 673); vein 1-M of fore wing distinctly curved (fig. 675); hind tibia not narrowed and compressed basally (fig. 670); posterior part of pronotum rectangularly connected with rest of pronotum (fig. 668); eighth metasomal tergite of ♀ with apical protuberance ("pygidial process"; fig. 677)); Nearctic, East Palaearctic, Australian (Tasmania: introduced for biological control of introduced Siricidae); subfamily Schlettereriinae Belokobylskij, 1995 *Schlettererius* Ashmead, 1900
- Sternite of first tergite not differentiated from its tergite, and tergite 3-13[-21] times as long as its apical width, cylindrical, (figs 318, 334, 622, 625), distinctly longer than second tergite; second tergite more or less petiolate and sculptured basally (figs 276, 318, 366, 625); hind wing without trace of vein cu-a (fig. 2); hind coxa without dorsal tooth (fig. 334); hind tarsus of ♀ nearly always 3-segmented (fig. 439; 5-segmented in the genus *Stephanus*); vein 1-M of fore wing straight or nearly so (figs 317, 449, 616, 626); hind tibia distinctly narrowed and compressed basally (figs 322, 627, 658); posterior part of pronotum gradually merging in remainder of pronotum (fig. 312); eighth metasomal tergite of ♀ usually without apical protuberance ("pygidial process") (fig. 497; but present in several *Hemistephanus* species and in *Pseudomegischus*; fig. 610); subfamily Stephaninae Leach, 1815 (including Foenatopodinae Elliott, 1922) 2
2. Vein 1-SR of fore wing (0.5-)0.7-1.5 times vein 1-M (figs 303, 657, 667), or vein 1-SR not differentiated because of absence of vein 1-SR+M of fore wing (fig. 639); vein 2-1A of fore wing largely absent (figs 639, 659, 660), if basally present then curved basad (figs 303, 667); hind tibia hardly longer than hind femur (fig. 635, 658); inner side of hind tibia with long oblique depression; neck emarginate anteriorly and often with upcurved rim ("flanged"; figs 299, 634, but often less developed in *Parastephanellus*); temple often with pale yellowish streak behind eye (figs 304, 656) 3
- Vein 1-SR of fore wing 0.1-0.4 times vein 1-M (figs 261, 275, 482), and vein 1-SR differentiated, rarely vein 1-SR+M of fore wing absent (fig. 646; type species of *Madegafoenus*); vein 2-1A of fore wing largely present, straight or nearly so (figs 51, 77, 167, 261, 2285, 291, 317); hind tibia usually distinctly longer than hind femur (figs 471, 643, 654), subequal in *Afromegischus* (figs 290, 292); inner side of hind

- tibia frequently without long oblique depression (figs 379, 627); neck variable, if emarginate anteriorly, then without distinctly upcurved flange (figs 18, 72, 164); temple usually without pale yellowish streak behind eye, but often with pale patch ventrally (fig. 434) 5
3. Veins 2-SR and 2-SR+M of fore wing absent (figs 2, 639); vein 1-SR of fore wing not or hardly differentiated because of absence of vein 1-SR+M (fig. 639); neck moderately to very slender and finely striate and no distinct pronotal fold (fig. 634), rarely with weakly developed pronotal fold and specialised neck (e.g., in the Afrotropical *F. simpsoni* Kieffer, 1911, and *F. natalicus* Westwood, 1874); outer side of hind tibia posteriorly usually without fine oblique striae and/or ventrally with fine carina; vein 2-CU1 of fore wing nearly always reduced (fig. 2), but sometimes complete (fig. 639); metapleuron slender; mainly Palaeotropical with a few species known from Brazil and Costa Rica (Gauld, 1995) ***Foenatopus*** Smith, 1860
 - Veins 2-SR and 2-SR+M of fore wing present (fig. 657, 660, 665), sometimes only pigmented (fig. 303); vein 1-SR of fore wing distinctly differentiated because of presence of vein 1-SR+M (fig. 303, 660, 665); neck at least moderately robust and transversely carinate (figs 296, 666), but carinae absent in *Parastephanellus* (figs 655, 659), and with weak pronotal fold (fig. 661); outer side of hind tibia with distinct oblique striae ventrally (but often fine or only ventrally distinctly developed (e.g., *Parastephanellus damellicus* (Westwood, 1874), and frequently with some rugulosity and/or apical half of tibia with ventral carina more or less developed (fig. 298), rarely without striae or ventral carina (e.g., *Parastephanellus albiceps* Elliott, 1922, from Australia); vein 2-CU1 of fore wing completely developed (fig. 1, 303, 657, 660, 665); metapleuron robust (cf. fig. 629) 4
 4. Vein 1-SR of fore wing straight (figs 1, 657); vein 2-1A of fore wing basally not sclerotised, obsolescent, not pigmented and straight if present (figs 657, 660); neck usually not separated from remainder of pronotum, not upcurved anteriorly, and pronotum without pronotal fold (fig. 656); vertex without median groove (fig. 655); length of fore wing less than 10 mm; inner side of narrowed part of hind tibia smooth or punctate; spiny setae present near apex of vein M+CU1 of fore wing; ovipositor sheath without subapical ivory band; Indo-Australian ***Parastephanellus*** Enderlein, 1906
 - Vein 1-SR of fore wing weakly curved to apex of wing (figs 303, 665); basally vein 2-1A of fore wing curved posteriad, shortly sclerotised and distinctly pigmented (figs 303, 665), rarely largely absent; neck differentiated, flange-like upcurved anteriorly and pronotum with pronotal fold (figs 299, 666); vertex with weak median groove (fig. 299); length of fore wing more than 10 mm; inner side of narrowed part of hind tibia granulate; no short spiny setae near apex of vein M+CU1 of fore wing; ovipositor sheath variable; Afrotropical ***Profoenatopus*** gen. nov.
 5. Vein M+CU of hind wing at least partly sclerotised; vein 1-SR of fore wing weakly curved (fig. 291); apical half of hind tibia hardly inflated (figs 292, 293); neck differentiated from middle part of pronotum **and** posteriorly proceeding under middle part of pronotum, resulting in a large cavity (figs 288, 289); pronotum with submedial transverse protuberance (fig. 289); Afrotropical ***Afromegischus*** gen. nov.
 - Vein M+CU of hind wing completely unsclerotised and usually completely absent (figs 35, 114, 122, 167); vein 1-SR of fore wing straight (figs 26, 275); apical half of

- hind tibia distinctly inflated (figs 65, 274, 295), rarely weakly so (fig. 23); usually neck not differentiated from middle part of pronotum **and** not proceeding under middle part of pronotum posteriorly (figs 20, 271); if with a large cavity below pronotal fold, then pronotum without submedial transverse protuberance (figs 294, 642, 650) 6
6. Hind tibia strongly inflated, 2.8-3.7 times wider than short narrow basal part of tibia (figs 295, 643, 654) and of ♀ without pit or V-shaped depression at inner side (fig. 645); neck differentiated from middle part of pronotum (figs, 644, 649), with pair of oblique carinae and posteriorly proceeding under middle part of pronotum, resulting in a large cavity (fig. 650); Madagascar *Madegafoenus* Benoit, 1951
- Hind tibia at most moderately inflated, 1.6-2.2 times wider than narrow basal part of tibia (figs 23, 199, 265, 274, 598) and of ♀ with pit or V-shaped or transverse depression at inner side (figs 219, 277, 627); neck not differentiated from middle part of pronotum (figs 18, 84, 107), or rather if differentiated (fig. 260) then not proceeding under middle part of pronotum, but sometimes with a large cavity below pronotal fold 7
7. Hind tarsus of ♀ 5-segmented (figs 272, 622); hind femur with 3 large ventral teeth (figs 273, 622); inner side of hind tibia only with a short narrow oblique groove below a small convexity (figs 277, 627); first tergite comparatively robust, 3-5 times as long as its apical width (figs 276, 283, 625); West Palaearctic; Oriental *Stephanus* Jurine (in Panzer), 1801
- Hind tarsus of ♀ 3-segmented (figs 22, 191, 255); hind femur with 2 large ventral teeth (figs 157, 166, 254); inner side of hind tibia usually with wide submedial depression at inner side, occupying whole width of tibia (figs 191, 379, 617) or depression absent; first tergite more slender, 5-11 times as long as its apical width (figs 285, 293) 8
8. Ovipositor sheath without ivory subapical band (fig. 258); pronotum with weak or strong transverse protuberance (figs 250, 259, 260, 600, 612, 613); temple with pale yellowish streak behind eye (figs 252, 259, 607); hind tibia with a ventral carina and/or with oblique striae ventro-posteriorly (fig. 265); vein 1-M of fore wing 2.7-4.8 times as long as vein 1-SR (figs 257, 261, 616); Old World *Pseudomegischus* gen. nov.
- Ovipositor sheath with ivory subapical band (figs 25, 160); pronotum without transverse protuberance (figs 20, 74, 156); temple without pale yellowish streak behind eye, at most with a ventral patch (figs 20, 242); outer side of hind tibia without oblique striae or rugulosity (figs 25, 121) and ventrally evenly rounded (figs 61, 131), rarely with oblique striae and/or a ventral carina in some Neotropical species (e.g., *Hemistephanus cylindricus* (Westwood, 1851)); vein 1-M of fore wing 3.5-8 times as long as vein 1-SR (figs 11, 26, 77, 138) 9
9. Apical spiny seta on vein M+CU1 of fore wing present near vein 1-M (fig. 12); inner side of hind tibia widely transversely depressed submedially (fig. 219, 561); vein m-cu of fore wing 0.7-0.9 times vein 1-M (figs 371, 581); first subdiscal cell of fore wing comparatively slender and vein 2-1A completely pigmented (figs 3, 26, 77, 158, 496, 567); hind basitarsus usually without subconical spines ventrally (fig. 33); vein r of fore wing ending behind level of apex of pterostigma (figs 3, 26, 158, 238); posterior ocelli almost touching eyes (figs 6, 19, 144), rarely (in Neotropical species) distinctly

- separated; propodeum extensively sculptured; Indo-Australian, Neotropical and southern Nearctic regions, C & SW Europe *Megischus* Brullé, 1846
- Apical spiny seta on vein M+CU1 of fore wing near vein 1-M absent, resulting in a distinct gap (0.1-0.2 times vein M+CU1) between group of spiny setae and vein 1-M (fig. 13); inner side of hind tibia usually not distinctly depressed submedially (e.g., *H. limpidipennis* (Schletterer, 1889) or *H. collarifer* (Schletterer, 1889), without depression and inner side of hind tibia finely granulate, matt (e.g., *H. cylindricus* (Westwood, 1851), *H. simulator* Aguiar, 1998, and *H. ruficeps* (Cameron, 1887), or distinctly reversely V-shaped impressed (*H. carinatus* (Elliott, 1931)); vein m-cu of fore wing 0.9-1.5 times vein 1-M (fig. 11); first subdiscal cell of fore wing comparatively robust and at least apical third of vein 2-1A completely absent (fig. 11); hind basitarsus usually with subconical spines ventrally; vein r of fore wing variable, may end before level of apex of pterostigma (fig. 11); posterior ocelli remain removed from eyes; propodeum often largely smooth; Neotropical
 *Hemistephanus* Enderlein, 1906

Subfamily Stephaninae Leach, 1815

Foenatopodinae Elliott, 1922: 713. *Syn. nov.*

Diagnosis.— Sternite of first tergite not differentiated from its tergite, and tergite 3-21 times as long as its apical width, cylindrical (figs 318, 334, 622, 625), distinctly longer than second tergite; second tergite more or less petiolate and sculptured basally (figs 276, 318, 366, 625); hind wing without trace of vein cu-a (fig. 2); hind coxa without dorsal tooth (fig. 334); hind tarsus of ♀ nearly always 3-segmented (fig. 439; 5-segmented in the genus *Stephanus*); vein 1-M of fore wing straight or nearly so (figs 317, 449, 616, 626); hind tibia distinctly narrowed and compressed basally (figs 322, 627, 658); posterior part of pronotum gradually merging in remainder of pronotum (fig. 312); eighth metasomal tergite of ♀ usually without apical protuberance (“pygidial process”) (fig. 497; but present in several *Hemistephanus* species and in *Pseudomegischus*; fig. 610).

Distribution.— Cosmopolitan.

Genus *Megischus* Brullé, 1846

Megischus Brullé, 1846: 537. Type species (designated by Viereck, 1914): *M. annulator* Brullé, 1846 [examined; = *M. furcatus* (Lepelletier & Serville, 1835)].

Megiseleus Cameron, 1902: 32. *Lapsus calami*.

Bothriocerus Sichel, 1861: 759. Type species (by monotypy): *Bothriocerus europaeus* Sichel, 1861 (= *Stephanus anomalipes* Foerster, 1855, synonymy according to Madl, 1991).

Diagnosis.— Length of fore wing 5-20 (but usually 10-18) mm; temple without conspicuous ivory-white streak behind eye, and evenly rounded (figs 19, 152), rarely more or less protruding (fig. 28); neck elongate and with distinct pronotal fold (figs 29, 81, 153), but in few species hardly or not elongate (fig. 72); pronotum medially with or without medial cavity below pronotal fold; posterior part of pronotum often gradually merging in middle part of pronotum (fig. 80, 192), rarely rather steep (fig. 171); metapleuron usually rather slender and without complete oblique carina pos-

tero-ventrally; veins 2-SR and 2-SR+M of fore wing present, vein r of fore wing usually distinctly removed from apex of pterostigma, straight (figs 317, 449, 616, 626); vein 2-SR of fore wing medium-sized and straight (figs 26, 167); vein 1-SR of fore wing differentiated because of presence of vein 1-SR+M (fig. 3); vein 1-M of fore wing straight or nearly so and 3.5-8.0 times as long as vein 1-SR; fore wing with 4 or more closed cells (fig. 3); marginal cell of fore wing open anteriorly; first submarginal cell of fore wing ends behind level of end of pterostigma (figs 3, 26), first discal cell of fore wing reaching behind middle of pterostigma (figs 3, 26); vein 2-CU1 of fore wing completely present (figs 3, 51, 77, 122); apical spiny seta on vein M+CU1 of fore wing present near vein 1-M (figs 3, 12); vein m-cu of fore wing 0.7-0.9 times vein 1-M (figs 3, 238, 248); first subdiscal cell of fore wing comparatively slender and vein 2-1A completely pigmented (figs 103, 248); hind wing without trace of vein cu-a (fig. 237); hind femur with two large teeth, between teeth finely dentate and behind second tooth somewhat stronger dentate (fig. 236); outer side of narrowed part of hind tibia flat; inner side of hind tibia transversely and widely depressed submedially; hind tibia distinctly narrowed basally and at most basal half ventrally carinate; outer side of hind tibia without oblique striae or rugulosity (figs 157, 166, 191) and apico-ventrally evenly rounded (fig. 61), but ventral carina rarely present in some Neotropical species; hind coxa without dorsal tooth (fig. 226); hind tarsus of ♀ 3-segmented (fig. 159; of ♂ 5-segmented); hind basitarsus without subconical spines ventrally (fig. 61); sternite of first tergite not differentiated from its tergite, and tergite 4-14 (usually 8-11) times as long as its apical width, cylindrical, distinctly longer than second tergite (fig. 313); second tergite more or less petiolate and narrowly sculptured basally (fig. 318); eighth metasomal tergite of ♀ with more or less depressed pygidial impression (figs 355, 478), and without distinct apical protuberance ("pygidial process", but somewhat protruding in *M. atriceps* (fig. 322)); ovipositor sheath with ivory subapical band (figs 25, 43, 60, 141, 239, 345).

Distribution.— Mainly Indo-Australian and Neotropical, no species are examined from the Afrotropical region. Some species reach the subtropical parts of Oriental and southern Nearctic regions, and one species is known from C & S Europe. According to label data *Megischus* specimens have been collected in banana plantations and obviously wander outside the forest into more or less open habitats. However, this is probably caused by the presence of dead trees infested by beetle larvae; the trees are remnants left from the destroyed forest before the bananas have been planted.

The genus *Megischus* contains about 50 recognised species (prior to this revision and most species have never been revised so this number has only a limited value; New World: about 10 spp; West Palaeartic: 1 species; Australian continent: 2 species (Aquiar, 2001), Oriental, Wallacea and Papua: 39 species. Ten species (mostly synonymised by Baltazar, 1966) were described from males only by Elliott, which is problematical because males lack most characters used for the identification at the species level. The Afrotropical and S Palaeartic *Stephanus tibiator* Schletterer, 1889, and its probable synonym *S. gigas* Schletterer, 1889, are excluded from *Megischus*, as all Afrotropical species similar to *Megischus*, and no species have been found to intrude in the East Palaeartic region (Belokobylskij, 1995). The only species known from the SW Palaeartic is *M. anomalipes* (Foerster, 1855). In the New World *Megischus* occurs in Central and South America and in the southern Nearctic region.

Key to Old World species of the genus *Megischus* Brullé

1. Narrowed part of hind tibia about one quarter as long as hind tibia and robust (figs 322, 377); ivory part of ovipositor sheath 0.6-0.8 times as long as its dark apical part (figs 320, 380); area behind eyes in dorsal view finely rugose (figs 312, 314, 375); mesopleuron densely and finely rugose or densely rugulose (figs 321, 381); propodeum largely coarsely vermiculate-rugose (fig. 379) or irregularly reticulate (fig. 318); outer side of hind femur largely superficially granulate (figs 322, 377); bristly setae of pygidial depression not surpassing apex of metasoma (fig. 319); SW Palaearctic or Australia 2
- Narrowed part of hind tibia at least one third as long as hind tibia and more slender (figs 23, 58, 75, 440), usually 0.4 times apical part; ivory part of ovipositor sheath 0.9-3.8 times as long as its dark apical part (figs 345, 367, 389, 441), but in *M. tortus* from Sri Lanka may be as short as 0.7 times: fig. 584); area behind eyes in dorsal view smooth or largely so (figs 19, 79, 196); mesopleuron punctate or coarsely and more remotely rugose (fig. 553); propodeum reticulate-foveolate or coarsely punctate (figs 532, 537, 569), rarely reticulate (fig. 547); outer side of hind femur variable, often largely smooth or punctulate (figs 27, 226, 471, 548); bristly setae of pygidial depression variable, frequently longer and more or less surpassing apex of metasoma (figs 355, 456, 478); Oriental, Wallacea, Papuan 4
2. Ventrally hind tibia of ♀ below widened part distinctly concave (fig. 377; but straight in ♂); temples distinctly angulate (tuberculate) in dorsal view (fig. 375); hind femur with comparatively slender teeth (fig. 377); apex of hind tibia distinctly narrowed (fig. 378); pronotal fold distinctly developed and neck with pair of strong oblique carinae (fig. 376); side of scutellum very densely setose; Australia 3
- Ventrally hind tibia of ♀ below widened part straight (fig. 322); temples rounded in dorsal view (fig. 311); hind femur with comparatively robust teeth (fig. 322); apex of hind tibia less narrowed (fig. 313); pronotal fold absent or nearly so and neck only transversely carinate (figs 311, 314); side of scutellum glabrous; SW Palaearctic *M. anomalipes* (Foerster, 1855)
3. Metapleuron only with long setae medially, without dense setosity below it; hind femur more robust, about 2.6 times as long as wide; all carinae of neck similar, without ear-shaped or strongly undulate posterior carina; W Australia
..... *M. ceneonatrix* Aguiar, 2001
- Metapleuron with dense setosity below long setae medially; hind femur less robust, about 3 times as long as wide (fig. 377); neck with a strong and undulate posterior carina, different from other carinae (figs 375, 376); E Australia (incl. Queensland) *M. crassicauda* (Morley, 1917)
4. Pronotum tuberculate postero-laterally (figs 72, 394); pronotal fold weakly developed **and** middle part of pronotum medially very coarsely transversely costate and callus-like enlarged (figs 71-74); hind basitarsus 4.0 (holotype)-5.5 times its width (figs 75, 395); neck very wide and with pair of subparallel or one distinct median carina (figs 72, 394); vein 1-SR of fore wing about as long as parastigmal vein (figs 77, 397) and vein r longer than vein 2-SR (fig. 77); hind femur and coxa comparatively robust (figs 75, 393; 395); ivory part of ovipositor sheath about 3 times its dark apical part (fig. 78) *M. ducalis* Westwood, 1851

- Pronotum evenly convex postero-laterally and depressed near tegulae (figs 98, 382, 399, 420); pronotal fold usually present (figs 31, 64), if absent or weak (figs 183, 310) **then** middle part of pronotum finely transversely costate, not protruding (fig. 310) and hind basitarsus 6-8 times its width (figs 22, 66)); neck slender (figs 18, 63, 79), if rarely wide then median carina at most obsolescent (figs 382, 578); vein 1-SR of fore wing usually shorter than parastigmal vein (figs 167, 343, 449) and vein r about as long as vein 2-SR or shorter (fig. 26); hind femur and coxa less robust (fig. 341); ivory part of ovipositor sheath 1.2-3.8 times its dark apical part (figs 43, 52, 60) 5
- 5. Neck not differentiated from rest of pronotum because of absence of a pronotal fold **and** anteriorly distinctly concave (figs 18, 20, 162, 164, 206, 207, 310, 382); medially meso- and metapleuron with sparse fine setosity; head with only 3 distinct teeth (figs 19, 161); hind basitarsus of ♀ 6-8 times as long as its maximum width (figs 22, 168); malar space and its surroundings usually without contrasting yellowish or ivory spot, at most with a vague fuzzy or pale spot (figs 20, 165); ivory part of ovipositor sheath 2.2-3.8 times its dark apical part (figs 25, 169; unknown of *M. rufus*) 6
- Neck differentiated from rest of pronotum by a distinct pronotal fold (figs 28, 45, 81), but if weakly or not developed (figs 183, 185), then neck anteriorly weakly concave or truncate (fig. 181) and no fine setosity on mesopleuron medially; head with 5 distinct teeth (figs 44, 50, 82, 127, 129); hind basitarsus of ♀ 3-6 times as long as wide (figs 33, 41, 49); ivory part of ovipositor sheath 0.9-2.5 times its dark apical part (figs 43, 52, 60, 70) 9
- 6. Neck slender, and with hardly any carinae (figs 206, 207, 214; but ♀ is unknown); propodeum reticulate (fig. 211); apex of hind tibia and tarsus yellowish-brown (figs 209, 213); Philippines *M. rufus* (Elliott, 1927)
- Neck robust, and distinctly transversely carinate (figs 18, 162); propodeum foveolate (figs 24, 537); apex of hind tibia and tarsus blackish or dark chestnut-brown (figs 22, 168, 535); West and East Malaysia 7
- 7. Occipital carina reduced ventrally, remain distinctly removed from hypostomal carina and area between apex of occipital carina and hypostomal carina smooth (figs 163, 388); hind tibia rather abruptly widened submedially (figs 166, 384); hind femur robust (figs 166, 384, 535); length of ovipositor sheath 1.3-1.6 times length of fore wing; face flat (fig. 165); propodeum densely punctate-foveolate, with interspaces absent or nearly so (figs 386, 537); inner side of narrow basal part of tibia at most with few medium-sized bristly setae; vein 1-M of fore wing about 5 times as long as vein 1-SR (fig. 167); hind coxa slender triangular (fig. 166); medially post-genal bridge gradually groove-like depressed (fig. 163) 8
- Occipital carina complete ventrally, about reaching hypostomal carina and area between apex of occipital carina and hypostomal carina finely punctate; hind tibia gradually widened submedially (fig. 23); hind femur slender (figs 27, 306, 535); length of ovipositor sheath about 2.0 times length of fore wing; face convex (fig. 20); propodeum with distinct smooth interspaces, about equal to diameter of fovae or more (fig. 24); inner side of narrow basal part of tibia with many bristly medium-sized setae, mainly in a triple row; vein 1-M of fore wing about 7 times as long as vein 1-SR (fig. 26); hind coxa spindle-shaped (fig. 21); medially

- postgenal bridge steeply and widely depressed; Borneo (Sarawak), Sumatra
 *M. angitibialis* spec. nov.
- Note.— The southern Chinese female and only known specimen of *Megischus ruficeps* sensu Chao, 1964, was not available for study. It may belong here; probably the ovipositor sheath is about 1.2 times as long as the body and about 1.9 times fore wing.
8. Pronotum posteriorly rather densely short setose; pronotum shorter (fig. 382), with middle part of pronotum comparatively abruptly connected to posterior part of pronotum (fig. 383); middle part of pronotum distinctly and regularly striate-carinate dorsally (fig. 382); Borneo, West Malaysia *M. curtus* (Elliott, 1926)
- Pronotum posteriorly without short setosity; pronotum longer (fig. 161), with middle part of pronotum more gradually merging in posterior part of pronotum (fig. 164); middle part of pronotum weakly striate-carinate dorsally (fig. 162); Sulawesi *M. planifrons* spec. nov.
9. Apical half of hind tibia of ♀ distinctly concave ventrally (figs 42, 57, 83, 173, 219, 462, 506); but straight in ♂ (fig. 465), males should be tried with both halves of couplet, its outer side strongly compressed medially as its inner side and abruptly widened submedially (figs 58, 173, 335, 512); hind basitarsus more or less widened apically (figs 41, 61, 85, 174, 220, 508) 10
- Apical half of hind tibia of ♀ straight or weakly concave ventrally (figs 94, 121, 157, 191, 199, 333, 424, 486), its outer side less compressed medially than its inner side and gradually widened submedially (figs 99, 121, 135, 226, 484); hind basitarsus usually parallel-sided apically or nearly so (figs 91, 101, 113, 120, 139, 159, 191, 245, 439) 18
10. Neck deeply concave anteriorly (about halfway length of neck; fig. 501); hind basitarsus of ♀ very robust (fig. 508); temples largely black and rounded behind eyes (fig. 514); Moluccas (Ternate; Halmahera; Ceram) *M. maxi* Schönmann, 1991
- Neck usually shallowly concave anteriorly, at most up to 0.3 times length of neck (figs 36, 54, 79, 215, 461), if about halfway emarginate (fig. 176) then hind basitarsus of ♀ comparatively slender (fig. 174) and temple dark reddish or orange-brown (fig. 176); temples variable, if largely black then temples more or less weakly angulate behind eyes (fig. 577) 11
11. Neck distinctly U-shaped concave anteriorly (figs 172, 176); widened part of hind tibia of ♀ rather shallowly concave ventrally (figs 173, 543) and black; head dark reddish or orange-brown (fig. 176); postgenal bridge groove-like depressed and with pair of teeth above it (fig. 178); S China, India *M. ptosimae* Chao, 1964
- Neck less concave anteriorly (figs 37, 53,); shape of hind tibia of ♀ variable, if widened part of hind tibia concave ventrally (figs 58, 520, 580) then hind tibia orange brown or head black; postgenal bridge variable 12
12. Head orange-brown (figs 53, 87); medially mesopleuron glabrous below long setae; hind tibia usually deeply concave ventrally below widened part (figs 42, 83, 219); postgenal bridge variable; SE Asia 13
- Head black; medially mesopleuron densely short setose below long setae; shape of hind tibia variable (figs 463, 523, 580); postgenal bridge widely and gradually declivous (fig. 526); Sri Lanka 16
13. Hind basitarsus of ♀ comparatively slender, weakly widened apically (figs 61, 85); postgenal bridge widely and steeply declivous (fig. 56); temples rather angulate protruding behind eyes (figs 53, 87); Philippines 14

- Hind basitarsus of ♀ robust, distinctly widened apically (figs 41, 220); postgenal bridge widely and gradually declivous (figs 40, 222); temples directly narrowed behind eyes (figs 37, 218) 15
- 14. Hind tibia distinctly concave ventrally (fig. 83); vertex (except anteriorly) smooth (figs 79, 87); anteriorly and medially pronotum largely smooth (figs 79-81, 84); pronotal fold vertical and without concavity below it (fig. 81); hind tibia and tarsus black (figs 83, 85) *M. glabricephalus* spec. nov.
- Hind tibia shallowly concave ventrally (figs 57, 58); vertex nearly completely reticulate (fig. 53); anteriorly and medially pronotum striate (figs 53, 54); pronotal fold rather porching over concavity below it (fig. 55); hind tibia and tarsus yellowish-brown (figs 57, 58, 61) *M. carolinae* spec. nov.
- 15. Ivory part of ovipositor sheath about 3 times as long as its dark apical part (fig. 43); posterior half of vertex indistinctly sculptured (fig. 37); pronotal fold small and laterally as robust as carinae of neck and with small concavity below it (figs 36-41); first submarginal cell of fore wing comparatively short (fig. 336); occipital carina reduced ventrally, remaining far removed from hypostomal carina (fig. 40); Moluccas (Halmahera) *M. breviannulatus* spec. nov.
- Ivory part of ovipositor sheath 1.0-1.5 times as long as its dark apical part (fig. 562); posterior half of vertex distinctly sculptured (figs 215, 218); pronotal fold large and laterally more robust than carinae of neck and with large concavity below it (figs 215-218); first submarginal cell of fore wing comparatively long (fig. 221); occipital carina complete ventrally, close to hypostomal carina (fig. 222); Cambodia, Vietnam, West Malaysia, Thailand *M. saussurei* (Schulz, 1907)
Note.— If latero-posteriorly vertex is hardly sculptured (fig. 205) and neck largely smooth medio-anteriorly (fig. 206), pronotum without median carina behind reduced pronotal fold and no carinae laterally (figs 207, 214), and propodeum reticulate (fig. 211), cf. *M. rufus* (Elliott, 1927) from Philippines, of which only a male is known.
- 16. Ventrally hind tibia of ♀ deeply concave below widened part (figs 579, 580); temple rather angulate behind eye (fig. 577); first metasomal tergite dark orange or dark red, paler than propodeum *M. tortus* (Morley, 1917)
- Ventrally hind tibia of ♀ shallowly concave below widened part (figs 520, 523, 524); temple directly narrowed behind eye (figs 459, 525); first tergite usually about as blackish as propodeum 17
- 17. Ivory part of ovipositor sheath 1.3-1.6 times as long as its dark apical part (fig. 519); pronotum behind pronotal fold distinctly striate (fig. 517); neck less concave anteriorly (fig. 516); mesopleuron especially anteriorly distinctly rugose-punctate or coarsely rugose *M. nigricans* Sichel, 1866
- Ivory part of ovipositor sheath about 0.7 times as long as its dark apical part; pronotum behind pronotal fold weakly sculptured or smooth (figs 458, 460, 461); neck more concave anteriorly (figs 459, 461); mesopleuron largely smooth, except some sparse punctures *M. krombeini* spec. nov.
- 18. Hind femur bright red or orange (except blackish apex; fig. 199); medially metapleuron without dense short setosity below long setae; propleuron with a few widely spaced punctures; hind basitarsus of ♀ 4.1-4.7 times as long as wide (fig. 203, of ♂ about 4.5 times); postgenal bridge widely grooved, steeply declivous; Solomon Islands *M. rufofemoratus* (Szépligeti, 1902)
- Hind femur black or dark brown; medially metapleuron usually with dense short

- setosity below long setae; sculpture of propleuron variable; hind basitarsus of ♀ variable, usually about 5 (5.0-5.2) times as long as wide (figs 49, 66, 91, 101, 113, 120, 128, 139); postgenal bridge variable, usually gradually declivous 19
19. Neck deeply and broadly V-shaped emarginate, emargination about half as long as lateral length of neck (figs 399, 401); frons blackish **and** vertex rather finely and irregularly rugose (figs 400, 403); reddish apical half of hind tibia strongly contrasting with blackish hind basitarsus (fig. 409); propodeum reticulate-foveolate, without smooth interspaces between large punctures (fig. 406); Papua New Guinea
 *M. emarginaticollis* spec. nov.
- Note.— Apical third of outer side of hind tibia also with short setosity! Normally only on inner side.
- Neck at most moderately deeply U-shaped emarginate, emargination about quarter as long as lateral length of neck (figs 28, 44, 63, 88, 98, 108, 133, 142, 573); frons orange brown or blackish, if blackish **then** vertex regularly rugose (figs 340, 433) or irregularly and coarsely rugose (figs 323, 467); colour of apical half of hind tibia variable, if reddish than not strongly contrasting with hind basitarsus; propodeum usually coarsely punctate or foveolate, and with smooth interspaces (figs 479, 494, 532) 20
20. Neck not well separated from rest of pronotum by distinct pronotal fold, fold reduced and more or less present as carina (figs 136, 181), neck and middle part of pronotum flattened medially and partly shallowly depressed (figs 134, 137, 183) **and** frons orange-brown; middle part of pronotum distinctly differentiated from posterior part (figs 134, 136, 185); neck with more or less equal and rather weak carinae laterally (figs 137, 185) and comparatively slender (figs 134, 181); anteriorly propodeum reticulate, mostly without smooth interspaces between large foveae (figs 500, 547); vertex irregularly and coarsely rugose or smooth latero-posteriorly (figs 133, 180); convex part of metapleuron usually without short setosity below long setae or sparsely so; third antennal segment of ♀ comparatively slender (fig. 140); temple short setose ventrally (fig. 137) 21
- Neck separated by strong pronotal fold (figs 31, 64, 81, 102, 109, 117, 145, 325) and neck usually without equal carinae or carinae complete medially, middle part of pronotum convex medially and flattened part of neck smaller (figs 28, 84, 108); if pronotal fold rather weak (fig. 325), then face blackish (fig. 326); middle part of pronotum weakly differentiated from posterior part (figs 45, 108) **or** frons blackish; neck often with unequal and rather strong carinae laterally and comparatively robust (figs 46, 64, 325); anteriorly propodeum coarsely foveolate, with distinct smooth interspaces between large foveae (figs 351, 356, 444, 494, 532; except *M. atriceps*); vertex usually with regularly curved rugae and mesopleuron medially largely densely setose below long setae; third antennal segment of ♀ comparatively robust (figs 425, 426, 445); temple only with some long setae ventrally 22
21. Posterior half of vertex nearly completely coarsely vermiculate-rugose (fig. 180; typical) or irregularly rugose; ivory part of ovipositor sheath 1.2-1.5 times as long as apical dark part (fig. 551); neck more slender (figs 179, 181); apical half of hind tibia and basitarsus blackish or dark brown, similar to basal half of hind tibia, but may be partly dark chestnut-brown; pronotal fold less developed (fig. 183); Philippines, Sulawesi *M. reticulatus* (Elliott, 1926)

Note.— If mesopleuron densely finely setose medially and neck slender, cf. *M. rufus* (Elliott, 1927) from Philippines, of which only the male holotype is known.

- Posterior half of vertex regularly transversely rugose (fig. 133); ivory part of ovipositor sheath about twice as long as apical dark part (fig. 141); neck somewhat less slender (fig. 134); apical half of hind tibia and basitarsus orange-brown, much paler than basal half of hind tibia (fig. 135); pronotal fold more developed than surrounding carinae (figs 134, 136); Philippines *M. luzonicus* spec. nov.
- 22. Occipital carina widely absent ventrally or obsolescent, ends near level of ventral 0.3 of eye and far from hypostomal carina (fig. 331); pygidium of ♀ obtusely protruding dorsally (fig. 332); temple medially blackish (fig. 331); neck with 2-3 evenly strong costae (fig. 324); hind tibia medially darker brown than basally and apically (fig. 328); Philippines *M. atriceps* (Kieffer, 1916)
- Occipital carina distinctly developed ventrally, ends close to hypostomal carina and near lower level of eye (fig. 111); pygidium of ♀ not protruding dorsally (fig. 335, but narrowly protruding in *M. inaequalis*); usually temple medially orange-brown, if blackish then neck with pair of large "ears" (fig. 338); hind basitarsus of ♀ variable, if dark brown medially then usually similarly coloured as remainder of hind tibia 23
- 23. Blackish frons contrasting with largely yellowish-brown temple and face (fig. 90); vertex densely and regularly rugose posteriorly (fig. 89; as *M. lucidus*); neck distinctly costate carinate (fig. 88); ovipositor sheath 2.0-2.8 times as long as fore wing and 1.2-1.5 times as long as body; Papua New Guinea *M. haematipoda* (Montrouzier, 1857)
- Note.— May concern melanistic *M. lucidus*, but this is less likely because of the relatively stable colour differences in *M. haematipoda*, e.g. the brown basal narrow part of the hind tibia (fig. 92; which is blackish, dark brown or chestnut brown in *M. lucidus*).
- Frons not contrasting with paler temple or face, both being orange- or chestnut-brown or blackish (figs 50, 100, 109, 129, 243), if frons is black; then vertex remotely and irregularly rugose posteriorly (figs 467, 589) and/or neck largely smooth, with neck only one carina lamelliform developed laterally (figs 338, 421, 436), and ovipositor sheath 1.9-2.1 times as long as fore wing and about as long as body 24
- 24. Frons blackish; vertex medially with coarse and more or less irregular rugae (figs 339, 418, 433, 480, 564, 589, 591); vertex usually less extensively sculptured posteriorly (figs 418, 433); hypostomal flange frequently more or less rugose (fig. 431); but sometimes with only one oblique ruga or smooth (fig. 487); usually apical half of hind tibia and hind basitarsus orange-brown; temples blackish; hind basitarsus of ♀ robust and slightly widened apically, its ventral length 3.0-4.8 times its maximum width (figs 349, 429, 439, 474, 590); postgenal bridge variable, steeply declivous, with median carina or gradually declivous 25
- Frons orange-brown or rather dark brown (figs 31, 44, 62, 106, 187, 240); vertex medially with rather regular and moderately coarse rugae rugose (figs 127, 142, 152, 229, 232, 363, 450); vertex usually posteriorly extensively rugose (figs 126, 144, 152), but sometimes less extensively (figs 29, 97); hypostomal flange smooth or with some coarse punctures (figs 105, 109, 111); hind tibia and/or basitarsus largely or completely dark brown or black, if orange or reddish-brown (fig. 123) then temples yellowish-brown; hind basitarsus of ♀ less robust and parallel-sided, its ventral length 4.5-5.4 times its maximum width (figs 33, 49, 66, 101, 113, 245); postgenal

- bridge widely and gradually declivous and no median carina (fig. 48) 30
25. Pronotal fold lower than upper level of pair of "ears" in front of it in lateral view (figs 338, 436, 470); gap between pair of very large angulate "ears" or coarse costate transverse carina and pronotal fold comparatively large (figs 340, 436, 470, 481); Indonesia (Irian Jaya, Aru Islands); Papua New Guinea 26
- Pronotal fold at about at same level as that of carina or pair of "ears" in front of it in lateral view (figs 417, 565, 574, 575); gap between pair of "ears", oblique or transverse carinae and pronotal fold medium-sized (figs 419, 421, 573); Moluccas 29
26. Postgenal bridge widely and very steeply declivous (fig. 472); mesopleuron largely with fine setosity medially; mesopleuron largely remotely punctate, with interspaces (except anteriorly) usually larger than punctures, but sometimes more or less rugose and with small interspaces; rugae of vertex medially more or less interconnected (figs 467, 480, 589) 27
- Postgenal bridge gradually declivous (figs 352, 443); mesopleuron without dense fine setosity medially; mesopleuron at least partly rugose; rugae of vertex medially not or hardly interconnected (figs 339, 340, 433); Indonesia (Sulawesi) 28
27. Ivory part of ovipositor sheath about twice as long as dark apical part (fig. 593); pair of "ears" of neck comparatively close to pronotal fold (fig. 591); mesopleuron coarsely reticulate-rugose medially; basal third of hind tibia dark brown, strongly contrasting with pale orange-brown depressed submedial part of hind tibia (fig. 592); New Britain *M. violaceipennis* Cameron, 1901
- Ivory part of ovipositor sheath 0.8-1.3 times as long as its dark apical part (figs 475, 489); pair of "ears" of neck comparatively far removed from pronotal fold (figs 468, 470, 481, 483); mesopleuron more or less foveolate or coarsely punctate with distinct smooth interspaces, but sometimes rather reticulate and without distinct interspaces; basal third of hind tibia blackish or dark brown, not or moderately contrasting with dark brown or orange-brown depressed submedial part of hind tibia (figs 471, 486); New Guinea, Aru Islands *M. lieftincki* spec. nov.
28. Ivory malar spot broadly extending on ventral third of temple and reaching occipital carina (figs 342, 352); face (= narrow area below antennal sockets) ivory laterally (fig. 342); yellowish scapus strongly contrasting with black frons; basal half of fore wing completely dark brown (fig. 343); hind basitarsus comparatively slender, of ♀ about 5 times as long as wide ventrally (figs 344, 349), and distinctly darker than hind tibia apically (fig. 344); face coarsely reticulate; vertex densely and less coarsely rugose (figs 339, 340); outer side of hind femur finely superficially granulate and rather matt; Sulawesi *M. bungaensis* spec. nov.
- Ivory malar spot remain restricted to malar space or somewhat larger, not or hardly reaching occipital carina (fig. 434); face black (fig. 438); dark brown scapus not contrasting with black frons (fig. 434); basal half of fore wing partly subhyaline; hind basitarsus often comparatively robust, of ♀ about 4 times as long as wide ventrally (fig. 439); hind basitarsus at most slightly darker than hind tibia apically (fig. 437); face more or less transversely rugose ventrally (fig. 438); transverse rugae of vertex very coarse, costate (figs 433, 442); outer side of hind femur largely smooth, shiny; Sulawesi, Banggai Islands *M. fransseni* spec. nov.
29. Postgenal bridge near hypostomal carina subhorizontal and with robust median carina and pair of lateral carinae (fig. 431); neck with a single and complete trans

- verse and robust lamelliform carina (figs 418-420); third antennal segment of ♀ circular flagellar sensillae medium-sized and segment comparatively slender (fig. 425); ivory part of ovipositor sheath about twice as long as dark apical part (fig. 423); hypostomal flange coarsely and densely obliquely rugose (fig. 431) *M. exilis* spec. nov.
- Postgenal bridge behind wide hypostomal carina widely and steeply (almost perpendicularly) declivous, without carinae (fig. 576); robust carina of neck medially widely interrupted and in front smooth (figs 573, 573) or with some comparatively weak carinae laterally (holotype; fig. 570); third antennal segment of ♀ with large circular flagellar sensillae and segment robust (fig. 426); ivory part of ovipositor sheath 1.2-2.0 times as long as apical dark part (fig. 566); hypostomal flange largely smooth except for one oblique ruga and some superficial sculpture (fig. 572) *M. tarsalis* Smith, 1861
30. Temple strongly angularly protruding (figs 28, 29); clypeus, face largely and temple anteriorly and ventrally largely yellowish-ivory (figs 29, 31); apical half of hind tibia of ♀ not distinctly swollen and ventrally straight (fig. 34); fourth antennal segment of ♀ 1.7 times as long third segment (fig. 30); Borneo *M. angularis* spec. nov.
- Temple evenly rounded, not protruding (figs 44, 62, 152, 187, 218, 229); clypeus, face largely and temple anteriorly and ventrally largely orange or yellowish-brown (figs 105, 110, 155); apical half of hind tibia of ♀ usually rather swollen and ventrally slightly concave (figs 65, 99, 112, 121, 157, 191, 244); fourth antennal segment of ♀ 1.2-1.4 times as long third segment (fig. 100) 31
31. Sculpture of vertex comparatively irregular and with more spaced rugae, not or weakly bell-shaped laterally (figs 97, 116, 144, 187, 229, 231, 232, 240); vertex medially weakly concave, and more steeply depressed anteriorly (figs 100, 143, 235); length of ivory subapical part of ovipositor sheath 1.0-2.6 times dark apical part (figs 104, 125, 151, 193, 239, 249) 32
- Sculpture of vertex regular and more densely, anteriorly and laterally distinctly bell-shaped (figs 44, 62, 106, 127, 130, 152); vertex medially flattened or nearly so, and gradually depressed anteriorly (figs 50, 109, 129, 155); length of ivory subapical part of ovipositor sheath 0.9-3.5 times its dark apical part (figs 52, 115, 160) 38
32. Inner side of basal half of hind tibia with comparatively few and comparatively coarse bristle-bearing punctures, at most double row of punctures (figs 9, 121; rarely largely in a triple row); hind coxa largely smooth (except for coarse punctures or short rugae; figs 123, 226); apical half of hind tibia of ♀ orange-brown (figs 223, 226; in ♂ apical 0.1-0.5 of tibia yellowish) 33
- Note.— If the propodeum is reticulate, without smooth interspaces, cf. *M. rufus* (Elliott) from the Philippines.
- Inner side of basal half of hind tibia with many bristle-bearing and finer punctures, row of 3-5 punctures wide; hind coxa distinctly coarsely transversely striate (figs 236, 237, 362) or apical half of hind tibia at least largely dark brown (figs 99, 112, 149, 244) 34
33. Neck truncate anteriorly and with differentiated band, largely smooth, only with pair of short robust crests (figs 224, 229), with no or indistinct subposterior carina; length of ovipositor sheath 1.9-2.0 times fore wing; length of vein 1-M of fore wing about 6 times vein 1-SR (fig. 227); Sulawesi *M. tangkokoensis* spec. nov.

- Neck distinctly concave anteriorly and without isolated band, laterally distinctly carinate (fig. 117), with subposterior carina; length of ovipositor sheath about 2.5 times fore wing; length of vein 1-M of fore wing about 4.5 times vein 1-SR (fig. 122); Java *M. longicaudatus* Costa, 1866
- 34. Posterior part of pronotum (except medially) largely with short setosity (fig. 188); hind tarsus of ♀, and more or less hind tibia apically, orange-brown or dark chestnut-brown (fig. 191), of ♂ more or less darkened; carinae of neck less developed (fig. 189, but sometimes posterior one robust) or obsolescent; length of ivory subapical part of ovipositor sheath 1.4-2.0 times its dark apical part; short setosity of convex part of mesopleuron variable 35
 Note.— If neck with pair of “ear”-shaped carinae higher than pronotal fold, apically hind tibia orange-brown, posterior part of pronotum largely without short setosity and from Sulawesi, cf. *M. tangkokoensis* spec. nov. with inner side of hind tibia rather densely punctate.
- Posterior part of pronotum largely without short setosity (figs 98, 241); hind tibia apically and hind tarsus blackish or dark brown (figs 99, 149); carinae of neck coarser (figs 102, 145); length of ivory subapical part of ovipositor sheath 2.0-2.4 times dark apical part; convex part of mesopleuron with dense short setosity 36
- 35. Convex part of mesopleuron without dense short setosity; convex part of metapleuron rather slender; sculpture of vertex less regular (fig. 232); length of ivory subapical part of ovipositor sheath about 1.4 times its dark apical part (fig. 239); Philippines *M. tarsatus* Sichel, 1866
- Convex part of mesopleuron with conspicuous dense short setosity (fig. 553); convex part of metapleuron robust (fig. 553); sculpture of vertex more regular (fig. 187); length of ivory subapical part of ovipositor sheath 1.6-2.2 times its dark apical part (fig. 193); Philippines *M. rubripes* (Kieffer, 1916)
- 36. Longest setae of pygidial depression of ♀ medium-sized, not surpassing apex of metasoma, subbasally inserted and medially area of pygidium moderately convex, glabrous, shiny and largely smooth; head more robust, temples less directly narrowed and dark chestnut-brown (fig. 240); first metasomal tergite with medio-longitudinal carina basally; middle part of pronotum weakly differentiated from posterior part in lateral view (fig. 243); neck comparatively robust (fig. 241); pronotal fold comparatively strong in lateral view (fig. 247); Vietnam
 *M. tonkinensis* spec. nov.
- Longest setae of pygidial depression of ♀ long and surpassing apex of metasoma (fig. 530), submedially inserted and area medially strongly convex, matt or smooth; head slender, temples directly narrowed and light orange-brown (figs 97, 142); first tergite without medio-longitudinal carina basally; middle part of pronotum distinctly differentiated from posterior part in lateral view (figs 98, 102, 143, 147); neck comparatively slender (figs 98, 147); pronotal fold comparatively weak in lateral view (figs 102, 103, 145, 146) 37
 Note.— If hind tibia with ventral oblique striae, cf. *Pseudomegischus* gen. nov.
- 37. Pygidial depression of ♀ matt, largely coriaceous and with short setae, medio-apically without minute protuberance; ivory subapical part of ovipositor sheath about twice as long as its dark apical part (fig. 151); length of hind basitarsus of ♀ about 5.8 times its maximum width (fig. 150); length of ovipositor sheath about twice fore wing; vertex more densely rugose (figs 142, 144); Philippines
 *M. nigripes* (Elliott, 1927)

- Pygidial depression of ♀ shiny, largely smooth and without short setae and medio-apically with minute lamelliform protuberance; ivory subapical part of ovipositor sheath about 1.2 times as long as its dark apical part (fig. 104); length of hind basitarsus of ♀ about 4.1 times its maximum width (fig. 101); length of ovipositor sheath about 1.6 times fore wing; vertex more sparsely rugose (fig. 97); Philippines *M. inaequalis* (Elliott, 1927)
 - 38. Medio-posteriorly pronotum of ♀ largely densely and short setose, only narrowly glabrous (figs 108, much less setose in ♂); ivory subapical part of ovipositor sheath (1.4-)1.6-2.3 times as long as dark apical part (fig. 115; rarely up to 3.5 times in specimens from Borneo); pronotal fold high compared to carinae of neck (figs 109, 451); pronotum behind pronotal fold usually with 7-10 robust to medium-sized carinae (figs 107, 108, 452, but sometimes with 6 and partly incomplete carinae as in holotype of *M. impressus*); digitus of male genitalia protruding submedially (fig. 370) and paramere with long setosity apically (fig. 372); Oriental (incl. Philippines) *M. insularis* Smith, 1857
 - Medio-posteriorly pronotum widely glabrous or nearly so and only laterally sparsely to densely short setose (figs 45, 129, 153); ivory subapical part of ovipositor sheath usually 0.9-1.5 times as long as dark apical part (figs 52, 70, 132, 160); pronotal fold lower compared with carinae of neck (figs 64, 129, 155); pronotum behind pronotal fold with 4-6 (figs 46, 68, 129, 153), rarely up to 9 robust to medium-sized carinae; digitus of male genitalia protruding apically (figs 369, 373; unknown of *M. cambaensis*) and paramere with shorter setosity apically (figs 371, 374); Philippines, Wallacea, Papua 39
 - 39. Head more globular (figs 44, 152); basal half of fore wing evenly dark brown (figs 51, 158); neck usually with complete or narrowly interrupted subanterior carina (figs 152, 153), or strongly oblique (figs 44, 45); medial sculpture of vertex united with and similar to lateral sculpture up to near level of eyes, comparatively coarse (figs 44, 152); length of ovipositor sheath 2.1-2.3 times fore wing; depression below pronotal fold somewhat larger (figs 50, 156); length of ivory subapical part of ovipositor sheath 1.5-2.0 times its dark apical part (figs 52, 160); pygidium of male truncate apically and with deep lateral groove with large punctures (fig. 531; unknown of *M. cambaensis*); paramere with long setosity apically (fig. 531); Sulawesi 40
 - Head slightly more transverse (figs 62, 127); basal half of fore wing largely light brown or subhyaline (figs 67, 365, 490; but melanistic males frequently have basal half of wing more or less dark brown); neck medially with rather weak and incomplete subanterior carina (figs 62, 127, 361); medial sculpture of vertex variable, if more or less united with and similar to lateral sculpture and up to level of eyes (fig. 130) **then** sculpture less coarsely developed, and length of ovipositor sheath 2.4-2.7 times fore wing; depression below pronotal fold somewhat smaller (figs 64, 129); length of ivory subapical part of ovipositor sheath 0.9-1.6 times its dark apical part (figs 70, 132); pygidium of male distinctly narrowed apically and without deep lateral groove (figs 371, 374); paramere with medium-sized setosity apically (figs 371, 374); Moluccas, Philippines, New Guinea 41
- Note.— The differences between both following species are subtle and gradual. If the vertex is darkened anteriorly it concerns *M. coronator* from Batchian, Tidore, Halmahera, Salawatti or Dorey (= southwestern Vogelkop, Irian Jaya). I have seen *M. lucidus* only from New Guinea

(including eastern Vogelkop (Hattam region)).

40. Neck with medially widely separated carinae (fig. 44), both pairs of carinae strongly oblique and parallel (petal-like: figs 45, 46); with large cavity below pronotal fold (fig. 46); sculpture of vertex somewhat less regular laterally (fig. 44) *M. cambaensis* spec. nov.
- Neck with medially less far separated carinae (figs 152, 153, 156), carinae transverse to more or less oblique; if rarely strongly oblique then usually with a medium-sized cavity below fold (fig. 156); sculpture of vertex somewhat more regular laterally (fig. 152) *M. nigripoides* spec. nov.
Note.— Especially males tend to have the carinae of the neck more or less oblique.
41. Carinae of neck comparatively coarsely developed (figs 129, 491); subposterior carina (= largest one) of neck widely interrupted medially and more or less V-shaped (fig. 126), stronger than posterior carina (usually present at only one side) in lateral view (fig. 491); length of ovipositor sheath (2.1-)2.3-2.7 times fore wing; medial sculpture of vertex more or less contiguous with lateral sculpture (fig. 130); protruding apical part of hypopygium of male comparatively short and narrow in lateral view, with medium-sized punctures (fig. 371); digitus of male genitalia concave submedially (fig. 369); New Guinea (except southwestern Vogelkop)
..... *M. lucidus* (Szépligeti, 1902)
- Carinae of neck less coarsely developed (figs 64, 68); subposterior carina of neck usually not or narrowly interrupted and not or moderately V-shaped (figs 62, 361), about as strong as or somewhat stronger than posterior carina in lateral view (fig. 64); length of ovipositor sheath 1.8-2.3(-2.4) times fore wing; medial sculpture of vertex separated from lateral bell-shaped sculpture (figs 62, 363); head often more or less infusate antero-dorsally, but specimens from Ambon and Philippines lack infuscation; apical part of hypopygium of male comparatively large and wide in lateral view, with coarse punctures (fig. 374); digitus of male genitalia straight submedially (fig. 373); Moluccas, Philippines, southwestern Vogelkop
..... *M. coronator* (Fabricius, 1804)

Descriptions

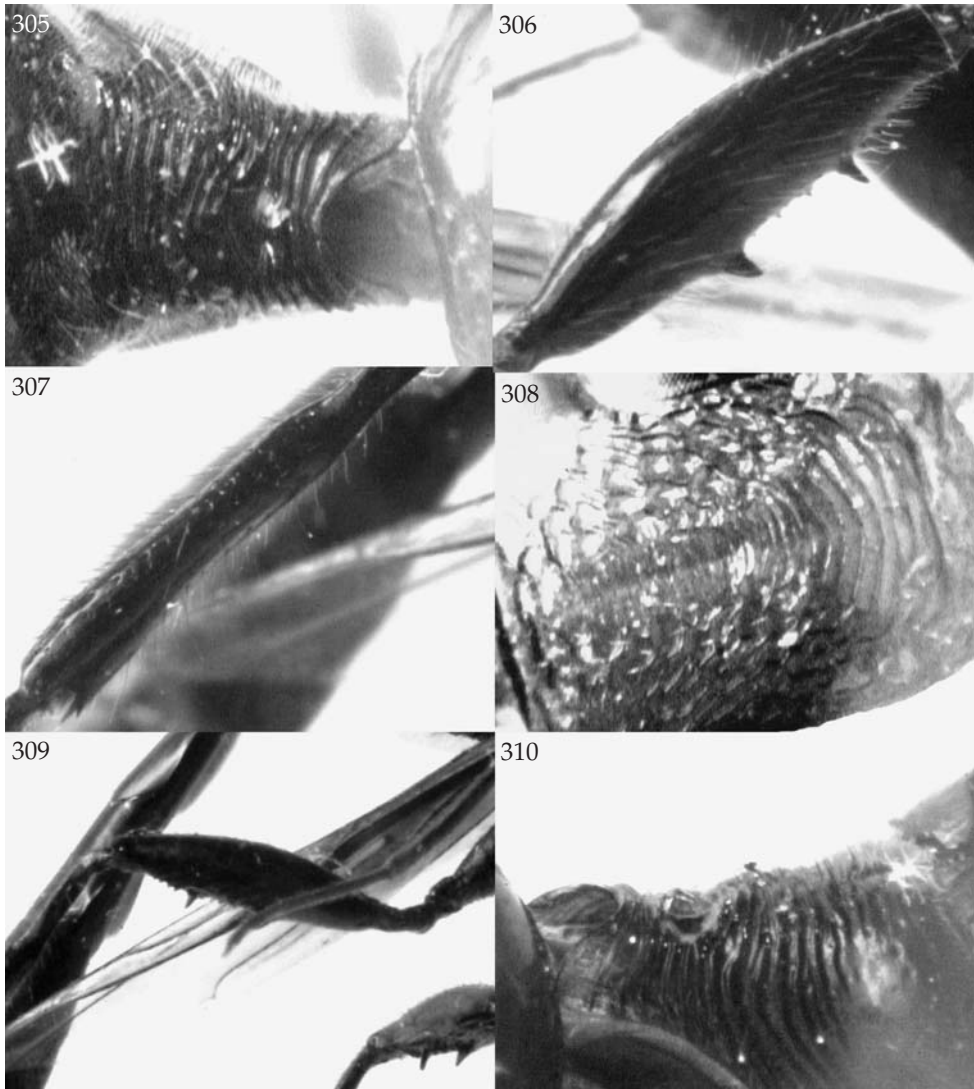
Megischnus angitibialis spec. nov.
(figs 18-27, 305-310)

?*Megischnus ruficeps*; Chao, 1964: 387, 388, pl. 2: 1-2, pl. 4: 13.

Material.— Holotype, ♀ (BMNH), "Malaysia, C.I.E.A. 17846", "F.R. Sarawak, FN 81-0339, Dalat Mudan, Keriring, F.R. Sg. Buloh 4C.L16, 10.vii.1981, Mercer, Yeo & Lippa", "*Stephanus coronator* Fab., det. A.K. Walker, 1986". Paratype: 1 ♀ (RMNH), "Mus. Leiden, Exp. Ijzerman", "Ijzerman Exp. = C. Sumatra, 1891", "*Megischnus coronator* (F.), A.P. Aguiar det/99, ♀".

Holotype, ♀, length of body 28.9 mm, and of fore wing 15.6 mm.

Head.— Length of third antennal segment 2.7 times its maximum width, and fourth segment 1.1 times as long as third segment, antenna with 49 segments; frons rather convex, coarsely curved rugose; three anterior coronal teeth large, lobe-shaped, both posterior ones small and part of transverse lamella widened halfway between



Figs 305-310, *Megischus angitibialis* spec. nov., ♀, holotype. 305, neck, dorsal aspect; 306, hind femur; 307, hind tibia; 308, vertex, dorsal aspect; 309, part of hind leg; 310, neck, latero-dorsal aspect.

middle and end; after this lamella six regular and rather weak and more or less curved carinae followed by slightly depressed area with short and coarse regular transverse carinae, laterally more reticulate rugose and more or less forming bell-shaped pattern with anterior carinae posteriorly close to occipital carina (figs 19, 308); temples roundly narrowed posteriorly, smooth and shiny, except for some punctures near eye; occipital carina complete ventrally, ending near lower level of eyes and close to hypostomal carina, area between carina and moderately strong hypostomal carina finely punctate; postgenal bridge (directly behind hypostomal carina), wide groove-like depressed and

without lateral teeth; hypostomal flange rather large and with rugae.

Mesosoma.— Neck robust and anteriorly distinctly concave (figs 18, 305), neck postero-dorsally at somewhat lower level than middle part of pronotum, with small flattened part postero-medially and with two strong and complete transverse carinae and some incomplete carinae (fig. 18); pronotal fold absent (fig. 20), middle part of pronotum with eight rather weak transverse carinae, which are laterally largely present; no median carina anteriorly, middle part distinctly differentiated from posterior part of pronotum, and latero-posteriorly rather weakly protruding (fig. 18); posterior part of pronotum largely with dense short setosity, including postero-medially and with a few coarse punctures and posteriorly with some short crenulae; propleuron sparsely coarsely punctate; convex part of mesopleuron without dense setosity, but with rather sparse short setosity and coarsely punctate-reticulate; mesosternum largely smooth and densely rather long setose posteriorly; convex part of metapleuron coarsely reticulate, rather elongate and with rather sparse short setosity below long whitish setae, both anterior depressions deep and large; propodeum coarsely and moderately densely foveolate, partly with smooth interspaces as wide as fova (fig. 24).

Wings.— Fore wing (fig. 26): vein 1-M 7.2 times as long as vein 1-SR and 1.4 times vein m-cu; vein 2-SR 1.1 times as long as vein r; vein r ends 0.7 times length of pterostigma behind level of apex of pterostigma.

Legs.— Hind coxa rather robust spindle-shaped, largely transversely striate, but basally more rugose; hind femur slender (fig. 23), without short setosity; outer side of hind tibia parallel-sided, gradually widened submedially and straight ventrally (fig. 307), inner side rather convex, narrow basal part of tibia with many bristly setae, mainly in a triple row, and with distinct transverse medial depression; hind basitarsus parallel-sided, slender (fig. 22), its ventral length 6.7 times its width.

Metasoma.— First tergite 7.4 times as long as its maximum width (and 9.3 times its apical width), ending far behind level of end of hind coxa and distinctly narrowed apically, and densely regularly transversely rugose but basal third irregularly rugose and apically narrowly smooth; basally second tergite with few weak curved rugae; third and following tergites micro-sculptured; pygidial area well delimited surrounded by densely setose area, shiny and with some fine punctures subbasally and long and mainly straight setae; length of ovipositor sheath 2.4 times fore wing (and 1.3 times longer than body), its ivory part 2.6 times as long as dark apical part.

Colour.— Black; head orange-red; scapus and pedicellus yellowish-brown, remainder of antenna dark brown; malar space and area up to hypostomal flange ivory, not contrasting with temple (fig. 20); fore and middle legs (except blackish coxae) dark brown; neck brown anteriorly; hind tarsus blackish; basal half of fore wing largely distinctly infusate, and remainder of fore wing membrane weakly infusate.

Distribution.— Sunda region: Malaysia (Borneo: Sarawak); Indonesia (Sumatra).

Notes.— The paratype has fore wing more evenly infusate; depressed area of neck with sort median carina, hypostomal flange only punctate and vein r ends 0.5 times length of pterostigma behind level of apex of pterostigma. The ovipositor sheath is about 1.2 times length of body in the southern Chinese *Megischus ruficeps* sensu Chao, 1964, which may belong here. The only known female in the collection of the late Prof. Chao from Foochow (Fukien) was not available for study.

Megischus angularis spec. nov.
(figs 28-35)

Material.— Holotype, ♀ (RMNH) “[Indonesia], N.O Sumatra, Serdang, Tandjong Morawa, Dr. B. Hagen”.

Holotype, ♀, length of body 25.3 mm, and of fore wing 12.9 mm.

Head.— Antenna incomplete, middle segments rather constricted medially; length of third antennal segment 3.4 times its maximum width, and fourth segment 1.7 times as long as third segment (fig. 30; with small circular sensillae); frons with rather fine and dense rugosity, dorsally with some oblique elements (fig. 29); three anterior coronal teeth rather large, lobe-shaped, both posterior ones rather small, evenly wide and not part of a sinuate lamella; after this with four strong, regular and complete transverse lamelliform carinae; this area continuous with slightly convex vertex, not depressed and with rather fine and dense regular transverse rugae, posteriorly superficially rugulose, not reaching rather strong occipital carina and laterally finely transversely rugose (fig. 29); head rather robust (fig. 29); temples smooth, strongly shiny, and strongly angularly protruding (figs 28, 29); occipital carina weakly developed ventrally, but reaching hypostomal flange; hypostomal carina strong, lamelliform; postgenal bridge widely and gradually declivous behind wide lamelliform hypostomal carina; hypostomal flange comparatively large, distinctly differentiated and smooth except for some micro-striae.

Mesosoma.— Neck robust and anteriorly weakly concave, without upcurved sub-anterior transverse crest, flat and smooth medio-posteriorly, with a rather weak and narrowly interrupted carina, followed by two strong carinae (only last one widely interrupted), slightly converging to pronotal fold (fig. 28), neck postero-dorsally at much lower level than middle part of pronotum (fig. 31); pronotal fold strong, weakly sinuate and below it with rather deep concavity (fig. 31); middle part of pronotum behind fold distinctly concave and with one strong complete transverse carina, without median keel, followed by seven densely spaced weaker transverse carinae, laterally without distinct oblique groove, middle part not distinctly differentiated from posterior part of pronotum (fig. 31); posterior part of pronotum completely covered with dense short setosity and with few coarse widely spaced setiferous punctures, posterolaterally strongly convex (fig. 29) and with rather long crenulae; propleuron missing; convex part of mesopleuron coarsely foveolate-punctate with area in front more or less elevated, anteriorly resulting in weak rugae, with dense short setosity; side of scutellum sparsely medium-sized setose; mesosternum largely smooth (except some punctures anteriorly) and posterior third largely with short setosity; convex part of metapleuron coarsely reticulate, moderately robust and densely, rather long whitish setae, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with medium-sized smooth interspaces.

Wings.— Fore wing (fig. 35): vein 1-M 7.0 times as long as vein 1-SR and 1.3 times vein m-cu; vein 2-SR nearly as long as vein r; vein r ends 0.6 times length of pterostigma behind level of apex of pterostigma and 0.7 times as long as parastigmal vein.

Legs.— Hind coxa rather slender spindle-shaped, largely transverse rugose (fig. 34); apical 0.6 of outer side of hind femur largely short setose and smooth except for

punctulation; basal 0.4 of hind tibia weakly narrowed, flattened and submedially very gradually depressed (fig. 34) and apical half of hind tibia of ♀ not distinctly swollen and ventrally straight (fig. 34), partly short setose, with few coarse punctures and largely superficially micro-granulate, inner side rather convex, with numerous punctures in a triple row and rather long bristly setose medially (also basally), and with distinct transverse depression; hind basitarsus somewhat widened apically, rather slender (fig. 33), its ventral length 4.9 times its width.

Metasoma.— First tergite 11.1 times as long as its maximum width (and 11.6 times its apical width), without distinct medio-longitudinal carina or rugae basally, and densely regularly transversely rugose but basal fifth irregularly rugose and apically narrowly smooth; basally second tergite with few distinct rugae; remainder of second tergite and following tergites matt and micro-sculptured; pygidial area largely smooth and glabrous, shiny, strongly semicircularly convex and apically thick, and with coarse punctures subbasally, with long straight setae surpassing apex of metasoma, and medio-apically without protuberance; length of ovipositor sheath 2.5 times fore wing (and 1.3 times as long as body), ivory part 2.2 times as long as its dark apical part.

Colour.— Black; malar space, clypeus, face largely and temple anteriorly and ventrally largely yellowish-ivory, weakly contrasting with remainder of temple and vertex (figs 29, 31); remainder of head and neck anteriorly, rather dark orange-brown; antenna (but scapus and pedicellus yellowish-brown), palpi, tegulae, (fore leg missing), middle leg (but coxa blackish), veins and pterostigma (except paler base) dark brown; apical 0.6 of hind tibia and hind tarsus blackish-brown, wing membrane almost subhyaline, with a medial weak infusate band.

Distribution.— Borneo.

Note.— One of the most aberrant species in the Oriental region by the relatively long fourth antennal segment, the angulate temples (as in e.g., *Profenatopus ellioti* (Ceballos) from Madagascar), the yellowish-ivory temples anteriorly, the fine and nearly completely transverse sculpture of the vertex, and the strongly semicircularly convex pygidial area.

Megischus anomalipes (Foerster, 1855)
(figs 311-322)

Stephanus anomalipes Foerster, 1855: 228; Schletterer, 1889: 93; Kieffer, 1904a: 487; Elliott, 1922: 731-732.

Megischus anomalipes; Sichel, 1866: 485; Madl, 1991: 122-123.

Bothriocerus europaeus Sichel, 1861: 759; Madl, 1991: 122 (synonymy).

Megischus europaeus; Sichel, 1866: 484, 487 (as darker variety of *M. anomalipes* (Foerster)).

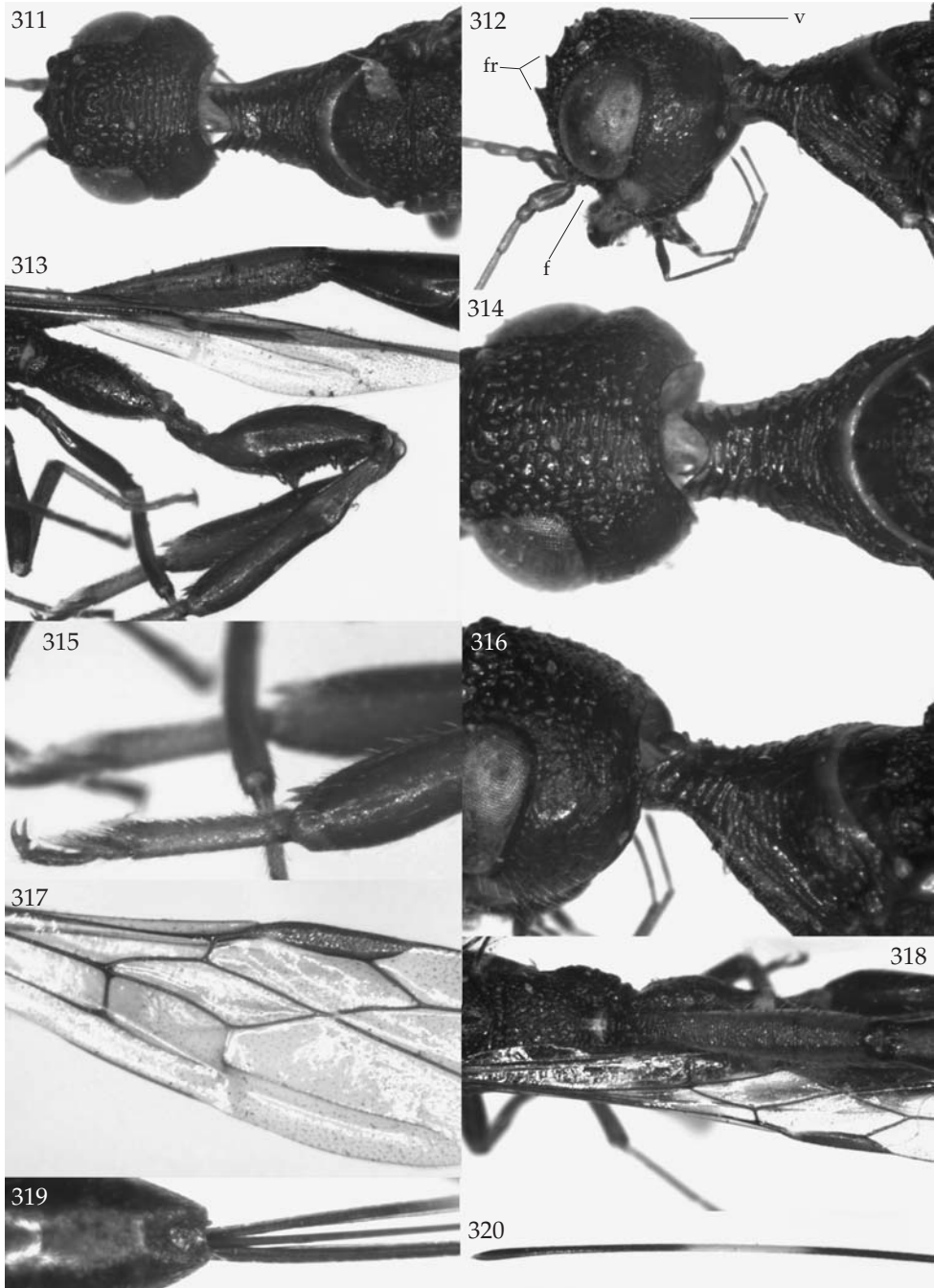
Stephanus europaeus; Schletterer, 1889: 95; Kieffer, 1904a: 486; Elliott, 1922: 730.

Stephanus athesinus Bieggelben, 1929: 211; Madl, 1991: 122 (synonymy).

Material.— 1 ♀ (RMNH), "France (Var), Taradeaux, 14.ix.1986, M.J. Gijswijt, RMNH'86".

Redescribed after ♀ from France, length of body 11.2 mm (9-16 mm according to Madl, 1991), and of fore wing 5.7 mm.

Head.— Length of third antennal segment 2.5 times its maximum width, and fourth segment 1.4 times as long as third segment (fig. 312), antenna with 32 segments (up to 40 according to Madl, 1991); frons rather convex, moderately rugose-reticulate;



Figs 311-320, *Megischus anomalipes* (Foerster), ♀, France. 311, head and pronotum, dorsal aspect; 312, head and pronotum, lateral aspect; 313, hind leg; 314, head and pronotum, dorsal aspect; 315, hind tarsus; 316, vertex and pronotum, latero-dorsal aspect; 317, part of fore wing; 318, first metasomal tergite, dorsal aspect; 319, pygidium, dorsal aspect; 320, apex of ovipositor sheath. Abbreviations: fr = frons; f = face; v = vertex.

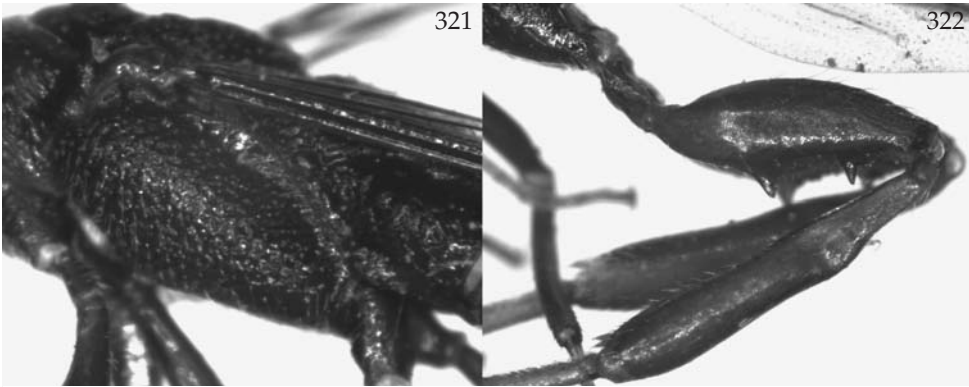
three anterior coronal teeth large, wide lobe-shaped, both posterior ones medium-sized and lobe-shaped, not part of lamella; after these teeth one strong and regular weakly curved carina followed by slightly convex area with coarse vermiculate rugosity, followed by rather irregular transverse rugae reaching occipital carina, laterally finer transversely rugose behind eyes, without bell-shaped pattern (figs 311, 314); temples weakly angulate and posteriorly roundly narrowed, laterally rugulose dorsally (fig. 314), remainder with large punctures and with row of coarse punctures near eye; occipital carina nearly complete ventrally, ending near lower level of eyes among several short carinae and close to hypostomal carina, area between carina and medium-sized hypostomal carina carinate; postgenal bridge wide and gradually declivous; hypostomal flange large and with rugae.

Mesosoma.— Neck robust and anteriorly distinctly concave (fig. 311), neck postero-dorsally at somewhat lower level than middle part of pronotum, with small flattened part postero-medially and with two strong and complete transverse carinae and one incomplete carina (fig. 312); pronotal fold absent (fig. 312), middle part of pronotum with eight weak and irregular transverse carinae (as laterally); no median carina anteriorly, middle part weakly differentiated from posterior part of pronotum, and latero-posteriorly rather weakly convex (fig. 314); posterior part of pronotum (except posteriorly, but including laterally) largely transversely irregularly rugose as middle part of pronotum, without short setosity, and without punctures and posteriorly with some long crenulae; propleuron rugose, especially laterally and without punctures; mesopleuron without dense setosity, and largely finely reticulate-rugulose, but ventrally smooth (fig. 321); mesosternum largely smooth (except a few punctures) and largely glabrous; convex part of metapleuron coarsely reticulate, rather robust and without short setosity, both anterior depressions shallow and large; propodeum coarsely and densely reticulate, without smooth interspaces (fig. 318); posterior exposed part of mesoscutum, axillae and scutellum laterally coarsely reticulate, without smooth interspaces; scutellar sulcus wide and crenulate.

Wings.— Fore wing (fig. 317): vein 1-M 5.8 times as long as vein 1-SR and 1.1 times vein m-cu; vein 2-SR 1.3 times as long as vein r; vein r ends 0.1 times length of pterostigma behind level of apex of pterostigma.

Legs.— Hind coxa robust spindle-shaped, largely transversely and sparsely irregularly rugose (fig. 313); hind femur moderately robust (figs 313, 322), largely superficially granulate, without short setosity, and especially basal tooth robust (figs 313, 322); basal part of hind tibia about a quarter as long as tibia and robust, and gradually widened ventrad (fig. 313; in all other *Megischus* species except both Australian species, this part is about 0.4 times as long as tibia and more slender), posterior part subparallel-sided, gradually narrowed apically and straight ventrally (fig. 315), inner side distinctly convex, narrowed basal part of tibia without bristly setae in a row, and with distinct transverse medial depression; hind basitarsus parallel-sided, slender (fig. 315), its ventral length 5.4 times its width.

Metasoma.— First tergite 5.6 times as long as its maximum width (and 6.3 times its apical width), ending far behind level of end of hind coxa and distinctly narrowed apically, and densely regularly transversely rugose (fig. 318) but basal third irregularly rugose and apically narrowly smooth; basally second tergite with a widely interrupted curved rugae and largely smooth; remainder of second and following tergites



Figs 321-322, *Megischus anomalipes* (Foerster), ♀, France. 321, mesopleuron; 322, part of hind leg.

micro-sculptured; pygidial area well delimited surrounded by densely setose area, shiny and with some fine punctures submedially and short straight setae; length of ovipositor sheath 2.2 times fore wing (and 1.1 times longer than body), its ivory part 0.6 times as long as dark apical part (fig. 320).

Colour.— Blackish-brown; temple, vertex posteriorly, and pronotum, dark chestnut brown; malar space with large ivory patch distinctly contrasting with temple (fig. 316); middle and hind coxae and femora dark brown; tarsi, first tergite and tegulum yellowish-brown; antenna (but second-sixth segments rather pale), humeral plate and remainder of legs brown; wing membrane weakly infusate, subhyaline.

Distribution.— Hungary, Italy (Sicily), Yugoslavia, Romania, Portugal (Madeira), Spain, France (new record).

Megischus atriceps (Kieffer, 1916)
(figs 323-334)

Stephanus tinctipennis var. *atriceps* Kieffer, 1916: 405 [examined].

Stephanus atriceps; Elliott, 1927: 217.

Megischus atriceps; Baltazar, 1966: 16.

Stephanus variantius Elliott, 1926: 518; Baltazar, 1966: 17 (synonymy) [examined].

Stephanus spec.; Bibby, 1947: 79 (listed, distribution (Calicoan Isl.)).

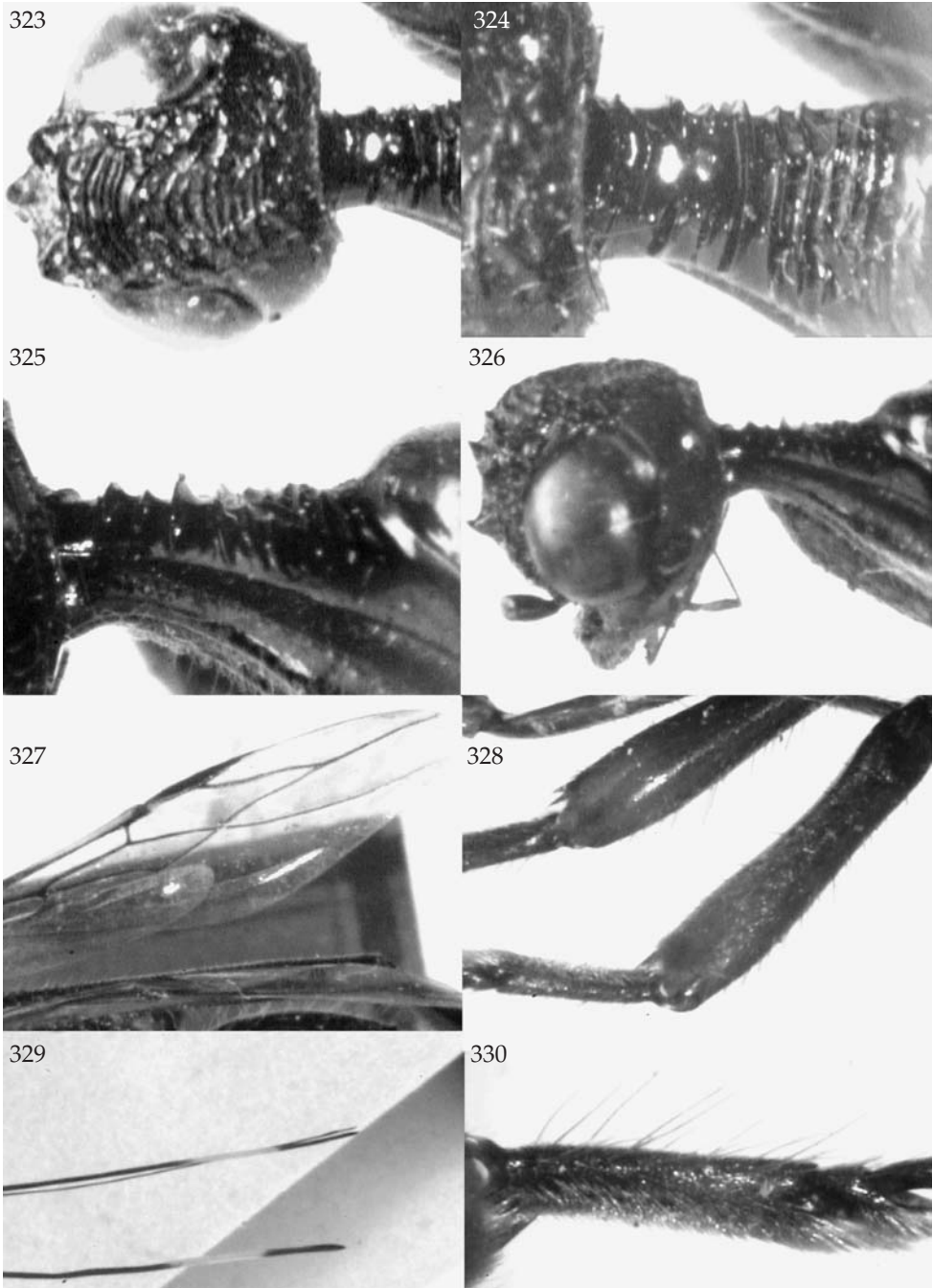
?*Stephanus rugicaput* Elliott, 1927: 228 [♂, holotype lost?, not found in USNM or BMNH, probably a male of *M. variantius* according to Elliott (1927)].

Megischus rugicaput; Baltazar, 1966: 17.

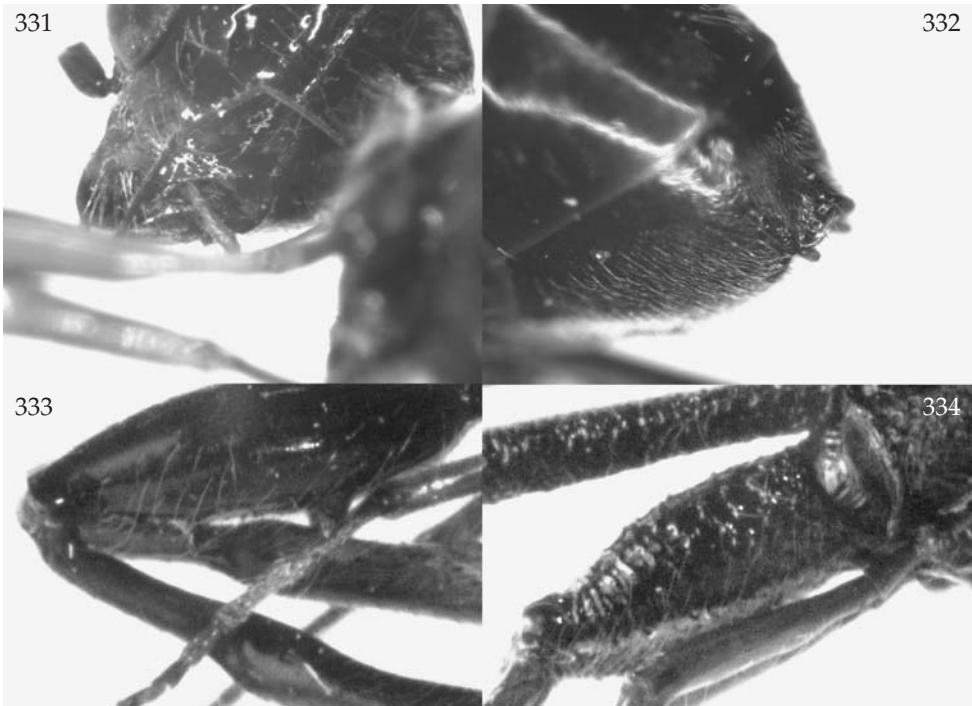
Material.— Lectotype of *Stephanus tinctipennis* var. *atriceps* here designated, ♀ (USNM), “[Philippines], Mindanao, Dapitan, Baker”, “*S. atriceps* (Kieffer) Elliott”, “*Stephanus atriceps* Elliott”. Lectotype of *Stephanus variantius* here designated, ♀ (USNM), “[Philippines], Mindanao, Davao, Baker”, “21426”, 1 ♀ (USNM), paralectotype, “[Philippines], Mindanao, Davao, Baker”, “21412”, “*Stephanus variantius*” (recent label), 1 ♀ (BMNH), paralectotype, “Davao, Mindanao, Baker”, “Brit. Mus., 1925-106”, B.M. Hym. Type 3.a.1”, “*Stephanus variantius* Elliott”.

Lectotype of *M. atriceps*, ♀, length of body 24.8 mm, and of fore wing 13.2 mm.

Head.— Antenna missing, (of paralectotype from Mindanao (USNM) length of



Figs 323-330, *Megischus atriceps* (Kieffer), ♀, lectotype. 323, head and pronotum, dorsal aspect; 324, pronotum, dorsal aspect; 325, pronotum, lateral aspect; 326, head and pronotum, lateral aspect; 327, part of fore wing; 328, part of hind leg; 329, apex of ovipositor sheath; 330, hind basitarsus.



Figs 331-334, *Megischus atriceps* (Kieffer), ♀, lectotype. 331, head, latero-ventral aspect; 332, pygidium, latero-dorsal aspect; 333, part of hind leg; 334, hind coxa.

third antennal segment 3.0 times its maximum width, and fourth segment 1.3 times as long as third segment); frons very coarsely transversely rugose ventrally, and curved reticulate-rugose dorsally; three anterior coronal teeth large, lobe-shaped, both posterior ones small, part of sinuate transverse lamella a quarter from both ends; after this lamella four strong complete regular and somewhat curved lamelliform carinae followed by flattened, transversely carinate area and laterally very coarsely reticulate and almost reaching occipital carina (fig. 323); temples smooth and shiny, except for some strong punctures; occipital carina reduced ventrally and not reaching hypostomal carina and ends above lower level of eye (fig. 331); postgenal bridge widely and gradually declivous; hypostomal flange large and without distinct rugae, only with some punctures (fig. 331).

Mesosoma.— Neck elongate and anteriorly subtruncate, neck postero-dorsally at hardly lower level than middle part of pronotum (fig. 325), with rather large flat and smooth area postero-medially, with one complete transverse carina anteriorly distinctly removed from anterior rim, and two widely interrupted and rather strong carinae; pronotal fold strong, vertical, and without depression (fig. 324); middle part of pronotum with five nearly complete and strong transverse carinae and with short median carina directly behind pronotal fold, middle part well separated from posterior part of pronotum, and pronotum latero-posteriorly moderately convex (fig. 325); posterior part of pronotum largely without short setosity, with few coarse punctures and latero-

posteriorly with crenulate; propleuron with some sparse coarse punctures; convex part of mesopleuron densely short setose and more or less coarsely foveolate-punctate and more or less elevated in front of punctures; mesosternum largely smooth but posteriorly densely short setose; convex part of metapleuron coarsely reticulate, rather elongate and distinctly moderately densely and rather short setose below long whitish setae, both anterior depressions deep and large; propodeum largely coarsely foveolate, and with distinct smooth interspaces.

Wings.— Fore wing (fig. 327): vein 1-M 6.4 times as long as vein 1-SR and 1.3 times vein m-cu; vein 2-SR 0.9 times as long as vein r; vein r ends 0.6 times length of pterostigma behind level of apex of pterostigma; vein 1-SR 0.7 times parastigmal vein.

Legs.— Hind coxa spindle-shaped, with spaced transverse short rugae (fig. 334); apical 0.6 of hind femur with short setosity, largely smooth and shiny; outer side of hind tibia below depression nearly parallel-sided and slender, nearly straight ventrally (fig. 328), inner side rather convex, with many fine punctures more or less in a triple row (but basally largely in double row) and with distinct transverse depression; hind basitarsus subparallel-sided, rather slender (fig. 330), its ventral length 4.4 times its width.

Metasoma.— First tergite 10.0 times as long as its maximum width or apical width, and densely regularly transversely striate but basally more irregularly rugose and apically smooth, parallel-sided; basally second tergite with some distinct rugae and remainder smooth and shiny; third and following tergites micro-sculptured, matt; pygidial area moderately convex, largely smooth, shiny and without distinct punctures medially, and with long straight setae (fig. 322); length of ovipositor sheath 2.0 times fore wing (and slightly longer than body), ivory part 1.2 times as long as its dark apical part (fig. 329).

Colour.— Black or dark brown; malar space and temple ventrally largely pale orange-yellow, moderately contrasting with temple; remainder of head black; palpi, tegulae largely, fore and middle legs (except dark coxae), basal and apical third of hind tibia, hind tarsus and hind trochantellus dark orange-brown; middle third of hind tibia, veins and pterostigma dark brown, but base of pterostigma narrowly yellowish; mainly first subdiscal cell of fore wing rather infuscate, remainder of wings largely light brownish.

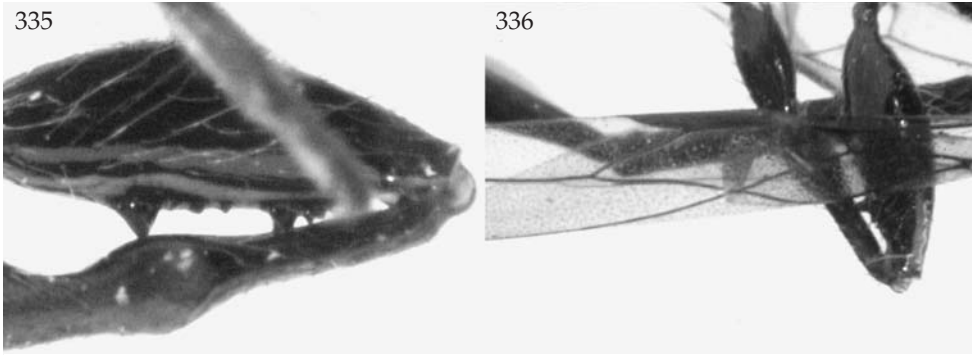
Distribution.— Philippines (Mindanao).

Variation.— Types have the hind basitarsus 4.2-4.8 times (of ♀, about 5.6 times in ♂) as long as wide and rather slender, but may be slightly widened apically; legs (except coxae and hind femur) completely orange-brown; malar space and temple ventrally may be large ivory; antennal segments of ♀ 40-44, of ♂ 35; ivory part of ovipositor sheath 1.2 times its dark part; length of fore wing 13-16.2 mm, and length of ovipositor sheath 1.9-2.0 times fore wing.

Megischus breviannulatus spec. nov.
(figs 36-43, 335-336)

Material.— Holotype, ♀ (CNC), “[Indonesia], Halmahera I[sland], ca 500 m, ix.[19]51, col. Wegener”.

Holotype, ♀, length of body 14.1 mm, and of fore wing 8.2 mm.



Figs 335-336, *Megischus breviannulatus* spec. nov., ♀, holotype. 335, detail of hind femur and tibia; 336, part of fore wing.

Head.— Antenna incomplete; length of third antennal segment 2.6 times its maximum width, and fourth segment 1.3 times as long as third segment; frons with few widely spaced transverse rugae and dorsally rugae curved; three anterior coronal teeth large, lobe-shaped, both posterior ones small, part of wide sinuate transverse lamella, which is weakly narrowed medially; after this lamella two strong regular curved lamelliform carinae followed by weakly convex area with some weak rugae anteriorly and remainder largely smooth, except some short transverse carinae (figs 36, 37); temple roundly narrowed behind eyes (fig. 36), smooth (except for some punctulation) and shiny; occipital carina weak ventrally and absent above lower level of eyes, remaining distinctly removed from hypostomal carina (fig. 42); postgenal bridge widely and gradually declivous; hypostomal flange large, and with some punctures.

Mesosoma.— Neck slender (fig. 39) and anteriorly slightly emarginate, with three curved carinae anteriorly, followed by two widely interrupted carinae, postero-dorsally at lower level than middle part of pronotum, flat medio-posteriorly (fig. 36); pronotal fold strongly developed, triangularly elevated medially and below it with distinct concavity (fig. 38); with rather long median carina directly behind pronotal fold and with six incomplete distinct transverse carinae, middle part weakly differentiated from posterior part of pronotum (fig. 38); posterior part of pronotum evenly protruding postero-laterally (fig. 39), largely glabrous, without short setosity and with some setiferous punctures, posteriorly crenulate; propleuron sparsely and moderately coarsely punctate; convex part of mesopleuron with rather short whitish and rather sparse setosity and spaced rugose; mesosternum largely smooth, without short setosity; convex part of metapleuron coarsely reticulate, rather elongate and with dense rather short whitish setosity, both anterior depressions deep and large; propodeum coarsely foveolate with only narrow smooth interspaces.

Wings.— Fore wing (fig. 336): vein 1-M 5.9 times as long as vein 1-SR and 1.4 times vein m-cu; vein 2-SR 1.3 times vein r; vein r ends 0.2 times length of pterostigma behind level of apex of pterostigma; vein 1-SR half as long as parastigmal vein.

Legs.— Hind coxa rather slender spindle-shaped, largely with mainly short transverse and coarse rugae; apical half of hind femur with short setosity, femur robust and swollen (fig. 335); outer side of hind tibia steeply depressed at widened part near

end of narrow basal part (figs 42, 335), ventrally deeply concave and apical part robust (fig. 42), inner side rather convex, without row of fine punctures and with deep transverse depression; hind basitarsus distinctly widened and oblique apically (fig. 41), its ventral length 3.3 times its width.

Metasoma.— First tergite 12.5 times as long as its maximum width (and 12.5 times its apical width), and densely regularly transversely striate but less regularly basally and apically narrowly smooth; basally second tergite coarsely transversely rugose medially; pygidial area moderately differentiated, smooth and without distinct punctures, setae rather long; length of ovipositor sheath 1.6 times fore wing (and 0.9 times body), ivory part 3.0 times as long as dark apical part (fig. 43).

Colour.— Dark brown; head, scapus, pedicellus, tegulae and hind tarsus yellowish-brown; fore and middle legs (except for coxae) brown; malar space pale yellowish, not contrasting with temple and vertex (fig. 40); veins and pterostigma more or less dark brown; fore wing membrane evenly weakly brownish.

Distribution.— Indonesia (Halmahera).

Note.— It is unlikely that this new species represents the female of the enigmatic *M. rufus* (Elliott) because of for example, the different sculpturing of the propodeum and the vertex.

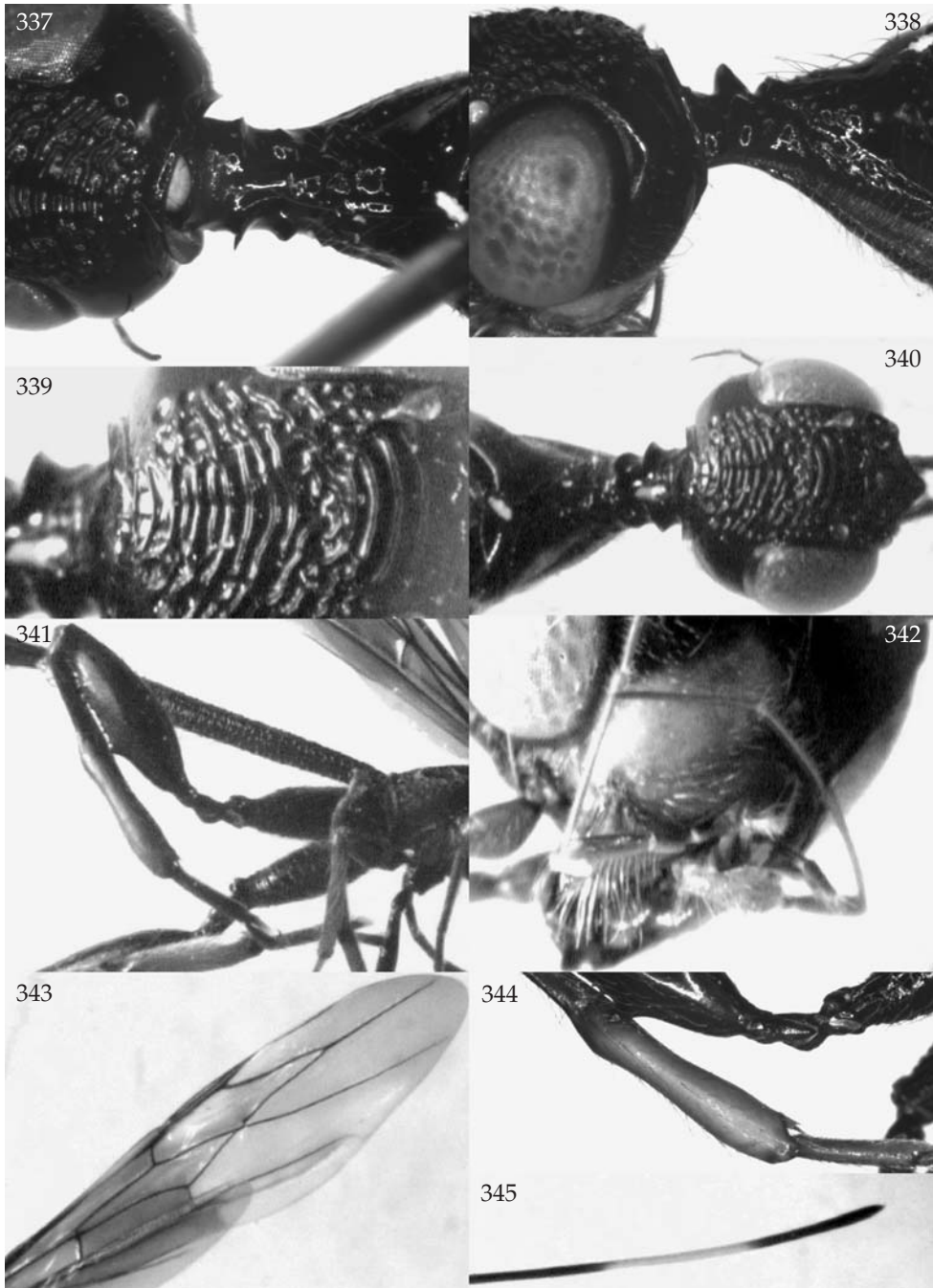
Megischnus bungaensis spec. nov.
(figs 337-352)

Material.— Holotype, ♀ (RMNH), "Indonesia: C Sulawesi, nr Luwuk, Bunga, c 300 m, 1-14.xi.1989, Mal. trap 17, C. v. Achterberg, RMNH'89". Paratype: 1 ♂ (RMNH). "Indonesia: C Sulawesi, nr Luwuk, Salodik, 300-400 m, 3.xi.1989, C. v. Achterberg & M. Tulung, RMNH'89".

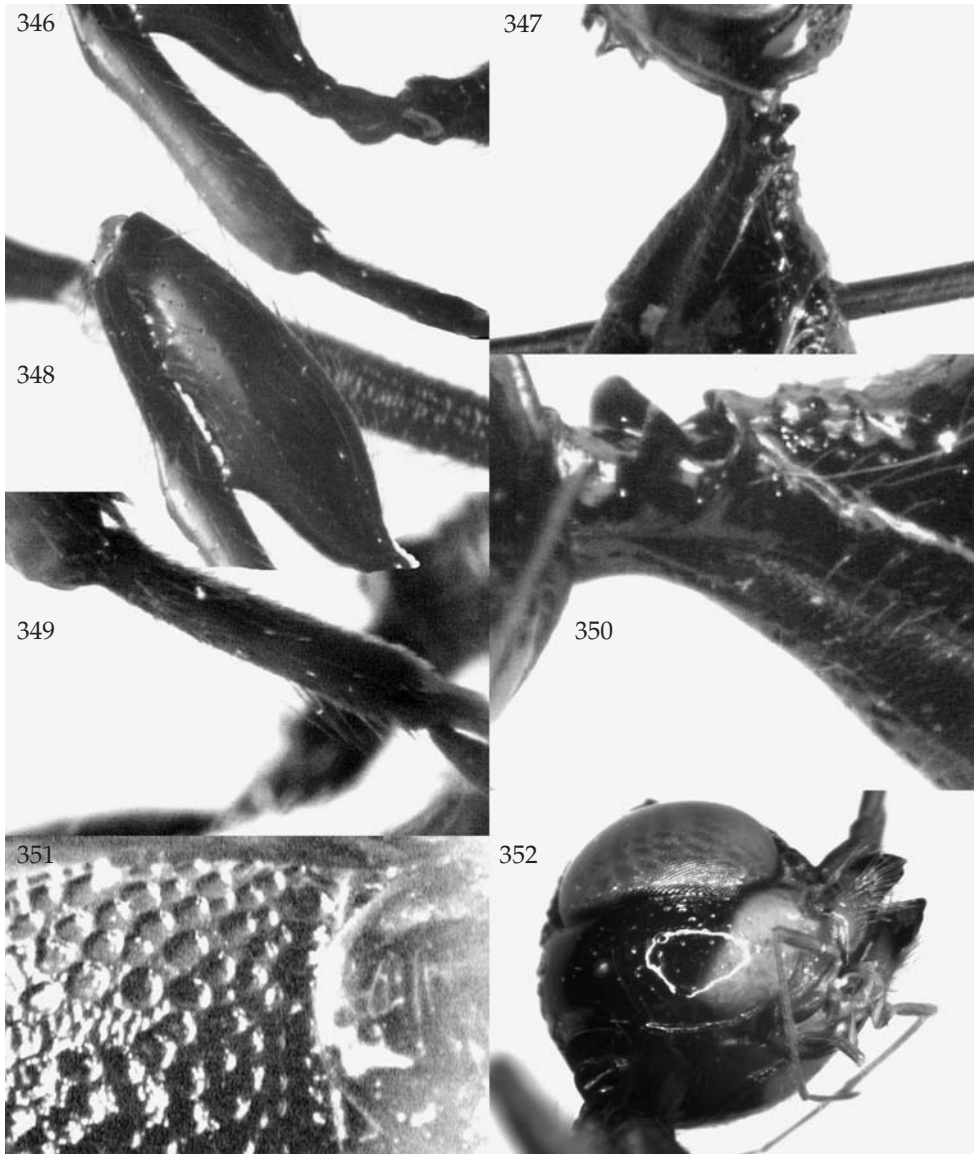
Holotype, ♀, length of body 22.5 mm, and of fore wing 12.5 mm.

Head.— Antenna with 37 segments; length of third antennal segment 3.3 times its maximum width, and fourth segment 1.2 times as long as third segment (with many circular multiporous plate sensillae); frons very coarsely reticulate; three anterior coronal teeth large, lobe-shaped, both posterior ones small, part of transverse, nearly straight lamella widened towards both ends; after this lamella four strong complete regular lamelliform carinae followed by flattened area with coarse regular transverse rugae reaching almost occipital carina and near eye coarsely reticulate (figs 339, 340); temples largely smooth and shiny, except for several rather coarse punctures and roundly narrowed; occipital carina strongly developed and almost reaching hypostomal carina (fig. 352); postgenal bridge widely and gradually declivous behind wide lamelliform hypostomal carina (fig. 352); hypostomal flange comparatively large and with one long strong rugae separating it from temple (fig. 342).

Mesosoma.— Neck elongate and anteriorly slightly concave (fig. 337), neck postero-dorsally at much lower level than middle part of pronotum, flat and smooth medially, with a pair of very strong ear-like carinae laterally converging to pronotal fold (stronger than pronotal fold and far removed from it) (figs 338, 350), with one weak anterior carina anteriorly, near narrow and somewhat uplifted anterior margin; pronotal fold strong, sinuate and below it with large concavity; middle part of pronotum without transverse carinae dorsally, but with small protuberance and several very coarse punctures, laterally without distinct oblique groove, with one short carina



Figs 337-345, *Megischus bungaensis* spec. nov., ♀, holotype. 337, vertex and pronotum, dorsal aspect; 338, vertex and pronotum, latero-dorsal aspect; 339, vertex, dorsal aspect; 340, head and pronotum, dorsal aspect; 341, hind leg; 342, head, latero-ventral aspect; 343, part of fore wing; 344, part of hind leg; 345, apex of ovipositor sheath.



Figs 346-352, *Megischus bungaensis* spec. nov., ♀, holotype. 346, part of hind leg; 347, pronotum, lateral aspect; 348, hind femur; 349, hind basitarsus; 350, neck, latero-dorsal aspect; 351, propodeum; 352, head, latero-ventral aspect.

and no median carina directly behind pronotal fold, middle part gradually merging into posterior part of pronotum (figs 337, 338); posterior part of pronotum largely glabrous, without short setosity and with several very coarse punctures, and posterolaterally with some short crenulae; propleuron coarsely and rather extensively punctate; convex part of mesopleuron without short whitish dense setosity and coarsely

reticulate-rugose anteriorly and mainly punctate posteriorly; mesosternum largely smooth (except some punctures) and narrowly short setose posteriorly; convex part of metapleuron coarsely reticulate, rather elongate and densely rather long whitish setae, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with narrow smooth interspaces (fig. 351).

Wings.— Fore wing (fig. 343): vein 1-M 7.1 times as long as vein 1-SR and 1.5 times vein m-cu; vein 2-SR nearly as long as vein r; vein r ends 0.5 times length of pterostigma behind level of apex of pterostigma and 1-SR 0.7 times as long as parastigmal vein.

Legs.— Hind coxa elongate spindle-shaped, medially largely smooth, basally rugose, with some short transverse rugae; hind femur without short setosity and outer side largely superficially and very finely granulate; outer side of hind tibia gradually depressed, ventrally slightly concave and apically slender (figs 341, 344, 346), inner side somewhat flattened basally, with many punctures more or less in a triple row and bristly setose, and with distinct transverse depression; hind basitarsus nearly parallel-sided, slender (fig. 349), its ventral length 4.8 times its width.

Metasoma.— First tergite 10.0 times as long as its maximum width (and 11.1 times its apical width), and densely rather irregularly transversely striate but basal third irregularly rugose and apically narrowly smooth, slightly narrowed posteriorly; basally second tergite narrowly superficially rugose; second and following tergites matt and superficially finely granulate; pygidial area coriaceous, densely setose, medially distinctly convex and without distinct punctures, with long straight setae; length of ovipositor sheath 1.9 times fore wing (and about as long as body), ivory part 1.1 times as long as its dark apical part (fig. 345).

Colour.— Black; face medially brownish; face laterally, malar space and large part of temple ventrally ivory, distinctly contrasting with remainder of temple and vertex (figs 342, 352); outer side of fore and largely middle femora and tarsi dark brown; hind tarsus, tegulae, veins and pterostigma rather dark brown; base of antenna, remainder of fore and middle legs (except dark coxae and telotarsi), and apical half of hind tibia yellowish-brown; basal half of fore wing and hind wing membrane evenly brown (fig. 343), and apical half of fore wing slightly infusate.

Distribution.— Indonesia (Sulawesi).

Notes.— Male paratype has antenna with 32 segments and neck with pair of medium-sized carinae between ear-like carinae and pronotal fold.

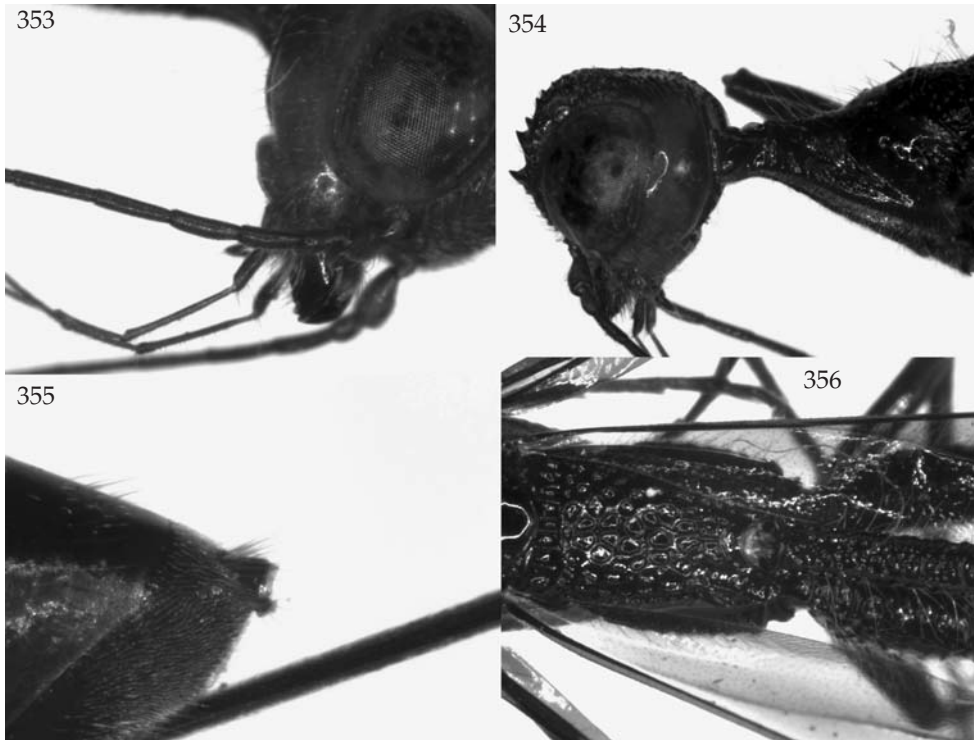
M. bungaensis resembles *M. tarsalis* but the latter has the postgenal bridge steeply (almost perpendicularly) declivous, the carinae of the neck closer to the pronotal fold, the fore wing slightly infusate basally (less than medially), the pronotum is coarsely sculptured and usually less slender.

Megischnus cambaensis pec. nov.
(figs 44-52, 353-356)

Material.— Holotype, ♀ (RMNH), "Indonesia: (SW) Sulawesi, Ciaker Alam Laiya, c 15 km S of Camba, c 400 n, 26.xi.1991, C. v. Achterberg, RMNH'91".

Holotype, ♀, length of body 19.4 mm, and of fore wing 11.1 mm.

Head.— Antenna with 36 segments; length of third antennal segment 2.8 times its



Figs 353-356, *Megischus cambaensis* spec. nov., ♀, holotype. 353, base of antenna; 354, head and pronotum, lateral aspect; 345, pygidium, lateral aspect; 346, propodeum, dorsal aspect.

maximum width, and fourth segment 1.1 times as long as third segment (fig. 353); frons coarsely transversely basally and obliquely rugose dorsally; three anterior coronal teeth large, lobe-shaped, both posterior ones indistinct, part of strong sinuate transverse lamella; after this lamella four regular and strong complete and somewhat curved lamelliform carinae followed by medially weakly lowered and flattened area with coarse reticulate rugosity laterally and regularly transverse and moderately dense rugae medially, posteriorly up to occipital carina (fig. 44); head rather globular (fig. 44); temples roundly narrowed behind eyes, smooth and shiny, except for some fine punctures; occipital carina strongly developed, ventrally almost reaching lamelliform hypostomal carina (fig. 48); postgenal bridge widely and gradually declivous (fig. 48); hypostomal flange large and with few coarse punctures.

Mesosoma.— Neck elongate and anteriorly weakly concave, margin not uplifted, neck postero-dorsally at much lower level than middle part of pronotum (fig. 45), flat and widely smooth medially, with two pair of strong (especially posterior one which is connected with pronotal fold) and strongly oblique carinae pointed to pronotal fold; pronotal fold strong, porching over rather deep and wide depression (figs 45, 46), with short median keel behind it; middle part of pronotum with six partly incomplete medium-sized transverse carinae and with indistinct oblique lateral groove, middle part gradually merging into posterior part of pronotum, and

pronotum latero-posteriorly weakly convex (fig. 45); posterior part of pronotum largely without dense setosity (at most with a few short widely spaced short setae, but below tegulum densely setose), with few coarse punctures and latero-posteriorly with some crenulae; propleuron with several coarse punctures; convex part of mesopleuron with rather sparse short whitish setosity and coarsely foveolate, especially anteriorly and posteriorly intermingled with weak rugae; mesosternum largely smooth (except some fine punctures) and only posterior 0.1 rather densely short setose; convex part of metapleuron coarsely reticulate, rather elongate and moderately densely short setose below long whitish setae, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with distinct smooth interspaces (fig. 356).

Wings.— Fore wing (fig. 51): vein 1-M 7.2 times as long as vein 1-SR and 1.4 times vein m-cu; vein 2-SR 1.1 times as long as vein r; vein 1-SR 0.7 times as long as parastigmal vein and ends 0.4 times length of pterostigma behind level of apex of pterostigma.

Legs.— Hind coxa elongate spindle-shaped, with spaced medium-sized transverse rugae (fig. 47); hind femur with two large teeth and some small teeth (fig. 47); apical half of hind femur largely with short setosity and remotely punctate; outer side of widened part of hind tibia micro-granulate, remotely punctate and short setose, nearly parallel-sided, slightly concave ventrally (fig. 47), inner side rather convex, with many punctures and mostly in a triple row and with distinct transverse depression; hind basitarsus parallel-sided, slender (fig. 49), its ventral length 5.7 times its width.

Metasoma.— First tergite 11.5 times as long as its maximum width (and 11.7 times its apical width), and densely regularly transversely striate but basal third rather superficially and irregularly rugose and apically smooth, parallel-sided; basally second tergite with some short and distinct rugae; remainder of second tergite and following tergites micro-sculptured and rather matt; basal half of pygidial area setose and coriaceous, distinctly punctate medially, with long straight setae surpassing apex of metasoma and posteriorly semicircularly convex, shiny, glabrous, smooth, apically with rather wide and medially distinctly concave hyaline lamella; length of ovipositor sheath 1.9 times fore wing (and 1.1 times body), ivory part 1.5 times as long as dark apical part (fig. 52).

Colour.— Black; head orange-brown; malar space ivory, weakly contrasting with temple (fig. 353); antenna (except brownish-yellow scapus and pedicellus), tegulae, fore and middle legs (except blackish brown coxae and telotarsi), hind tibia and tarsus (but telotarsus blackish), and metasoma more or less dark brown; veins and pterostigma mainly brown, but base of pterostigma pale brown; neck dark chestnut-brown; basal two-thirds of wings evenly rather strongly dark brown, remainder of fore wing membrane less darkened.

Distribution.— Indonesia (Sulawesi).

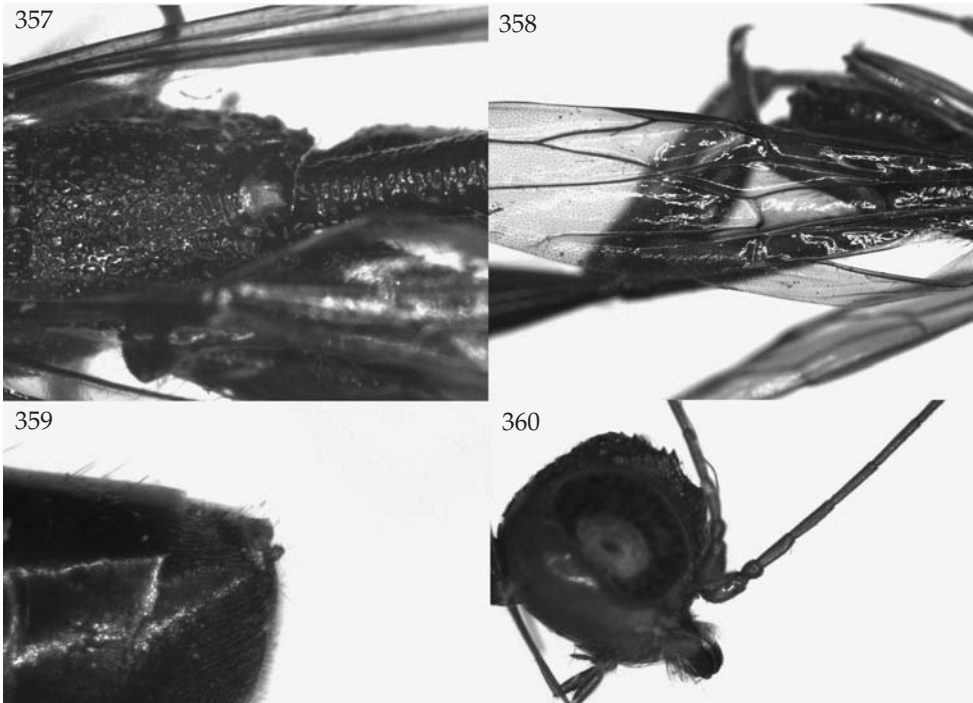
Note.— *M. cambaensis* is very similar to *M. nigripoides* spec. nov.; differs mainly by the strongly oblique carinae of the neck, the more slender neck and the large cavity below the pronotal fold. The side of the scutellum tends to be less densely setose and the sculpture of the vertex somewhat less regular anteriorly. Some males of *M. nigripoides* have the carinae of the neck strongly oblique, but then the neck is more robust and the cavity under the pronotal fold comparatively shallow.

Megischus carolinae spec. nov.
(figs 53-61, 357-360)

Material.— Holotype, ♀ (MNCN) “[Philippines], Mindanao, Surigao”; MNCN Type Catalogue no. 9087.

Holotype, ♀, length of body 19.7 mm, and of fore wing 12.0 mm.

Head.— Antenna incomplete; length of third antennal segment 2.8 times its maximum width, and fourth segment 1.2 times as long as third segment (fig. 360); frons coarsely transversely reticulate-rugose ventrally and irregularly obliquely rugose dorsally; three anterior coronal teeth large, lobe-shaped, both posterior ones smaller, part of sinuate transverse lamella, which is narrowed medially; after this lamella four strong regular curved lamelliform carinae (last one very short) followed by flattened area with coarse reticulation, reaching almost occipital carina (fig. 53), smooth behind eyes in dorsal view; temple slightly angulate directly behind eyes and after this directly narrowed (fig. 53), smooth (except for some punctures) and shiny; occipital carina complete ventrally, running parallel to wide lamelliform hypostomal carina and present near lower level of eyes, remaining distinctly removed from hypostomal carina (fig. 56); postgenal bridge widely and steeply declivous (fig. 56); hypostomal flange comparatively large, not elevated and with some coarse punctures and posteriorly with some rugae.



Figs 357-360, *Megischus carolinae* spec. nov., ♀, holotype. 357, propodeum, dorsal aspect; 358, part of fore wing; 359, pygidium, lateral aspect; 360, base of antenna.

Mesosoma.— Neck moderately slender (fig. 53) and anteriorly slightly emarginate, neck with two comparatively weak curved carinae anteriorly, followed by a coarse and medially widely interrupted carina, flat medio-posteriorly, and postero-dorsally at lower level than middle part of pronotum (fig. 59); pronotal fold rather weakly developed and below it with distinct concavity (fig. 55); area behind pronotal fold weakly convex, with six coarse and mostly complete transverse carinae, and no median carina, middle part strongly differentiated from posterior part of pronotum (fig. 53) and laterally with shallow oblique groove; posterior part of pronotum evenly protruding postero-laterally (fig. 54), with short setosity and with several very coarse punctures, postero-laterally narrowly costate-crenulate; propleuron moderately densely coarsely punctate; anteriorly convex part of mesopleuron with sparse short setosity and posteriorly absent, coarsely punctate-rugose; mesosternum smooth, glabrous; convex part of metapleuron coarsely reticulate, rather elongate and with rather sparse short whitish setosity, both anterior depressions very deep and large; propodeum coarsely foveolate with only narrow smooth interspaces (fig. 357).

Wings.— Fore wing (fig. 358): vein 1-M 7.1 times as long as vein 1-SR and 1.3 times vein m-cu; vein 2-SR 1.1 times vein r; vein r ends 0.5 times length of pterostigma behind level of apex of pterostigma; vein 1-SR 0.6 times as long as parastigmal vein.

Legs.— Hind coxa rather slender spindle-shaped, largely with mainly short transverse rugae, basally rugose and apically transversely striate (fig. 57); apical 0.4 of hind femur with short setosity, femur rather robust and swollen, its basal tooth wide (figs 57, 58); outer side of hind tibia rather steeply depressed at widened part near end of narrow basal part (fig. 58), ventrally comparatively shallowly concave and apical part robust (fig. 61), inner side rather convex, basally with few fine punctures and several coarse punctures not or at most in a double row and with deep transverse depression; hind basitarsus subparallel-sided (fig. 61), its ventral length 5.0 times its width.

Metasoma.— First tergite 7.2 times as long as its maximum width (and 9.0 times its apical width), and densely regularly transversely striate but less regularly basally and apically narrowly smooth; basally second tergite largely smooth; pygidial area moderately differentiated, coriaceous and without distinct punctures, setae medium-sized; length of ovipositor sheath 2.4 times fore wing (and 1.4 times body), ivory part 1.5 times as long as dark apical part (fig. 60).

Colour.— Brownish-black; head dark orange-brown with malar space, face laterally and temple ventrally pale yellowish, rather contrasting with temple and vertex (fig. 59); antenna, palpi, fore and middle legs (except blackish coxae), hind tibia (except dark brown narrowed part), and hind tarsus yellowish-brown (fig. 58); remainder of hind leg dark chestnut brown; tegulae, veins and pterostigma more or less dark brown; fore wing membrane evenly weakly brownish.

Distribution.— Philippines (Mindanao).

Note.— It is a pleasure to name this species after Dr Carolina Martin, curator of the Museo Nacional de Ciencias Naturales at Madrid, who made the holotype and several other important specimens available for this study.

Megischus ceneonatrix Aguiar, 2001*Megischus ceneonatrix* Aguiar, 2001: 773, figs 26-33.

Distribution.— Australia.

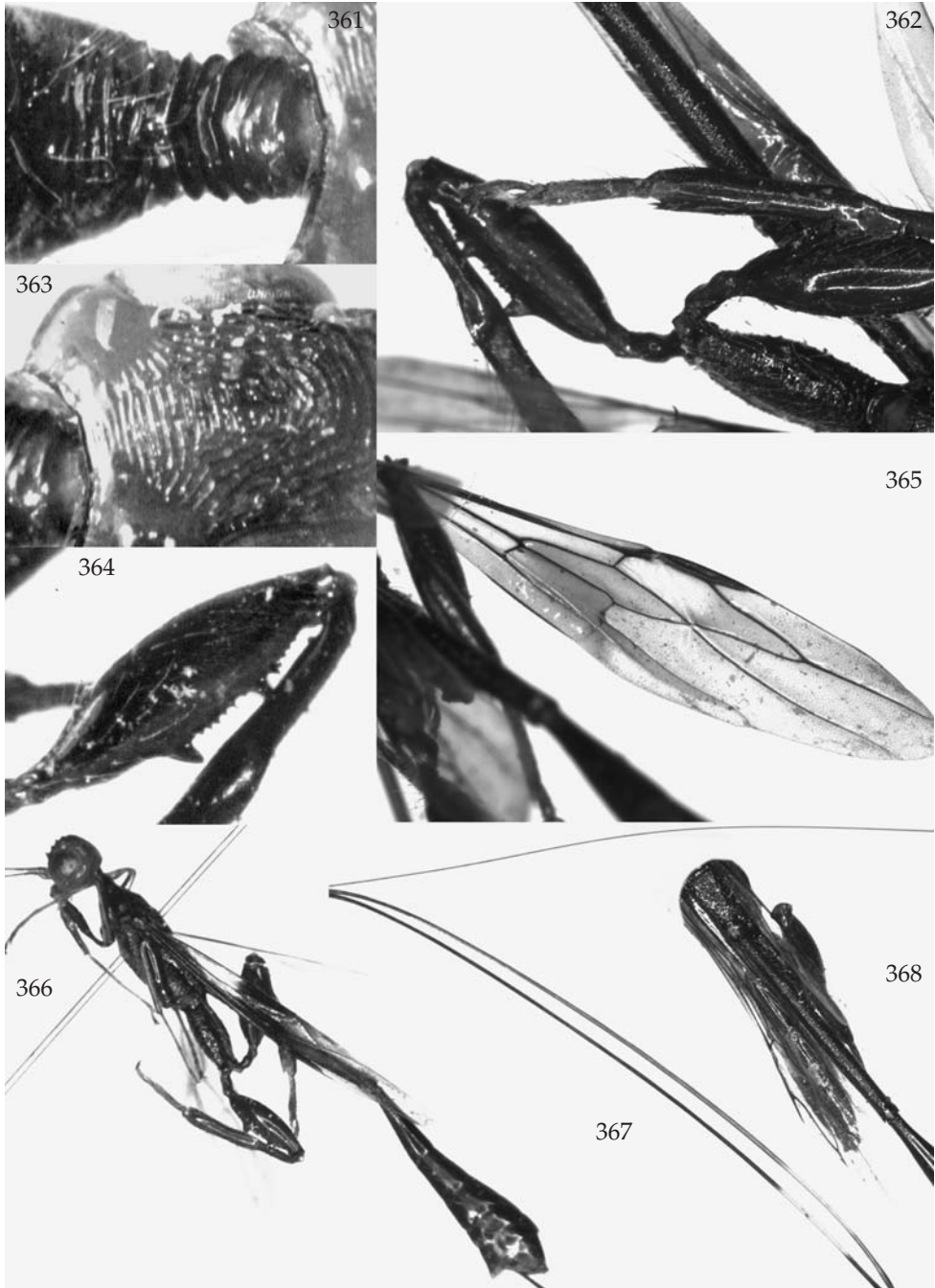
Note.— For its description see Aguiar (2001).

Megischus coronator (Fabricius, 1804)
(figs 62-70, 361-368, 373, 374)*Pimpla coronator* Fabricius, 1804: 118 [♀ holotype from Ambon considered to be lost; not present in the Copenhagen Museum (Fabricius collection; R. Meier in litt., 2001). Neotype not necessary because in Ambon occurs only one large *Megischus* species].*Ichneumon coronator*; Thunberg, 1822: 273, 1824: 345.*Stephanus coronator*; Boisduval, 1835: 656; Westwood, 1843: 276; Schletterer, 1889: 84, 87, 114; Dalla Torre, 1902: 6; Ashmead, 1905: 157; Enderlein, 1905: 475, 1906: 306; Brown, 1906: 694; Schulz, 1907: 322; Kieffer, 1908: 4; Elliott, 1922: 717-8, 738, 1926: 520, 1927: 227; Dutt, 1926: 2; Ceballos, 1926: 137.*Megischus coronator*; Westwood, 1851: 227; Smith, 1861b: 137, 1864: 141, 1873: 399; Sichel, 1866: 477; Bingham, 1895: 444; Baltazar, 1962: 743, 1966: 16.*Stephanus diadema* Westwood, 1843: 277 (“*Foenus diadema* Fabricius MS type” in Copenhagen Museum and listed as possible synonym of the Nearctic *S. bicolor* Westwood, 1841); Dalla Torre, 1902: 6; Elliott, 1922: 827 (nomen nudum) [examined by A. Aguiar; specimen could not be traced despite it was barcoded by him].*Megischus viduus* Smith, 1861b: 138; Schletterer, 1889: 84 (as synonym of *M. coronator* (Fabricius, 1804)); Smith, 1863: 6, 1864: 141, 1873: 400 [examined].Material.— Holotype of *M. viduus*, ♂ (OUM), “[Indonesia], Kai. [= Kaioa]” with white label “*Megischus viduus* Smith”; 2 ♂♂ + 1 ♂ (OUM), “Cer. [= Ceram]”, with bluish label “*Megischus viduus* Smith [not types!]”; 1 ♂ (OUM), “Cer.”, “*Megischus viduus* Smith (in Smith’s handwriting)” [not a type!]. Redescribed specimen: ♀ (RMNH), “Ambon, in forest, 100 m, 3.x.1960, Wegner”.

Additional specimens examined from Ambon (RMNH, BMNH, TMA, OUM, MNCN), Batchian (RMNH, BMNH, OUM), Buru (ZMA), Ceram (RMNH, OUM), Obi (RMNH), Tidore (USNM, RMNH), Kaioa (OUM), Halmahera (RMNH, USNM), Morotai (RMNH, OUM), Salawatti (RMNH), Philippines (Samar; RMNH), and Irian Jaya (Dorey; RMNH).

Redescribed from ♀ (RMNH) from the type locality (Ambon), length of body 26.5 mm, and of fore wing 13.9 mm.

Head.— Head comparatively transverse (fig. 62); antenna incomplete; length of third antennal segment 3.0 times its maximum width, and fourth segment 1.2 times as long as third segment; frons coarsely and spaced obliquely rugose; three anterior coronal teeth large, lobe-shaped, both posterior ones medium-sized, part of strong, sinuate transverse lamella; after this lamella five regular, strong, complete and more or less curved lamelliform carinae followed by medially gradually lowered and flattened area with rather close and regular transverse rugae, laterally near eyes and behind level of eyes with bell-shaped rugae connected to anterior transverse rugae, and obsolescent near occipital carina (figs 62, 63, 363); temples roundly narrowed behind eyes, smooth and shiny, except for some fine punctures and sparsely setose ventrally; occipital carina strongly developed, laterally wide lamelliform, and ventrally reaching lamelliform hypostomal carina and partly running parallel (fig. 69); post-



Figs 361-368, *Megischus coronator* (Fabricius), ♀, Ambon. 361, neck, dorsal aspect; 362, hind leg; 363, vertex, dorsal aspect; 364, hind femur; 365, fore wing; 366, habitus, lateral aspect; 367, ovipositor sheath and ovipositor; 368, first metasomal tergite, dorsal aspect.

genal bridge widely and gradually declivous (fig. 69); hypostomal flange large and with several coarse punctures and few weak rugae.

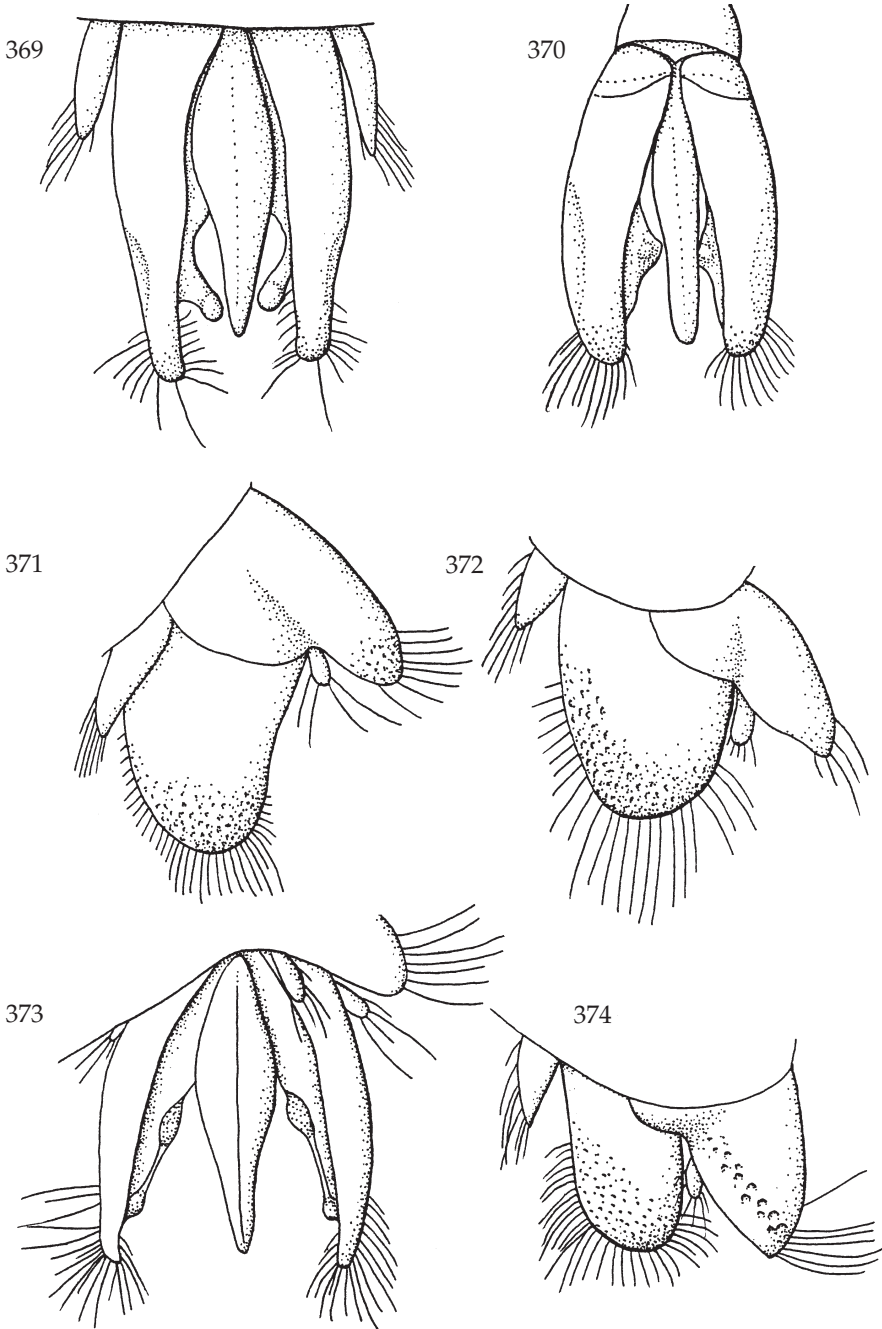
Mesosoma.— Neck rather robust and anteriorly subtruncate, anteriorly not uplifted, with weak subanterior carina, neck postero-dorsally at somewhat lower level than middle part of pronotum (figs 64, 361), flat and smooth postero-medially because of widely interrupted posterior carina (both ends somewhat curved to pronotal fold; fig. 68), with one strong, transverse and rather sinuate submedial, and nearly interrupted carina, anteriorly with two interrupted weak carinae; pronotal fold strong, porching over shallow and wide depression (fig. 64), without median keel and concave behind it; middle part of pronotum with five more or less complete and medium-sized transverse carinae and with rather distinct oblique lateral groove, middle part gradually merging into posterior part of pronotum, and pronotum latero-posteriorly moderately convex (fig. 68); posterior part of pronotum largely with rather sparse setosity, latero-ventrally densely setose but dorso-posteriorly glabrous (fig. 68), with several very coarse punctures and latero-posteriorly with some crenulae; propleuron with several coarse punctures and densely setose; convex part of mesopleuron with dense short whitish setosity and coarsely foveolate, anteriorly and posteriorly intermingled with distinct rugae; mesosternum largely smooth (except some fine punctures) and only posterior quarter densely short setose; convex part of metapleuron coarsely reticulate, rather elongate and moderately densely and rather short setose below long whitish setae, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with distinct (and partly wide) smooth interspaces (fig. 67); side of scutellum densely pale yellowish setose.

Wings.— Fore wing (fig. 365): vein 1-M 6.6 times as long as vein 1-SR and 1.3 times vein m-cu; vein 2-SR as long as vein r; vein 1-SR 0.8 times as long as parastigmal vein and ends 0.7 times length of pterostigma behind level of apex of pterostigma.

Legs.— Hind coxa rather elongate spindle-shaped, with spaced short transverse rugae, partly smooth, basally rugose and apically transversely carinate (fig. 362); apical 0.4 of hind femur largely with short setosity and remotely punctate; widened part of hind tibia slender and slightly concave ventrally (figs 65, 362), outer side superficially micro-granulate and shiny, remotely punctate and densely short setose; inner side of tibia partly flattened, with many punctures and mostly in a triple row and with distinct transverse depression; hind basitarsus slightly widened apically, rather slender (fig. 66), its ventral length 4.7 times its width.

Metasoma.— First tergite 11.3 times as long as its maximum width (and its apical width), and densely regularly transversely striate but basal quarter irregularly rugose and apically smooth, not widened near spiracles; basally second tergite with some short and indistinct rugae; remainder of second tergite shiny and indistinctly micro-sculptured; third and following tergites rather distinctly micro-sculptured and rather matt; pygidial area smooth (except for row of coarse punctures medially) and shiny, with long straight setae surpassing apex of metasoma and medially semicircularly convex, apically with rather wide and medially weakly concave hyaline lamella; length of ovipositor sheath 2.2 times fore wing (and 1.1 times body), ivory part 1.3 times as long as dark apical part (figs 70, 367).

Colour.— Black; head and neck anteriorly orange-brown; malar space and temple



Figs 369, 371, *Megischus lucidus* (Szépligeti), ♂, Indonesia, Irian Jaya (369: Hattam area; 371: Hollandia); figs 370, 372, *M. insularis* Smith, ♂, Brunei (370) or W Malaysia (Selangor: 372); figs 373-374, *M. coronator* (Fabricius), ♂, Morotai (373) or Halmahera (374). 369, 370, 373, male genitalia, exserted but in situ, dorsal aspect; 371, 372, 374, male genitalia and pygidium, lateral aspect.

narrowly pale yellowish ventrally, weakly contrasting with temple; palpi, scapus, tegulae, fore and middle tarsi, and fore and middle tibiae basally yellowish-brown; remainder of fore and middle legs (except blackish coxae), hind leg (fig. 65, but coxae blackish and tarsus mainly rather dark brown) and first tergite dark chestnut-brown (fig. 67); antenna (except for scapus), veins and pterostigma more or less dark brown, but base of pterostigma pale brown; wing membrane largely slightly infusate, with first subdiscal cell of fore wing rather dark brown (fig. 365).

Distribution.— Indonesia (Moluccas: Buru, Ambon, Batchian, Tidore, Halmahera, Ceram, Kaioa (= small island above Batchian), Morotai, Obi, Salawatti, Philippines (Samar), Dorey (= Teluk Dore, S Vogelkop, Irian Jaya). References in literature to other localities refer mainly to *M. insularis* Smith (west of Wallace's Line), *M. nigripoides* spec. nov. (Sulawesi) and *M. lucidus* (Szépligeti) (New Guinea except southern Vogelkop).

Notes.— Length of fore wing varies from 12-17 mm; carinae of neck less coarsely developed than in *M. lucidus* (fig. 127); subposterior carina of neck usually not or narrowly interrupted and not or moderately V-shaped (fig. 127), at most somewhat stronger than posterior carina in lateral view; length of ovipositor sheath 1.8-2.3 (-2.4) times fore wing. The males have a comparatively robust and coarsely punctate pygidium in lateral view (fig. 374).

Large specimens may have the first tergite more robust, widened near spiracles, its maximum width near spiracles 1.3-1.6 times (normal about 1.1 times) its apical width; hypostomal area wide and extensively sculptured; and posterior carinae of neck may be complete.

The holotype of *M. viduus* is referred to *M. coronator* mainly because of its origin (Ceram); males are difficult to separate from *M. lucidus* because the length of the ovipositor sheath and other characters are not available (the shape of the neck is intermediate). It has the fore wing more evenly darkened (male!) and the area below the pterostigma more extensively setose than in females and the sculpture of the first tergite is very reduced, but this is normal in species related to *M. coronator*. The base (and narrowly the apex) of the hind tibia and the hind tarsus are dark brown. The vertex of specimens from Batchian, Tidore, Halmahera, Salawatti and Dorey (= Vogelkop) is usually dark brown anteriorly.

Megischnus crassicauda (Morley, 1917)
(figs 375-381)

Stephanus crassicauda Morley, 1917b: 106; Elliott, 1922: 728-729 [examined].

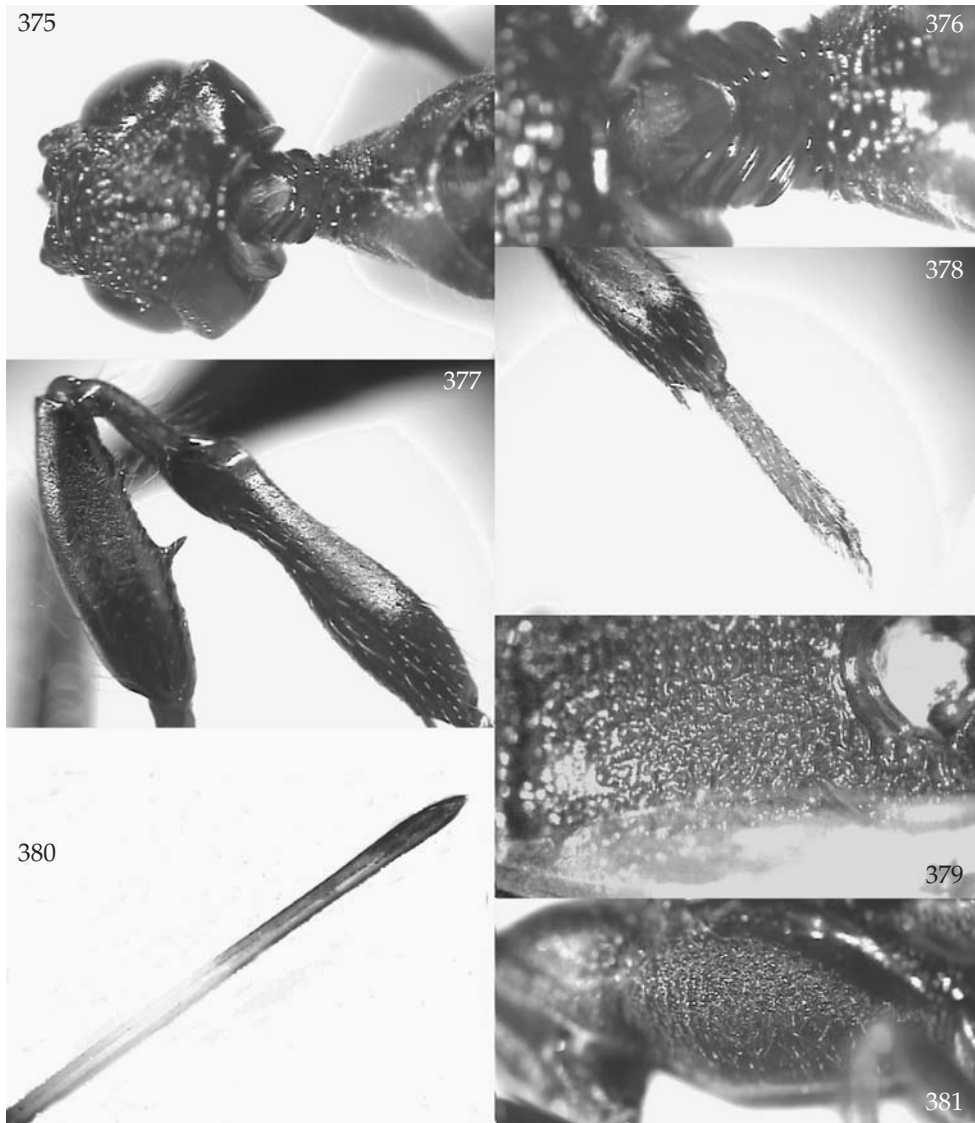
Megischnus crassicauda; Aguiar, 2001: 7771-772, figs 19-25, 33, 35.

Hemistephanus giganteus Girault, 1926: 16 (synonymized by Aguiar, 2001).

Material.— Holotype ♀ (BMNH) "**Australia**", "Type, C. M[orley]", "66, 65.7", "*Stephanus crassicauda*, Morl., i.1917", "B.M. Hym. Type 3.a.76", 1 ♀ paratype (BMNH) from Townsville, **Queensland**.

Notes.— The postgenal bridge of holotype is widely and gradually declivous and the narrowed basal part of hind tibia very short compared with Oriental and Papuan species (fig. 377). For the description, see Aguiar (2001).

Distribution.— Australia (eastern states, including Queensland).



Figs 375-381, *Megischus crassicauda* (Morley), ♀, holotype. 375, head and pronotum, dorsal aspect; 376, neck, dorsal aspect; 377, hind femur and tibia; 378, hind basitarsus; 379, propodeum, dorsal aspect; 380, apex of ovipositor sheath; 381, mesopleuron.

Megischus curtus (Elliott, 1926) comb. nov.
(figs 382-390)

Stephanus curtus Elliott, 1926: 517, 1927a: 216 [examined].

Stephanus brevicoxis Elliott, 1926: 517 [examined]. **Syn. nov.**

Stephanus curticauda Elliott, 1927: 217, nom. nudum [examined].

Stephanus linearis Elliott, 1927: 230 [examined]. **Syn. nov.**

?*Stephanus collectivus* Elliott, 1927: 223.

?*Megischus ruficeps*; Chao, 1964: 387, 388, pl. 2: 1-2, pl. 4: 13.

Material.— Lectotype of *Stephanus curtus* here designated, ♀ (BMNH), "Type", "[East Malaysia], Sandakan, **Borneo**, Baker", B.M. Hym. Type 3.a.130", "*Stephanus curtus* Elliott", paralectotypes: 1 ♀ (BMNH), 2 ♀♀ (USNM), damaged, "[East Malaysia], Sandakan, Borneo, Baker", "Paratype no. 42640 U.S.N.M."; 1 ♀ + 1 ♂ (USNM) under *S. curticauda* Elliott from Sandakan, invalid name (published in synonymy), paralectotypes of *S. curtus* Elliott. Holotype of *Stephanus brevicoxis*, ♀ (BMNH), "Type", "[East Malaysia], Sandakan, Borneo, Baker", "B.M. Hym. Type 3.a.129", "*Stephanus brevicoxis* Elliott". Holotype of *Stephanus linearis*, small ♂ (USNM), "[East Malaysia], Sandakan, Borneo, Baker", "*St. linearis* Elliott, ♂, type" (original label). Holotype ♀ of *M. collectivus* could not be found in USNM (D. Smith, in litt., 2001) or BMNH and is considered to be lost. The type locality is not indicated in the description, but because of the comparatively short neck it is most probably a new synonym of *M. curtus* and originating from Sandakan (Borneo).

Additional specimens examined from West Malaysia (OUM, CAS), Brunei (BPBM), and East Malaysia (Sabah: BMNH, BPBM; Sarawak: BMNH).

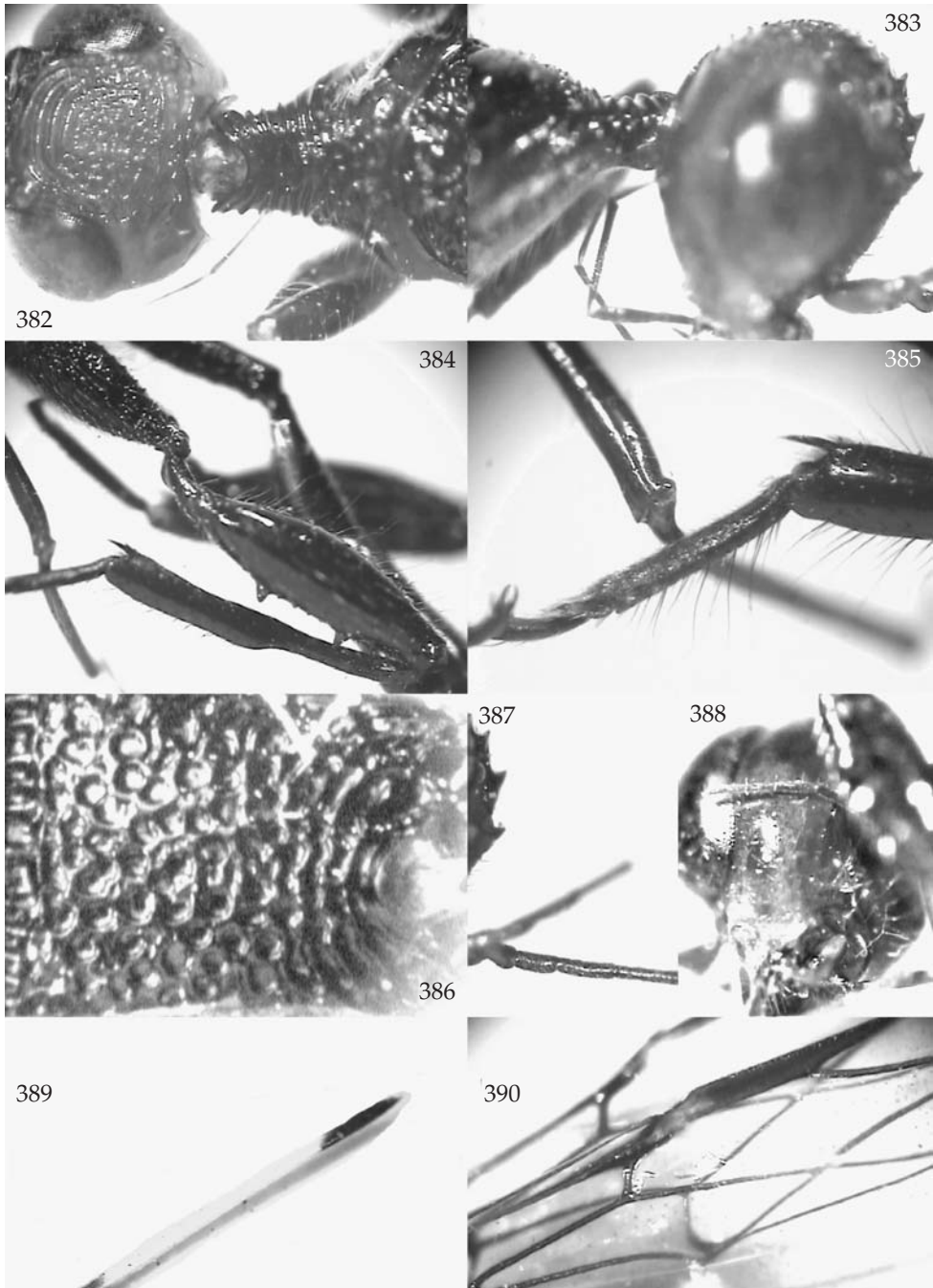
Lectotype, ♀, length of body 15.3 mm, and of fore wing 9.3 mm.

Head.— Length of third antennal segment 1.9 times its maximum width, and fourth segment 1.4 times as long as third segment (fig. 387; remainder of antenna largely missing); frons flattened and curved rugose; three anterior coronal teeth large, lobe-shaped, both posterior ones small and part of transverse lamella widened at both ends; after this lamella five strong complete regular lamelliform and more or less curved carinae followed by slightly convex area with coarse irregular reticulate rugosity posteriorly with three transverse weak rugae and almost reaching occipital carina (fig. 382); temples smooth and shiny, except for some punctures near eye; occipital carina weakly developed ventrally, ending above lower level of eyes and remain far removed from hypostomal carina (fig. 388); postgenal bridge with rather deep median groove and no teeth; hypostomal flange large and without rugae, smooth.

Mesosoma.— Neck robust and anteriorly distinctly concave (fig. 382), neck postero-dorsally at somewhat lower level than middle part of pronotum, flattened medially and with two strong transverse carinae and one carinae bent medially and reaching middle part of pronotum (fig. 383); pronotal fold absent (fig. 383), middle part of pronotum with five moderately strong transverse carinae, which are laterally largely absent; no median carina anteriorly, middle part gradually merging into posterior part of pronotum, but latero-posteriorly distinctly protruding (fig. 382); posterior part of pronotum largely glabrous, without short setosity medially (laterally sparsely so) and with a few coarse punctures and posteriorly with some crenulae; propleuron coarsely punctate; convex part of mesopleuron with comparatively long dense whitish setosity and coarsely punctate-reticulate; mesosternum largely smooth and sparsely long setose bur posteriorly with dense short setosity; convex part of metapleuron coarsely reticulate, rather elongate and with rather long dense setosity below long whitish setae, both anterior depressions rather deep and large; propodeum coarsely and densely foveolate, with smooth interspaces hardly developed (fig. 386).

Wings.— Fore wing (fig. 390): vein 1-M 6.3 times as long as vein 1-SR and 1.2 times vein m-cu; vein 2-SR as long as vein r; vein r ends 0.2 times length of pterostigma behind level of apex of pterostigma.

Legs.— Hind coxa rather robust, largely transversely striate, but basally more



Figs 382-390, *Megischus curtis* (Elliott), ♀, lectotype. 382, head and pronotum, dorsal aspect; 383, head and pronotum, lateral aspect; 384, hind leg; 385, hind tarsus; 386, propodeum, dorsal aspect; 387, base of antenna; 388, head, latero-ventral aspect; 389, apex of ovipositor sheath; 390, part of fore wing.

densely rugose (fig. 384); hind femur only medio-apically with some short setosity; outer side of hind tibia parallel-sided, straight ventrally (fig. 384), inner side rather convex, with a few fine and few coarse punctures in a single row and sparsely bristly setose but near base of tibia, and with distinct transverse medial depression; hind basitarsus parallel-sided, slender (fig. 385), its ventral length 5.9 times its width.

Metasoma.— First tergite 5.7 times as long as its maximum width, ending slightly behind level of end of hind coxa, and densely regularly transversely striate but basal half irregularly rugose and apically smooth, subparallel-sided, slightly narrowed posteriorly; basally second tergite with a curved ruga and groove, the latter attached to short median groove; pygidial area well delimited, shiny and with some fine punctures subapically and long straight setae; length of ovipositor sheath 1.6 times fore wing (and slightly longer than body, in other specimens as short as 0.8 times), its ivory part 2.8 times as long as dark apical part (fig. 389).

Colour.— Black or blackish-brown; head reddish-brown; antenna dark brown, but scapus brownish basally, malar space ivory, rather contrasting with temple; fore and middle legs (except blackish coxae and darkened tarsi and apices of femora) dark brown; hind femur blackish-brown; hind tarsus black; mainly first subdiscal cell of fore wing distinctly infusate, and remainder of membrane of fore wing slightly infusate, almost subhyaline (fig. 390).

Distribution.— East Malaysia (Borneo: Sabah); West Malaysia.

Note.— The holotype of *M. brevicoxis* (Elliott) has the first metasomal tergite ending at level of about half the length of hind femur. Head and mesosoma is at least moderately flattened (but this is rather variable).

Megischus ducalis Westwood, 1851
(figs 71-78, 391-398)

Megischus ducalis Westwood, 1851: 229 [examined].

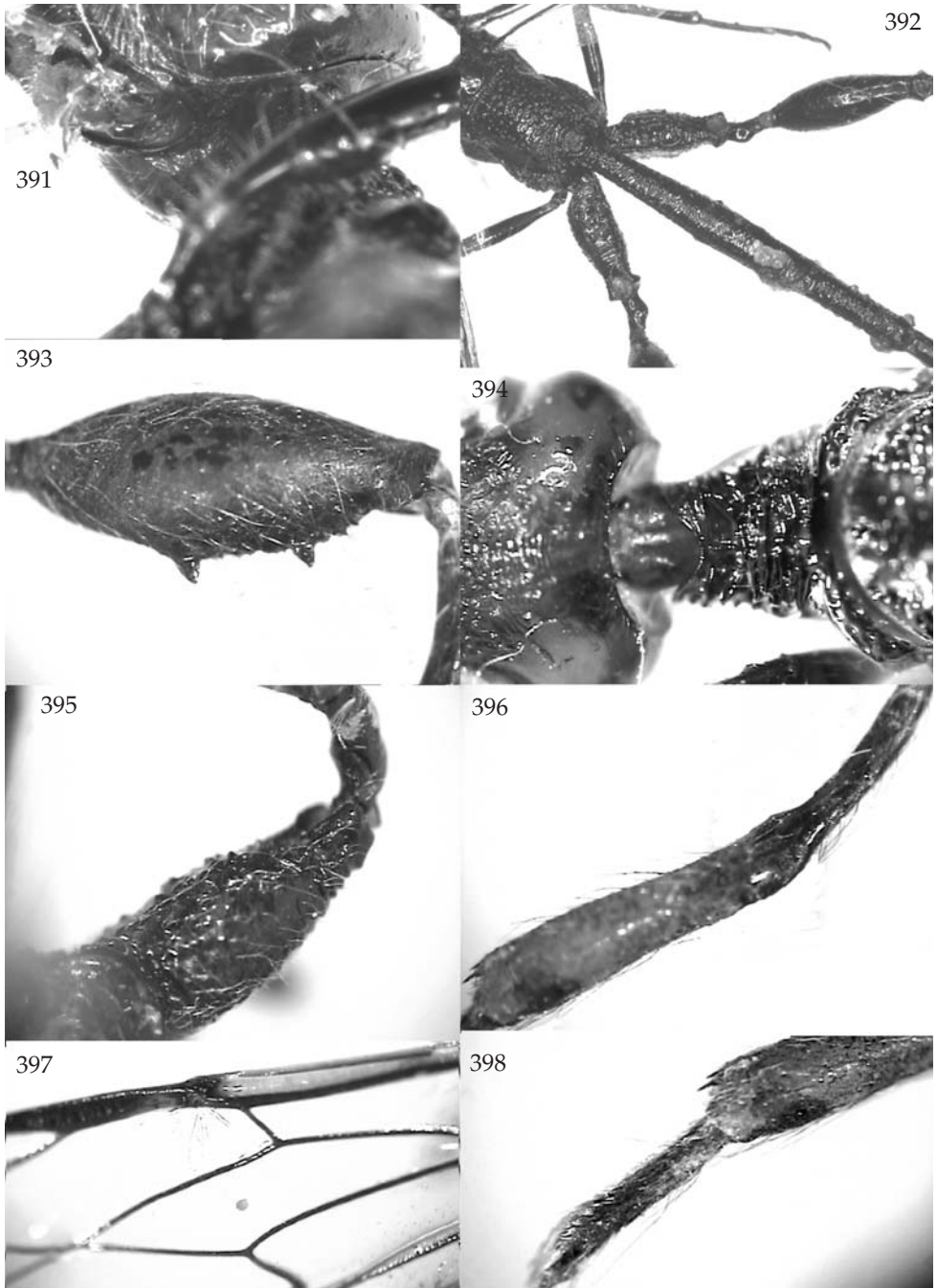
Stephanus ducalis; Elliott, 1922: 740.

Material.— Holotype, ♀ (BMNH), "E. India [probably West Malaysia]", "*ducalis* Westw.", "Type, H.T.", "B.M. Hym. Typ. 3.a.77"; 1 ♀ (BMNH), "[W. Malaysia], Malay Penin.: Selangor, F.M.S, Kuala Lumpur, 4.iii.1937".

Holotype, ♀, length of body 35.2 mm, and of fore wing 20.0 mm.

Head.— Antenna largely missing; length of third antennal segment 2.7 times its maximum width, and fourth segment as long as third segment; frons mainly coarsely rugose-reticulate; three anterior coronal teeth large, lobe-shaped, both posterior ones small but separated and not part of transverse lamella; after posterior teeth five rather strong and regularly curved carinae followed by convex area with coarse reticulation reaching almost occipital carina (fig. 71); temples largely smooth and shiny, except for some distinct punctures; occipital carina strongly developed and almost reaching hypostomal carina (fig. 391); postgenal bridge rather steeply depressed (fig. 391); hypostomal flange large, elevated and with few weak oblique rugae (fig. 391, stronger in additional specimen); posterior ocellus further separated from eye than in other species, distance to eye about equal to diameter of ocellus (fig. 71).

Mesosoma.— Neck short (lateral length of neck 0.5 times its maximum width) and



Figs 391-398, *Megischus ducalis* Westwood, ♀, holotype, but 391 and 392 from W Malaysia. 391, head, latero-ventral aspect; 392, first metasomal tergite, dorsal aspect; 393, hind femur; 394, vertex and pronotum, dorsal aspect; 395, hind coxa; 396, hind tibia; 397, part of fore wing; 398, hind basitarsus.

anteriorly rather concave (fig. 72), its anterior rim narrow and elevated, neck postero-dorsally at much lower level than middle part of pronotum because the latter is callus-like enlarged, concave and with pair of subparallel carinae medially, laterally with two strong converging carinae laterally; pronotal fold present but comparatively weakly developed (fig. 74); middle part of pronotum with two very robust transverse carinae and no median carina directly behind pronotal fold, middle part sharply differentiated from posterior part of pronotum (figs 74, 394); posterior part of pronotum tuberculate protruding latero-posteriorly (figs 72, 394), largely glabrous, without short setosity and with very coarse punctures, and posteriorly coarsely crenulate; propleuron sparsely coarsely punctate; convex part of mesopleuron with large patch of moderately short whitish dense setosity submedially, remainder large without short setosity, coarsely reticulate-rugose anteriorly and posteriorly rather sparsely foveolate-punctate; mesosternum largely smooth and sparsely long setose, but posteriorly with short dense setosity; convex part of metapleuron coarsely reticulate, rather robust and mainly with long whitish setae, no oblique ventral carina and both anterior depressions rather deep and large; propodeum coarsely and densely foveolate, with medium-sized smooth interspaces.

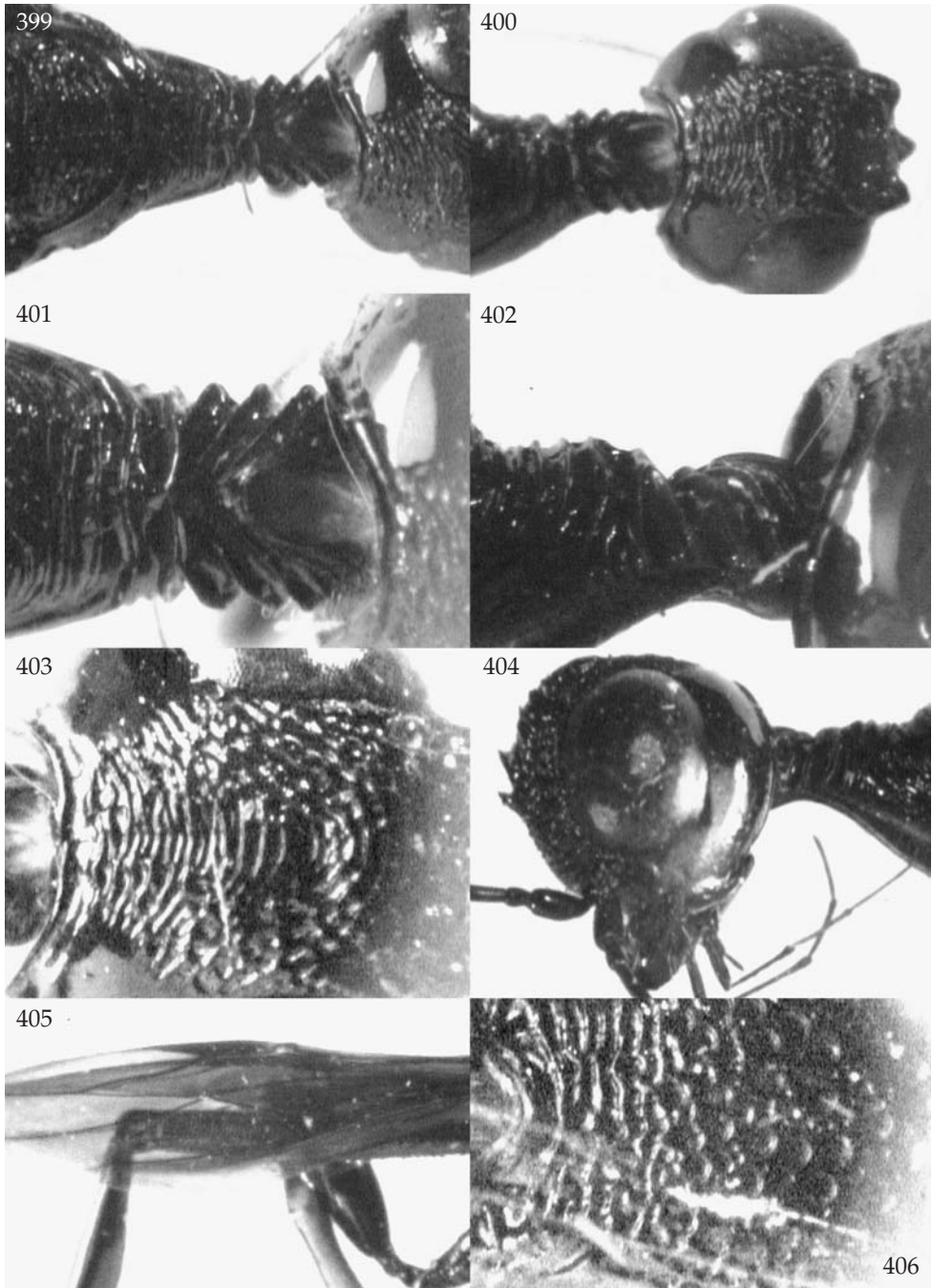
Wings.— Fore wing (figs 77, 397): vein 1-M 4.4 times as long as vein 1-SR and 1.3 times vein m-cu; vein 2-SR 0.9 times vein r; and ends 0.8 times length of pterostigma behind level of apex of pterostigma; vein 1-SR about as long as parastigmal vein (fig. 397).

Legs.— Hind coxa robust, subtriangular, coarsely spaced punctate-rugose, with some short transverse carinae postero-dorsally (fig. 395); hind femur without short setosity except apically narrowly; outer side of hind tibia depressed (to reach level of flattened narrow basal part), ventrally straight (figs 75, 396), inner side rather convex, with many fine punctures in triple rows or more, and with distinct wide transverse depression; hind basitarsus nearly parallel-sided, rather robust (figs 76, 398), its ventral length 4.8 times its width.

Metasoma.— First tergite 7.1 times as long as its maximum width (widened medially as also occurs in other large specimens, e.g., of *M. coronator* (Fabricius)), and densely regularly transversely striate and apically smooth, spindle-shaped, posteriorly 0.7 times as wide as medially (subparallel-sided in additional specimen: fig. 392); basally second tergite with short curved transverse costa, behind it depressed and connected to shallow short median groove; pygidial area large, largely smooth or supercially coriaceous, shiny and without distinct punctures (only some fine impressions below minute protuberances), with setae missing; length of ovipositor 1.8 times fore wing, its sheath missing, in other specimen its ivory part about 3 times as long as its dark apical part (fig. 78).

Colour.— Black; head (including scapus) orange-brown; malar space slightly paler, but almost concolorous with temple and vertex (fig. 73); fore and middle legs (except dark coxae) dark brown; fore wing membrane evenly slightly infusate, nearly subhyaline.

Distribution.— West Malaysia. The type locality of the largest known species is uncertain, but is likely to be also West Malaysia. According the literature widely distributed in the Indo-Australian region (e.g., Dutt (1926), who compiled East India, Malacca (Penang Island), Sumatra, Java, Borneo, Celebes, Sumba, Batchian, Key



Figs 399-406, *Megischus emarginaticollis* spec. nov., ♀, holotype. 399, pronotum, dorsal aspect; 400, head and pronotum, dorsal aspect; 401, neck, dorsal aspect; 402, neck, lateral aspect; 403, vertex, dorsal aspect; 404, head and neck, lateral aspect; 405, part of fore wing; 406, propodeum, dorsal aspect.

Island, and New Guinea), but all specimens of this species are incorrectly identified. They are mostly *M. insularis* Smith if west of Wallace's Line and if east of it, *M. coronator* (Fabricius) or *M. lucidus* (Szépligeti).

Note.— This is one of the largest species and probably because of the size of the fore wing the veins are comparatively long for the genus.

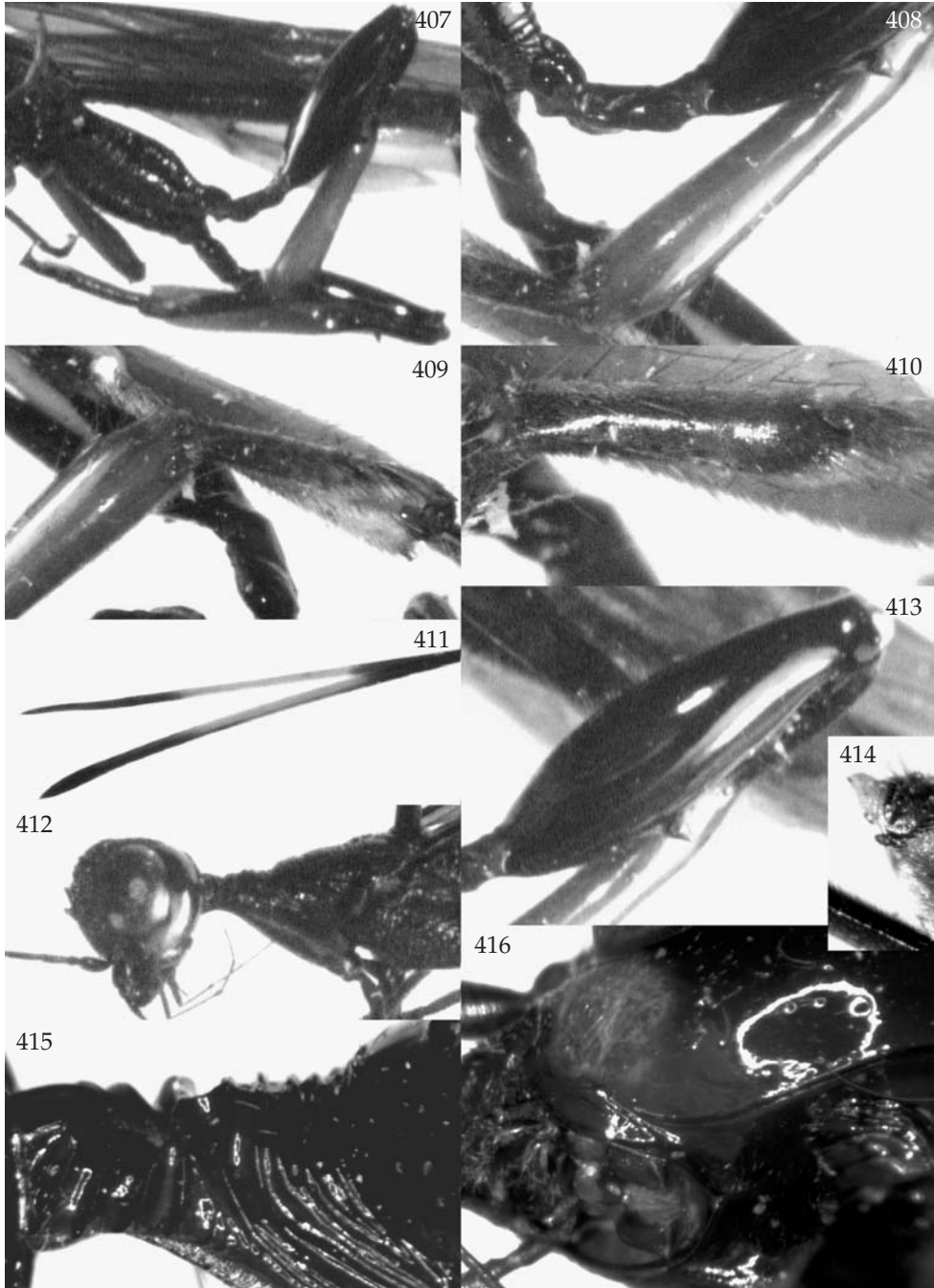
Megischus emarginaticollis spec. nov.
(figs 399-416)

Material.— Holotype, ♀ (AMNH), "Papua New Guinea, Abaleti, Rossel Isl., 0-50 m, no. 12, 3.x.1956", "Fifth Archbold Exped. to New Guinea, collector L.J. Brass". Paratypes (3 ♀♀ + 1 ♂): 1 ♀ (BPBM), "Papua New Guinea, Brown R[iver], 10 m, nr Port Moresby, 5.x.[19]58", "J.L. Gressitt collector"; 1 ♀ (SAMA), "Papua, Misima Island, Rev. H. K. Bartlett"; 1 ♀ (AMNH), "Papua New Guinea, Abaleti, Rossel Isl., 0-50 m, No.12, 10.I.1956, Fifth Archbold Exped. to New Guinea, L. J. Brass coll."; 1 ♂ (RMNH), "Neth. Ind.-Amer. New Guinea Exp. 1938-39, Hollandia, vii.[19]38, L.J. Toxopeus lg."

Holotype, ♀, length of body 33.0 mm, and of fore wing 14.7 mm.

Head.— Antenna incomplete; length of third antennal segment 2.9 times its maximum width, and fourth segment 1.2 times as long as third segment; frons very coarsely vermiculate rugose; three anterior coronal teeth large, lobe-shaped, both posterior ones smaller and wide, part of sinuate transverse widened lamella narrowed medially; after this lamella five very strong regularly curved lamelliform carinae laterally connected to oblique coarse rugae resulting in bell-shaped sculpture and medially flattened and coarsely and rather densely transversely rugose and almost reaching occipital carina (figs 399, 400, 403); temple directly roundly narrowed behind eye (fig. 400), largely smooth and shiny, except for some weak punctures laterally; occipital carina strongly developed and reaching lower level of eyes, running parallel to lamelliform hypostomal carina (fig. 416); postgenal bridge widely and gradually declivous, and without pair of distinct teeth above it (fig. 416); hypostomal flange large and without rugae (fig. 416).

Mesosoma.— Neck moderately robust (fig. 399) and anteriorly very deeply emarginate (fig. 401), neck postero-dorsally at much lower level than middle part of pronotum (fig. 402), postero-medially flat and smooth, with two rather weak and widely interrupted oblique carinae anteriorly, three narrowly interrupted and strong carinae, last one connected to pronotal fold (fig. 401); pronotal fold strongly developed and below it a wide and rather shallow concavity and behind fold deeply concave and with strong median carina; middle part of pronotum with five complete (also laterally present), strong transverse carinae; middle part rather differentiated from posterior part of pronotum (fig. 404); posterior part of pronotum distinctly convex posteriorly (fig. 399), crenulate postero-laterally, without short setosity and with several very coarse punctures laterally; propleuron coarsely and sparsely punctate; convex part of mesopleuron with sparse short whitish dense setosity (but anteriorly more densely than posteriorly) and coarsely and densely rugose; mesosternum largely smooth, posteriorly narrowly short setose; convex part of metapleuron coarsely reticulate, rather elongate and with rather sparse moderately short whitish setosity, both anterior depressions deep and large; propodeum coarsely and rather remotely foveolate, with narrow smooth interspaces (fig. 406).



Figs 407-416, *Megischus emarginaticollis* spec. nov., ♀, holotype. 407, hind leg; 408, apical half of hind tibia; 409, 410, hind basitarsus; 411, apex of ovipositor sheath; 412, head and pronotum, lateral aspect; 413, hind femur; 414, pygidium, lateral aspect; 415, pronotum, latero-dorsal aspect; 416, head, latero-ventral aspect.

Wings.— Fore wing: vein 1-M 7.0 times as long as vein 1-SR and 1.3 times vein m-cu; vein 2-SR 1 as long as vein r; vein r ends 0.5 times length of pterostigma behind level of apex of pterostigma; vein 1-SR 0.6 times as long as parastigmal vein.

Legs.— Hind coxa rather slender (fig. 407), spindle-shaped, largely transversely irregularly carinate-rugose; hind femur swollen and robust, apical half of hind femur dorsally with some short setosity; outer side of hind tibia gradually depressed at base of widened part (fig. 413), widened part slightly concave ventrally and apical part rather slender (fig. 408), inner side convex, narrow part basally with few punctures, but medially with quadruple or triple row of punctures and medium-sized bristly setae, medially with rather deep transverse depression; hind basitarsus parallel-sided, rather slender (fig. 410), its ventral length 5.1 times its width and apically weakly oblique.

Metasoma.— First tergite 8.8 times as long as its maximum width (and 10.0 times its apical width), and densely coarsely and regularly transversely striate but its basal third rugose and apically narrowly smooth; basally second tergite with some coarse rugae; third and following tergites matt, micro-sculptured; pygidial area distinctly impressed laterally, but largely strongly convex, densely setose as its surroundings, with some coarse punctures, and with long straight setae comparable to setae of cerci; length of ovipositor sheath 2.3 times fore wing and equal to length of body, ivory part as long as dark apical part (fig. 411).

Colour.— Black or brownish-black; ivory patch of malar space extending on temple up to hypostomal flange, distinctly contrasting with temple and vertex (fig. 404); tegulae, coxae, hind trochanter and trochantellus, narrow basal part of hind tibia, telotarsi, hind tarsus, veins and pterostigma dark brown; first tergite dark chestnut brown; remainder of legs more or less orange, with apex of hind tibia strongly contrasting with hind basitarsus; fore wing membrane evenly moderately brownish.

Distribution.— Papua New Guinea; Indonesia: Irian Jaya.

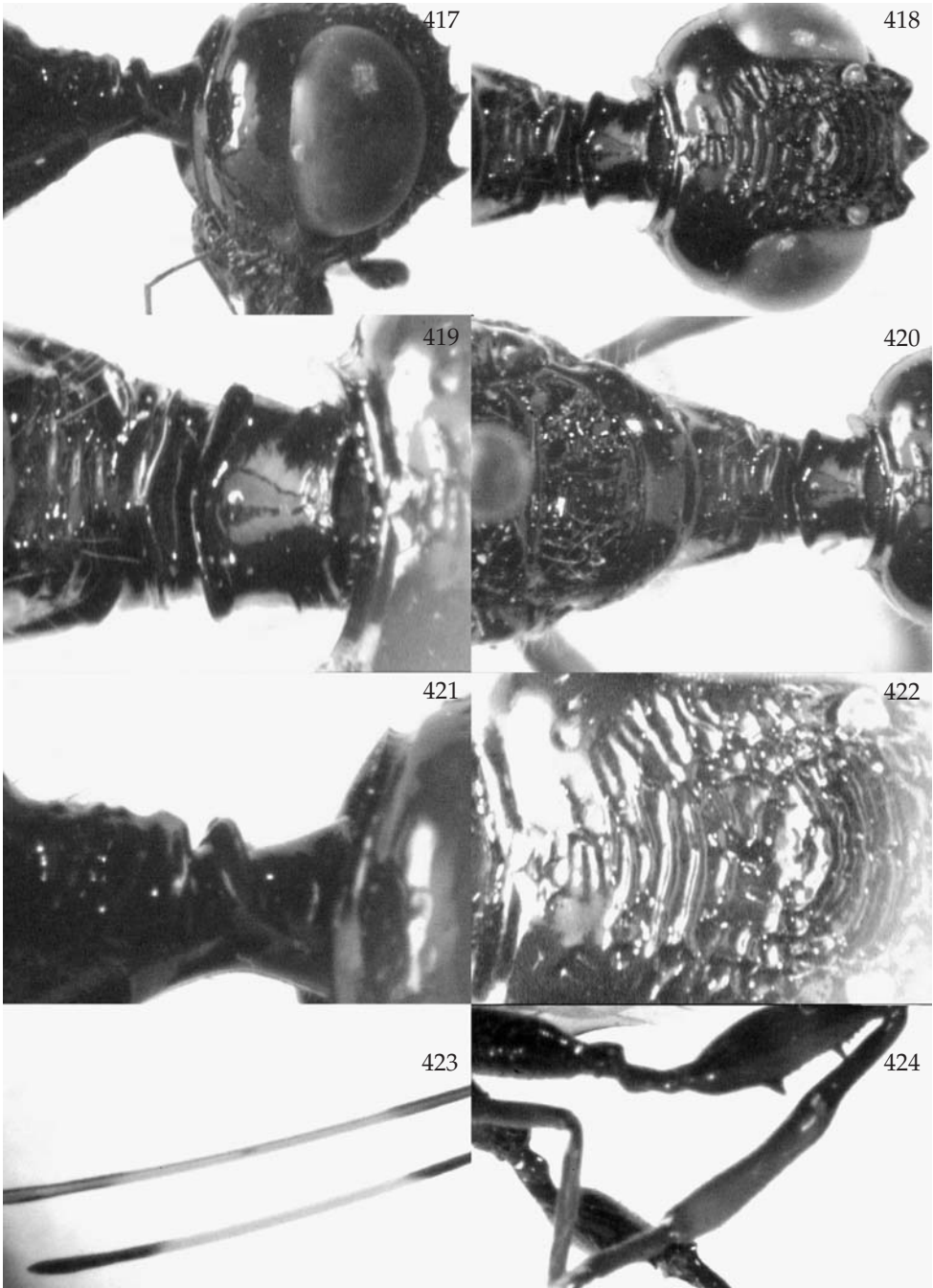
Note.— The female paratype has no bell-shaped sculpture of the vertex because of the irregular reticulate sculpture laterally, posterior part of the pronotum sparsely short setose laterally, widened part of the hind tibia dark brown dorsally, the meso- and metapleuron densely setose, the antenna dark brown; the first metasomal tergite blackish, and the wings weakly infusate. The male paratype has the hind basitarsus brown, hardly contrasting with the apex of the hind tibia and the mesopleuron distinctly short setose.

Megischus exilis spec. nov.
(figs 417-425, 427-432)

Material.— Holotype, ♀ (BPBM), “[Indonesia]:, Ceram, Piroe, i.1909, F. Muir”.

Holotype, ♀, length of body 29.7 mm, and of fore wing 16.6 mm.

Head.— Antenna incomplete; length of third antennal segment 3.1 times its maximum width, and fourth segment 1.3 times as long as third segment (ventral side with many medium-sized circular sensillae; fig. 425); frons very coarsely obliquely carinate-rugose and medially reticulate; three anterior coronal teeth very large, lobe-shaped, both posterior ones small, part of transverse, sinuate lamella widened



Figs 417-424, *Megischus exilis* spec. nov., ♀, holotype. 417, head and neck, lateral aspect; 418, head and neck, dorsal aspect; 419, neck, dorsal aspect; 420, pronotum, dorsal aspect; 421, neck, lateral aspect; 422, vertex, dorsal aspect; 423, apex of ovipositor sheath; 424, hind leg.

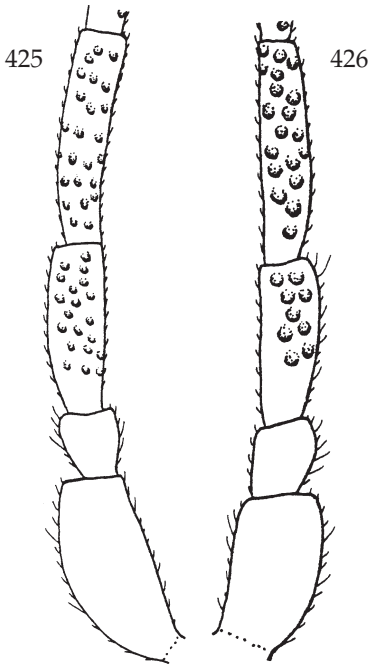


Fig. 425, *Megischus exilis* spec. nov., ♀, holotype; fig. 426, *M. tarsalis* Smith, ♀, Morotai. Four basal segments of antenna, ventral aspect, showing multiporous plate sensilla.

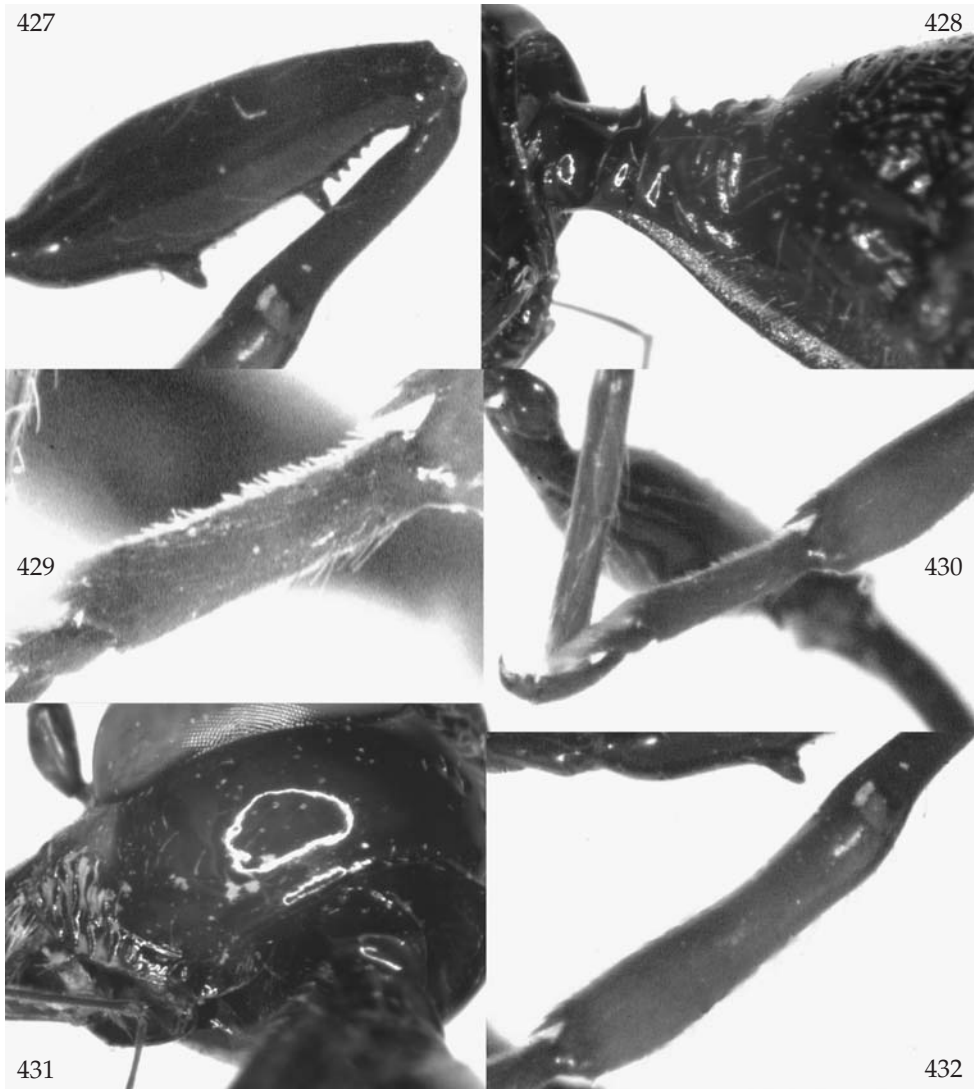
pronotal fold, medially narrower and moderately close to pronotal fold; fig. 417), without other carinae laterally except some indistinct carinae anteriorly; pronotal fold robust, slightly sinuate (fig. 419) and below it with rather large concavity and behind it slightly impressed and no median carina directly behind pronotal fold; middle part of pronotum with four rather indistinct and incomplete transverse carinae and some coarse punctures dorsally, laterally without distinct oblique groove, and with short oblique carina, middle part distinctly separated from posterior part of pronotum (fig. 420); posterior part of pronotum largely glabrous (except for the usual long setae), convex (fig. 420), without short setosity and with several coarse punctures, and postero-laterally with some short crenulae; propleuron coarsely and rather sparsely punctate; convex part of mesopleuron largely without short whitish setosity, coarsely foveolate-rugose, posteriorly mainly foveolate; mesosternum largely smooth and without short setose posteriorly; convex part of metapleuron coarsely reticulate, rather elongate and densely rather long whitish setose, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with medium-sized smooth interspaces.

Wings.— Fore wing: vein 1-M 5.3 times as long as vein 1-SR and 1.5 times vein m-cu; vein 2-SR almost as long as vein r; vein r ends 0.5 times length of pterostigma behind level of apex of pterostigma and vein 1-SR 0.9 times as long as parastigmal vein.

Legs.— Hind coxa rather slender spindle-shaped (fig. 424), medially largely

towards both ends; after this lamella four very strong weakly curved regular lamelliform carinae and steeply lowered to a flattened area with five long coarse regular and spaced transverse rugae (but medio-anteriorly with some short carinae and largely smooth, with shallow median groove), latero-anteriorly with some reticulation, and remaining removed from occipital carina (fig. 418); temples largely smooth and shiny, except for several fine punctures and roundly narrowed behind eyes; occipital carina strongly developed and almost reaching hypostomal carina (fig. 431); postgenal bridge subhorizontal behind wide hypostomal carina and with strong median carina and pair of lateral carinae (fig. 431); hypostomal flange comparatively large and very coarsely obliquely rugose (fig. 431).

Mesosoma.— Neck elongate and anteriorly subtruncate (fig. 418), neck postero-dorsally at much lower level than middle part of pronotum, flat and smooth medially, with a complete very strong sinuate carina, stronger than



Figs 427-432, *Megischus exilis* spec. nov., ♀, holotype. 427, hind femur; 428, neck, latero-dorsal aspect; 429, hind basitarsus; 430, hind tarsus; 431, head, latero-ventral aspect; 432, detail of hind tibia.

smooth except for several short rugae and basally somewhat rugose; hind femur largely without short setosity and outer side smooth; outer side of hind tibia gradually depressed, ventrally slightly concave and apically rather slender (figs 424, 432), inner side convex basally, with many punctures more or less in a triple row and bristly setose, and with distinct transverse depression; hind basitarsus nearly parallel-sided and partly oblique apically, moderately robust (figs 429, 430), its ventral length 3.9 times its width.

Metasoma.— First tergite 10.7 times as long as its maximum width (or its apical width), and densely rather irregularly transversely striate but basal 0.4 irregularly rugose and apically narrowly smooth; basally second tergite narrowly rugose, remainder smooth; third and following tergites matt and superficially and very finely granulate; pygidial area mainly coriaceous but smooth apically, long densely setose except apically, medially moderately convex and without distinct punctures, with long straight setae; length of ovipositor sheath 2.3 times fore wing (and 1.2 times as long as body), ivory part 2.1 times as long as its dark apical part (fig. 423).

Colour.— Black; malar space ivory, strongly contrasting with temple and vertex; antenna, palpi, fore coxa, narrowed part of hind tibia, hind trochanter and trochantellus, tegulae, veins and pterostigma dark brown; metasoma blackish-brown; remainder of fore and middle legs, remainder of hind tibia yellowish-brown; hind tarsu slightly darker brown than apex of hind tibia; wing membrane rather weakly infusate, but fore wing medially distinctly darker.

Distribution.— Indonesia (Ceram).

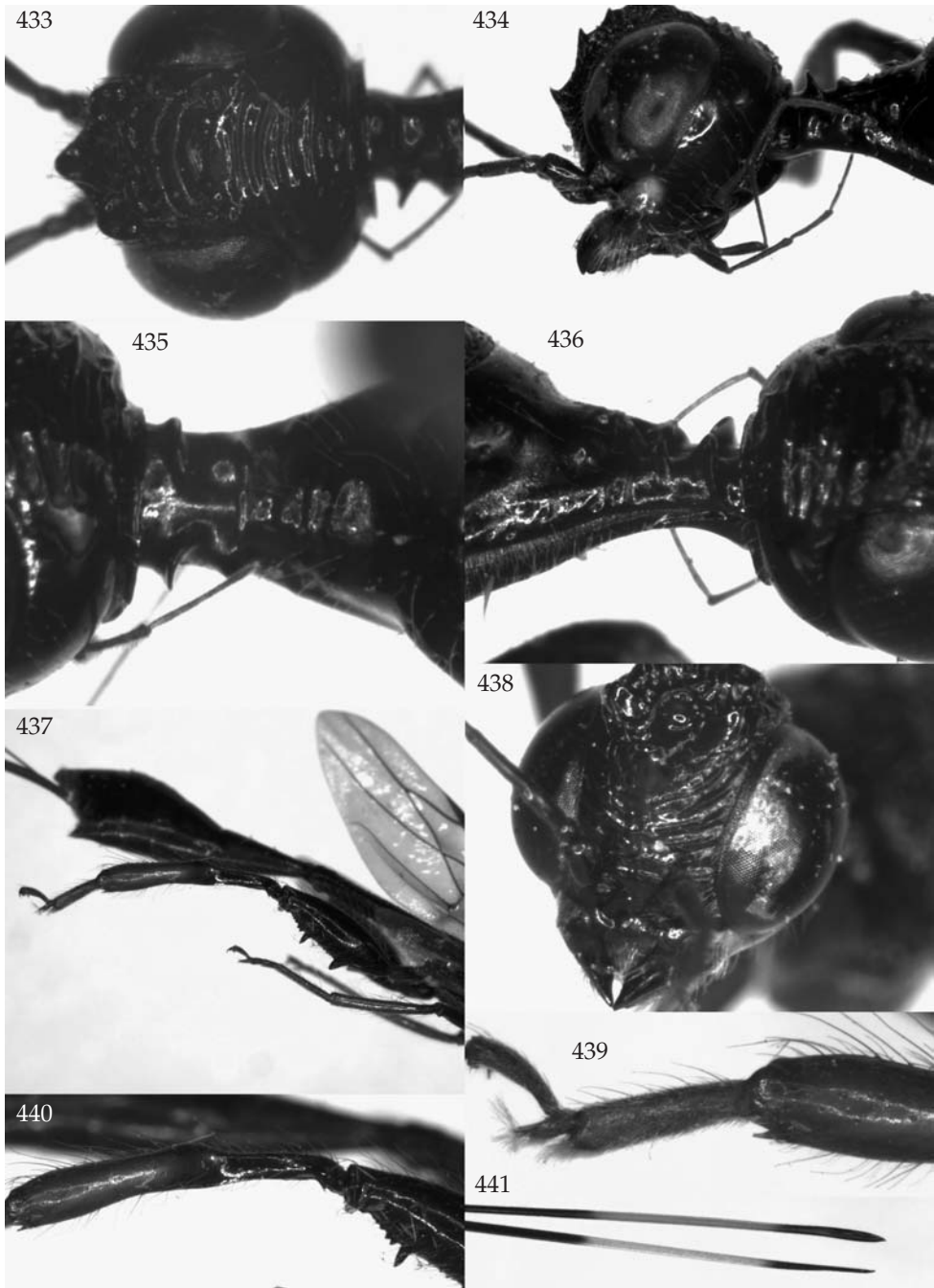
Megischus fransseni spec. nov.
(figs 433-445)

Material.— Holotype, (RMNH), “[Indonesia:] N Celebes, Manado, Minahasa, viii.1949, C. Franssen”, “Museum Leiden, ex coll. J. v.d.Vecht”. Paratype: 1 ♀ (BMNH), “Indonesia: Banggai Is[lands], Potil Kecil, 123°33'2"E 0158°S, 12.ii.1980”.

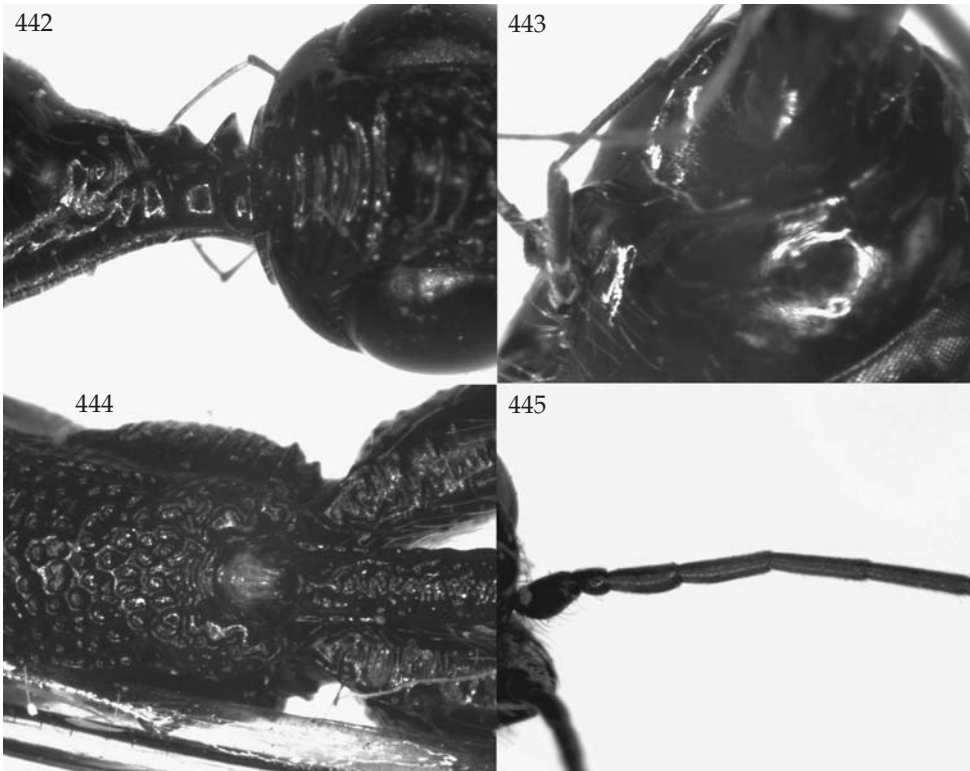
Holotype, ♀, length of body 21.4 mm, and of fore wing 12.2 mm.

Head.— Antenna incomplete; length of third antennal segment 2.6 times its maximum width, and fourth segment 1.3 times as long as third segment (fig. 445; with many rather small circular sensillae); frons very coarsely transversely and spaced carinate ventrally and curved carinate dorsally; three anterior coronal teeth very large, lobe-shaped, both posterior ones small, part of transverse, sinuate lamella widened towards both ends; after this lamella three very strong weakly curved regular lamelliform carinae and steeply lowered to a flattened area with seven long coarse regular and spaced transverse rugae without any reticulation, and remaining removed from occipital carina (fig. 433); temples largely smooth and shiny, except for several fine punctures and roundly narrowed behind eyes; occipital carina strongly developed and almost reaching hypostomal carina (fig. 443); postgenal bridge widely and gradually declivous behind wide lamelliform hypostomal carina (fig. 443); hypostomal flange comparatively large and only with some punctures (fig. 443).

Mesosoma.— Neck elongate and anteriorly truncate (fig. 442), neck postero-dorsally at much lower level than middle part of pronotum (fig. 436), flat and smooth medially, with a pair of very strong ear-like carinae laterally rather converging to pronotal fold (ears very much stronger than pronotal fold and comparatively far removed from it; figs 434, 436), without other carinae laterally; pronotal fold moderately strong, slightly sinuate and below it with large concavity and behind it slightly impressed; middle part of pronotum with two weak and short transverse carinae and some coarse punctures dorsally, laterally without distinct oblique groove and no median carina directly behind pronotal fold, middle part distinctly separated from posterior part of pronotum (fig. 442); posterior part of pronotum largely glabrous



Figs 433-441, *Megischus fransseni* spec. nov., ♀, holotype. 433, head and neck, dorsal aspect; 434, head and neck, lateral aspect; 435, pronotum, dorsal aspect; 436, pronotum, latero-dorsal aspect; 437, hind leg; 438, head, latero-frontal aspect; 439, hind tarsus; 440, hind tibia; 441, apex of ovipositor sheath.



Figs 442-445, *Megischus fransseni* spec. nov., ♀, holotype. 442, head and pronotum, latero-dorsal aspect; 443, head, latero-ventral aspect; 444, propodeum, dorsal aspect; 445, basal segments of antenna.

(except for the long setae usually present), without short setosity and with several coarse punctures, and postero-laterally with some short crenulae; propleuron coarsely and rather extensively punctate; convex part of mesopleuron largely without short whitish setosity and coarsely punctate-rugose, posteriorly more punctate than rugose; mesosternum largely smooth and without short setose posteriorly; convex part of metapleuron coarsely reticulate, rather elongate and densely rather long whitish setose, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with medium-sized smooth interspaces (fig. 444).

Wings.— Fore wing: vein 1-M 6.8 times as long as vein 1-SR and 1.4 times vein m-cu; vein 2-SR 1.1 times as long as vein r; vein r ends 0.4 times length of pterostigma behind level of apex of pterostigma and vein 1-SR 0.6 times as long as parastigmal vein.

Legs.— Hind coxa rather robust spindle-shaped, medially largely smooth except for several coarse punctures and short elevations in front of them, and basally rugose; hind femur without short setosity and outer side largely smooth and small teeth between both large teeth obsolescent (fig. 437); outer side of hind tibia gradually depressed, ventrally slightly concave and apically rather slender (fig. 440), inner side convex basally, with many punctures more or less in a triple row and bristly setose,

and with distinct transverse depression; hind basitarsus nearly parallel-sided partly oblique apically, moderately robust (fig. 439), its ventral length 4.6 times its width.

Metasoma.— First tergite 11.4 times as long as its maximum width (and 11.9 times its apical width), and densely rather irregularly transversely striate but basal 0.4 irregularly rugose and apically narrowly smooth; basally second tergite narrowly rugose, remainder and following tergites matt and superficially and very finely granulate; pygidial area coriaceous basally and smooth apically, long densely setose except apically, medially moderately convex and without distinct punctures, with long straight setae; length of ovipositor sheath 1.6 times fore wing (and 1.9 times as long as body), ivory part 1.7 times as long as its dark apical part (fig. 441).

Colour.— Black; malar space ivory, strongly contrasting with temple and vertex (fig. 434); antenna (except blackish scapus), palpi, fore and middle femora (except inner side), fore and middle tarsi, hind telotarsus, tegulae, veins and pterostigma and basal half of hind tibia dark brown; middle and hind coxae, and hind femur blackish-brown; remainder of legs and apex of hypopygium narrowly yellowish-brown; wing membrane weakly infuscate, but fore wing medially slightly darker.

Distribution.— Indonesia (Sulawesi; Banggai Islands).

Notes.— The paratype has the ivory spot of the malar space extended on the lower part of the temple, but not reaching the occipital carina, the scapus equally dark brown as the remainder of the antenna, the frons and the vertex less regularly carinate, the flattened area of the vertex slightly grooved medially, the antenna with 37 segments, and the hind basitarsus 4.4 times as long as wide.

This species is named after its collector, Mr C. Franssen, who collected under often difficult circumstances many important Hymenoptera in Sulawesi.

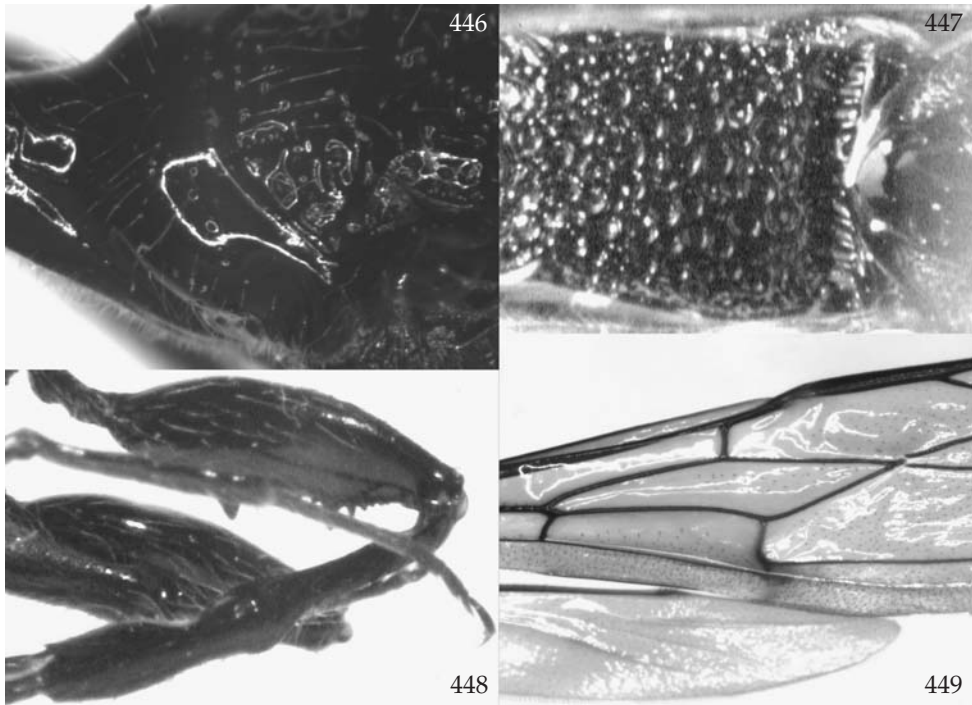
Megischus glabricephalus spec. nov.
(figs 79-87, 446-449)

Material.— Holotype, ♀ (CNC) "Philippines, Cagayan, Callao Caves, N.P., Peñablanca, 27-28.v.1987, C.K. Starr". Paratype: 1 ♀ (BPBM), "P[hilippine] I[slands], Mindanao, Zamboanga del Sur, Lemesahan, 150' [ft], 8.ix.1958", "H.E. Milliron Collector", "Stream pools".

Holotype, ♀, length of body 15.3 mm, and of fore wing 11.5 mm.

Head.— Antenna with 43 segments; length of third antennal segment 3.2 times its maximum width (fig. 80), and fourth segment 1.2 times as long as third segment; frons coarsely transversely rugose ventrally and irregularly curved rugose dorsally; three anterior coronal teeth large, lobe-shaped, both posterior ones smaller, part of wide transverse lamella, which is narrowed medially; after this lamella four strong regular curved lamelliform carinae (last one short) followed by a slightly depressed area with some short crenulae medially and remainder smooth (fig. 82); temple rather angulate directly behind eyes and after this directly narrowed (fig. 87), smooth and shiny; occipital carina reduced ventrally and absent above lower level of eyes, remaining distinctly removed from hypostomal carina; postgenal bridge widely and steeply declivous; hypostomal flange comparatively large, somewhat elevated and with some punctures.

Mesosoma.— Neck rather slender (fig. 79) and anteriorly slightly emarginate, neck



Figs 446-449, *Megischus glabricephalus* spec. nov., ♀, holotype. 446, posterior part part of pronotum, latero-dorsal aspect; 447, propodeum, dorsal aspect; 448, hind femur and tibia; 449, part of fore wing.

completely smooth and strongly shiny, postero-dorsally at lower level than middle part of pronotum, flat medio-posteriorly (fig. 84); pronotal fold strongly developed and below it with narrow concavity (fig. 80); area behind pronotal fold depressed, and smooth, followed by slightly elevated medial area, but without distinct transverse carinae, no median carina directly behind pronotal fold, middle part strongly differentiated from posterior part of pronotum (figs 79-81, 84); posterior part of pronotum evenly protruding postero-laterally (fig. 79), largely glabrous, without short setosity and with few setiferous punctures, posteriorly coarsely costate-crenulate; propleuron sparsely and coarsely punctate; convex part of mesopleuron with rather short whitish and rather dense setosity and anteriorly coarsely rugose-punctate, remainder mainly coarsely punctate; mesosternum largely smooth; convex part of metapleuron coarsely reticulate, rather elongate and with dense rather short whitish setosity, both anterior depressions very deep and large; propodeum coarsely foveolate with only narrow smooth interspaces (fig. 447).

Wings.— Fore wing (fig. 449): vein 1-M 6.1 times as long as vein 1-SR and 1.4 times vein m-cu; vein 2-SR 1.3 times vein r; vein r ends 0.3 times length of pterostigma behind level of apex of pterostigma; vein 1-SR 0.7 times as long as parastigmal vein.

Legs.— Hind coxa rather slender spindle-shaped, largely with mainly short transverse rugae; apical half of hind femur with short setosity, femur robust and swollen;

outer side of hind tibia steeply depressed at widened part near end of narrow basal part (fig. 448), ventrally deeply concave and apical part robust (fig. 83), inner side rather convex, with comparatively few fine punctures in a triple row and with deep transverse depression; hind basitarsus somewhat widened apically (fig. 85), its ventral length 4.1 times its width.

Metasoma.— First tergite 11.0 times as long as its maximum width (and 12.3 times its apical width), and densely regularly transversely striate but less regularly basally and apically narrowly smooth; basally second tergite coarsely transversely rugose; pygidial area moderately differentiated, smooth and without distinct punctures, setae rather long; length of ovipositor sheath 1.8 times fore wing (and 1.3 times body), ivory part 2.3 times as long as dark apical part (fig. 86).

Colour.— Black; head dark reddish, with frons infuscate; malar space and small part of temple ventrally ivory (fig. 80), hardly contrasting with temple and vertex; antenna basally, fore and middle legs (except blackish coxae), hind tarsus, tegulae, veins and pterostigma more or less dark brown; hind tibia blackish-brown; fore wing membrane evenly weakly brownish.

Distribution.— Philippines (Cagayan, Mindanao).

Note.— The paratype has a similarly shaped pronotum and head, but has the head largely dark brown or blackish, with the face yellowish-brown, and the malar spot distinctly contrasting with the blackish temple and vertex, and basal half of the hind tibia, the hind trochanter and trochantellus dark brown; the vertex after the four coarse curved carinae nearly completely smooth; the fore and middle legs paler brown than in holotype and distinctly contrasting with the hind legs.

Megischus haematipoda (Montrouzier, 1857) comb. nov.
(figs 88-96)

Stephanus haematipoda Montrouzier, 1857: 114; Schletterer, 1889: 87, 116; Dalla Torre, 1902: 7; Enderlein, 1905: 475; Kieffer, 1908: 4; Elliott, 1922: 717, 741.

?*Stephanus tricolor* Elliott, 1927: 228.

Material.— Holotype from **Papua New Guinea**: Woodlark Island of *Stephanus haematipoda*, a ♀, should be in Dresden, but is absent (pers. comm. R. Eck) and is considered to be lost by fire during WWII. Also the male holotype of *Stephanus tricolor* from Papua New Guinea (Kaiser Wilhelmsland, Bongu) is considered lost, it could not be found either in BMNH, or in USNM (D. Smith, in litt.). Specimens used for redescription: ♀ (BPBM), "[Papua] New Guinea, NE, Kokoda, 400 m, 14-16.xi.1965", "J. Sedlacek collector, Bishop Mus.". Additional specimens examined are all from Papua New Guinea (BMNH, BPBM, RMNH, ZSM, SAMA).

The holotype is lost, therefore, for the redescription a specimen from New Guinea is used fitting the original description, ♀, length of body 29.4 mm, and of fore wing 15.9 mm.

Head.— Antenna with 41 segments; length of third antennal segment 3.3 times its maximum width, and fourth segment 1.2 times as long as third segment; frons coarsely transversely rugose, dorsally obliquely rugose; three anterior coronal teeth large, lobe-shaped, both posterior ones smaller and wide, part of sinuate and widened transverse lamella narrowed medially; after this lamella five very strong regularly curved

lamelliform carinae laterally connected to oblique coarse irregular rugae resulting in bell-shaped sculpture and medio-posteriorly weakly concave and coarsely and rather densely transversely rugose and almost reaching occipital carina (fig. 89); temple directly roundly narrowed behind eye (fig. 89), largely smooth and shiny, except for some weak punctures laterally; occipital carina strongly developed and reaching lower level of eyes, running shortly parallel to lamelliform hypostomal carina; postgenal bridge widely and gradually declivous; and without pair of distinct teeth above it; hypostomal flange large and only punctate.

Mesosoma.— Neck moderately robust and anteriorly shallowly emarginate (fig. 88), neck postero-dorsally at much lower level than middle part of pronotum (fig. 90), postero-medially narrowly flat and smooth, with two rather weak and interrupted transverse carinae anteriorly, two interrupted and very strong carinae, similar to pronotal fold (fig. 90); pronotal fold strongly developed and below it a wide and rather shallow concavity and behind fold rather deeply concave and with weak median crest; middle part of pronotum with six (partly complete, and also laterally present), strong transverse carinae; middle part rather differentiated from posterior part of pronotum (fig. 90), and with distinct oblique lateral groove; posterior part of pronotum moderately convex posteriorly (fig. 88), coarsely crenulate postero-laterally, with sparse short setosity only laterally and with several very coarse punctures; propleuron coarsely and sparsely punctate; convex part of mesopleuron with sparse short whitish dense setosity and very coarsely and rather densely punctate, interspaces mostly about as wide as punctures; mesosternum largely smooth, posterior 0.3 short setose; convex part of metapleuron coarsely reticulate, rather elongate and with dense moderately short whitish setosity, both anterior depressions very deep and large; propodeum coarsely and rather remotely foveolate, with medium-sized smooth interspaces.

Wings.— Fore wing (fig. 93): vein 1-M 6.5 times as long as vein 1-SR and 1.3 times vein m-cu; vein 2-SR 0.7 times as long as vein r; vein r ends 0.5 times length of pterostigma behind level of apex of pterostigma; vein 1-SR 0.76 times as long as parastigmal vein.

Legs.— Hind coxa rather slender, spindle-shaped (fig. 92), largely transversely and largely incompletely irregularly rugose; hind femur swollen and robust, apical half of hind femur partly with short setosity; outer side of hind tibia gradually depressed at base of widened part (fig. 94), widened part slightly concave ventrally and apical part rather slender (fig. 94), basally inner side flattened, narrow part basally with many punctures mostly in a triple row and medium-sized bristly setae, medially with rather deep transverse depression; hind basitarsus parallel-sided, slender (fig. 91), its ventral length 5.6 times its width and apico-ventrally subtruncate.

Metasoma.— First tergite 11.1 times as long as its maximum width (and 11.7 times its apical width), and densely coarsely and regularly transversely striate but its basal third irregularly rugose and apically smooth; basally second tergite with some coarse rugae; third and following tergites matt, micro-sculptured; pygidial area rather impressed laterally, but largely strongly convex, glabrous except for row of long straight setae comparable to setae of cerci and submedial row of coarse punctures; length of ovipositor sheath 2.3 times fore wing and 1.3 times length of body, ivory part 1.1 times as long as its dark apical part.

Colour.— Black or brownish-black; pale yellowish patch of malar space extending

on temple up to hypostomal flange, hardly contrasting with temple but distinctly with vertex (fig. 90); fore coxa, outer side of fore femur and patch on outer side of middle femur dark brown; palpi, antenna basally partly, face and temple (except dorsally and near malar space), remainder of fore and middle legs (except coxae), hind trochantellus, base of hind femur narrowly, hind tibia and tarsus yellowish-brown (fig. 92); tegulae, veins and pterostigma dark brown; membrane of fore wing moderately brownish medially, remainder of fore wing pale yellowish.

Distribution.— Papua New Guinea. The specimens reported by Szépligeti (1902) from the Moluccas (Batchian and Jobi [= Obi] Isl.) are misidentified *M. coronator* according to the specimens present in TMA.

Note.— If the hind femur of *Stephanus tricolor* is orange-brown, then it belongs to *M. rufofemoratus* (Szépligeti)! The colour of the hind femur is not clear from the description, only is stated to be similar to *M. aequalis* (Elliott, 1927) (= *M. rubripes* (Kieffer, 1916)) which has a blackish hind femur.

Megischus inaequalis (Elliott, 1927)
(figs 97-105)

Stephanus inaequalis Elliott, 1927: 218 [examined].

Megischus inaequalis; Baltazar, 1966: 17.

Material.— Holotype of *Stephanus inaequalis*, ♀ (USNM) “[Philippines], Island Sibuyan, Baker”, “*S. inaequalis* Elliott, type”, “Paratype no. 42041, U.S.N.M.”. “*Stephanus inaequalis* Elliott”.

Holotype, ♀, length of body 19.9 mm, and of fore wing 11.0 mm.

Head.— Antenna incomplete; length of third antennal segment 2.6 times its maximum width, and fourth segment 1.3 times as long as third segment (fig. 100; with few rather small circular sensillae); frons with coarse, more or less curved spaced carinae and dorsally oblique and partly reticulate; three anterior coronal teeth large, lobe-shaped, both posterior ones medium-sized, part of transverse, hardly sinuate lamella distinctly widened towards both ends; after this lamella four irregular and incomplete lamelliform carinae steeply depressed and followed by flattened and regularly spaced transversely rugose area with some weak and short rugae almost reaching strong occipital carina and laterally coarsely reticulate (fig. 97); head rather slender (fig. 57); temples largely smooth and shiny, except for several rather fine punctures and directly narrowed behind eyes (fig. 97); occipital carina strongly developed, but near hypostomal carina obsolescent (fig. 105); postgenal bridge widely and gradually declivous behind wide lamelliform hypostomal carina; hypostomal flange comparatively large, not well differentiated and smooth.

Mesosoma.— Neck moderately slender (fig. 98) and anteriorly subtruncate, with complete and distinctly upcurved subanterior transverse crest, flat and smooth medio-posteriorly, with a pair of rather weak and widely interrupted carinae, followed by two short moderately strong carina at right and one strong one at left, not converging to pronotal fold (figs 98, 102), neck postero-dorsally at somewhat lower level than middle part of pronotum (fig. 100); pronotal fold robust, weakly sinuate and with a shallow concavity below it (fig. 98); middle part of pronotum with four strong complete transverse carinae, behind fold distinctly concave, without median

keel, laterally without oblique groove, middle part distinctly differentiated from posterior part of pronotum (fig. 98); posterior part of pronotum without short setosity (except below tegulae) and with few very coarse setiferous punctures mainly posteriorly, postero-laterally moderately convex (fig. 98) and with some short crenulae; propleuron with few coarse punctures; convex part of mesopleuron coarsely foveolate-punctate with area in front more or less elevated, anteriorly resulting in distinct rugae, with dense short setosity; side of scutellum sparsely long setose; mesosternum largely smooth (except some punctures) and posterior third largely with short setosity; convex part of metapleuron coarsely reticulate, robust and densely rather long whitish setae, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with partly wide smooth interspaces.

Wings.— Fore wing (fig. 103): vein 1-M 6.2 times as long as vein 1-SR and 1.3 times vein m-cu; vein 2-SR nearly as long as vein r; vein r ends 0.6 times length of pterostigma behind level of apex of pterostigma and vein 1-SR 0.8 times as long as parastigmal vein.

Legs.— Hind coxa rather robust triangularly shaped, medially partly smooth, but numerous short transverse rugae, basally rugose; outer side of hind femur largely with short setosity and smooth between punctulation; basal 0.4 of hind tibia weakly narrowed, comparatively flat and submedially very gradually depressed (fig. 99) and outer apical 0.6 distinctly swollen, short setose and densely punctulate and ventrally slightly concave, inner side rather convex, with most punctures in a triple row and rather long bristly setose medially but near base finer punctate, and with distinct transverse depression; hind basitarsus somewhat widened apically, rather robust (fig. 101), its ventral length 4.1 times its width.

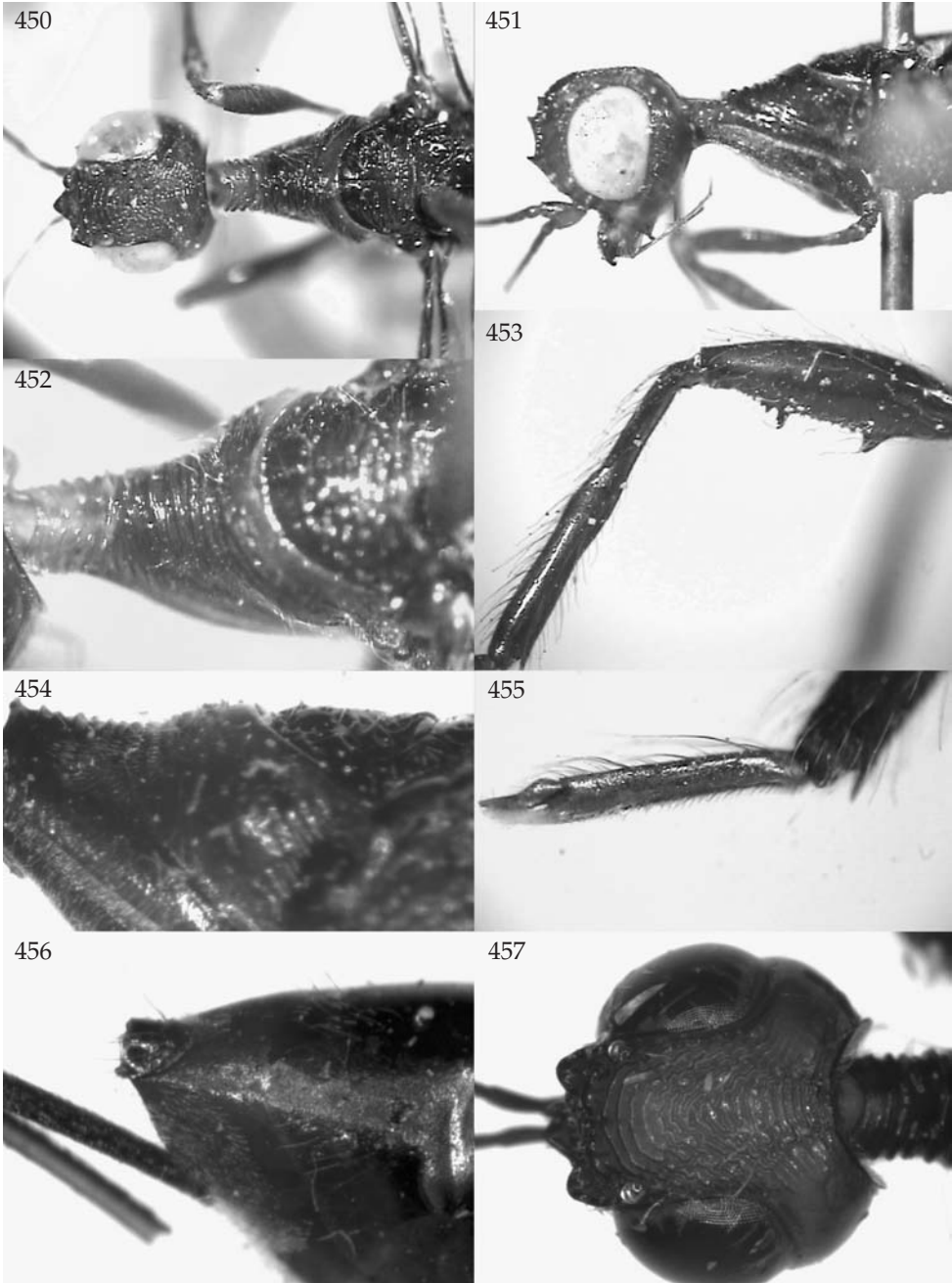
Metasoma.— First tergite 7.0 times as long as its maximum width (and 7.9 times its apical width), without distinct medio-longitudinal carina or rugae basally, and densely regularly transversely rugose but basal third more rugose and apically narrowly smooth; basally second tergite with few distinct rugae; remainder of second tergite largely shiny and smooth, third and following tergites matt and micro-sculptured; pygidial area largely smooth, largely glabrous and shiny, medially strongly convex and apically thin, lamelliform, and with indistinct punctures submedially, with long straight setae surpassing apex of metasoma, and medio-apically with minute lamelliform protuberance; length of ovipositor sheath 1.6 times fore wing (and 0.9 times as long as body), ivory part 1.2 times as long as its dark apical part (fig. 104).

Colour.— Black; malar space and most of ventral half of temple yellowish-ivory, weakly contrasting with remainder of temple and vertex (fig. 100); remainder of head, rather dark orange-brown; antenna (but scapus brown), palpi, tegulae, fore and middle legs (but fore and middle coxa blackish), apical 0.6 of hind tibia, hind tarsus, veins and pterostigma (except paler base) dark brown; wing membrane completely weakly infuscate.

Distribution.— Philippines (Sibuyan).

Megischus insularis Smith, 1857
(figs 12, 106-115, 370, 372, 450-457)

Megischus insularis Smith, 1857: 120, 1864: 141; Elliott, 1922: 738 (as synonym of *M. coronator* (Fabricius, 1804) [examined]).



Figs 450-457, *Megischus insularis* Smith, ♀, lectotype, but 456 of holotype of *M. glabricoxis* (Elliott) and 457 of ♀ from Sabah (Danum Valley). 450, head and pronotum, dorsal aspect; 451, head and pronotum, lateral aspect; 452, pronotum, dorsal aspect; 453, hind femur and tibia, lateral aspect; 454, middle and posterior parts of pronotum, lateral aspect; 455, hind basitarsus; 456, pygidium, latero-dorsal aspect; 457, head, dorsal aspect.

Stephanus insularis; Dalla Torre, 1902: 7.

Stephanus tinctipennis Kieffer, 1916: 403-405; Elliott, 1927: 220 (as *S. tinctipes* [sic!] Kieffer); Baltazar, 1966: 16 (as synonym of *M. coronator* (Fabricius, 1804)). **Syn. nov.**

Stephanus pilosus Elliott, 1921: 256, 1922: 717, 744; Dutt, 1926: 3 [examined]. **Syn. nov.**

Stephanus rugosus Elliott, 1921: 256, 1922: 718, 745; Dutt, 1926: 4 [examined]. **Syn. nov.**

Stephanus impressus Elliott, 1926: 519, 1927a: 222; Baltazar, 1966: 16 (as synonym of *M. coronator* (Fabricius, 1804)) [examined]. **Syn. nov.**

Stephanus sulcatus Elliott, 1926: 521, 1927a: 222; Baltazar, 1966: 16 (as synonym of *M. coronator* (Fabricius, 1804)) [examined]. **Syn. nov.**

Stephanus philippinensis Ceballos, 1926: 140, fig.; Elliott, 1927: 219 [examined]. **Syn. nov.**

Megischus philippinensis; Baltazar, 1966: 17.

Stephanus similis Elliott, 1927: 224; Baltazar, 1966: 16 (as synonym of *M. coronator* (Fabricius, 1804)) [examined]. **Syn. nov.**

Stephanus ruber Elliott, 1927: 226; Baltazar, 1966: 16 (as synonym of *M. coronator* (Fabricius, 1804)) [examined]. **Syn. nov.**

Stephanus samaris Elliott, 1927: 227-228; Baltazar, 1966: 16 (as synonym of *M. coronator* (Fabricius, 1804)) [examined]. **Syn. nov.**

Stephanus glabricoxis Elliott, 1927: 222 [examined]. **Syn. nov.**

Megischus ducalis; Smith, 1861a: 59, 1864: 141, 1873: 400.

Stephanus ducalis; Schletterer, 1889: 88, 112; Dalla Torre, 1902: 6; Enderlein, 1905: 475, 1906: 306; Kieffer, 1908: 4; Elliott, 1922: 717-8, 740, 1926: 520, 1927: 222; Dutt, 1926: 3; Berland, 1951: 903 (fig. 829H, not 829F).

Material.— Lectotype of *Megischus insularis* here designated, ♀ (BMNH), "Type", "B.M. Type Hym. 3.a. 136", "SAR [= **Malaysia, Sarawak, Borneo**]" (round greyish Wallace label), "*Megischus insularis* Smith" (in Smith's handwriting), "F. Sm[ith] Coll., 79.22"; paralectotypes: 1 ♂ + 1 ♀ (OUM), with similar "SAR" label and ♂ with original "*insularis* Smith" label; 1 ♂ (BMNH), "Cotype", "SAR.", "F. Sm[ith] Coll. 79.22"; 1 ♀ (BMNH), (broken ovipositor and sheath), "Cotype", "SAR.", "Borneo". Syn-types of *Stephanus tinctipennis* from **Philippines** (Puerto Princesa, **Palawan**; at least 1 ♀ + 2 ♂ ♂) considered lost, not in USNM or BMNH, in USNM only 1 ♀ from Samar and labelled "*Stephanus tinctipes* Kieffer" and 2 ♀ ♀ from the type locality (labelled "P. Princesa, Palawan, Baker") but too small for being one the ♀ type. Holotype of *Stephanus pilosus*, ♂ (BMNH), "Type, C.M.", "[**Java**], Palaboehan Ratoe, 22.ii.1916", "coll. by M.E. Walsh, tes (ex coll. Frisby / *Stephanus pilosus* Elliott, 1921, Entom. 1921, p. 256, ♂", "B.M. Type Hym. 3a.329". Holotype of *Stephanus rugosus*, ♂ (BMNH), "Type, C.M. [= from Claude Morley collection]", "Java, Preanger Regency, nr Soekaboemi, M.E. Walsh", "*Stephanus rugosus* E.A. Elliott, 1921, Entom. 1921, p. 256, ♂", "B.M. Type Hym. 3a.330"; paratypes: 3 ♂ ♂ (BMNH). Holotype of *Stephanus impressus*, ♂ (BMNH), "Type", "B.M. Type Hym. 3.a.132", "*Stephanus impressus* Elliott [in Elliott's handwriting]", "4865", "Davao, **Mindanao**, Baker", "Brit. Mus. 1923-106". Lectotype of *Stephanus sulcatus* here designated, ♀ (USNM), "Surigao, Mindanao, Baker", "21 431", "*Stephanus sulcatus* Elliott"; paralectotype: 1 ♀ (BMNH), same labels, and "B.M. Type Hym. 3.a.133". Lectotype of *Stephanus similis* here designated, ♀ (USNM), "Dapitan, Mindano, Baker", "*S. similis* type Elliott", "*Stephanus similis* Elliott"; paralectotypes (USNM): 13 types from Dapitan (plus 1 ♂ in BMNH), 10 types from Sandakan (Borneo), 1 type from Surigao (Mindanao), 1 type from Davao (plus 1 ♀ in BMNH), and 1 type from Zamboanga (Mindanao). Lectotype of *Stephanus ruber* here designated, ♀ (USNM), "Dapitan, Mindanao, Baker", "*Stephanus ruber* Elliott type", "*Stephanus ruber* Elliott"; paralectotypes (USNM): 5 types from Dapitan, and 1 type plus 1 ♀ + 1 ♂ PLT in BMNH from Surigao (Mindanao). Lectotype of *Stephanus samaris* here designated, ♀ (USNM), "Island **Samar**, Baker", "*S. samaris* Elliott", "*Stephanus samaris* Elliott"; paralectotype: 1 ♀ (BMNH), similarly labelled plus "B.M. Type Hym. 3.a.134". Holotype of *Stephanus glabricoxis*, ♀ (USNM), "Sandakan, Borneo, Baker", "*St. glabricoxis* Elliott, type". Holotype of *Stephanus philippinensis*, ♀ (MNCN), "Philippin., [**Luzon**], Bucas", "Holotipo", "*Stephanus philippinensis* Ceb., Tipo, G. Ceballos", "MNCN, Cat. Tipos No 8974".

Additional specimens examined from Thailand (RMNH, 400 m), Laos (TMA, 280 m), West Malaysia (RMNH, BMNH); Singapore (BMNH), Indonesia (Java (RMNH, OUM, BMNH, ZMA. LEW); Sumatra

(RMNH, BMNH), Borneo (RMNH, OUM), Lombok (ZMA)), East Malaysia (Sarawak (BMNH), Sabah (RMNH, BMNH)), Brunei (BMNH, RMNH), Philippines ((USNM, BMNH, RMNH, MNCN) Luzon; Samar; Mindanao; Basilan; Palawan; Homonhon).

Lectotype of *M. insularis*, ♀, length of body 21.0 mm, and of fore wing 11.7 mm.

Head.— Antenna incomplete; length of third antennal segment 2.4 times its maximum width, and fourth segment 1.3 times as long as third segment; frons rather coarsely curved rugose; three anterior coronal teeth large, lobe-shaped, both posterior ones small, part of sinuate transverse lamella a quarter from both ends; after this lamella five strong complete regular and somewhat curved lamelliform carinae followed by medially weakly depressed area with coarse irregular rugosity laterally and regular rugosity, as posterior up to occipital carina (figs 106, 450); temples smooth and shiny, except for some fine punctures; occipital carina rather strongly developed ventrally and almost reaching hypostomal carina (fig. 111); postgenal bridge widely and gradually declivous; hypostomal flange large and with one distinct rugae separating it from temple (fig. 111).

Mesosoma.— Neck elongate and anteriorly weakly concave, neck postero-dorsally at much lower level than middle part of pronotum (fig. 109), flat and smooth medially, with three strong oblique carinae postero-laterally; pronotal fold strong, porching over shallow depression (fig. 109), with some weak carinae anteriorly, anterior margin not uplifted; middle part of pronotum with six nearly complete strong transverse carinae and with indistinct short median carina directly behind pronotal fold, middle part gradually merging into posterior part of pronotum, but pronotum latero-posteriorly distinctly bulging (figs 108, 450); posterior part of pronotum largely finely and densely setose (but area narrow medially), with coarse punctures and posteriorly some oblique striae; propleuron with some sparse coarse punctures; convex part of mesopleuron with short whitish dense setosity and especially anteriorly coarsely reticulate-rugose; mesosternum largely smooth and only posteriorly densely short setose; convex part of metapleuron coarsely reticulate, rather elongate and distinctly densely short setose below long whitish setae, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with distinct smooth interspaces.

Wings.— Fore wing (fig. 114): vein 1-M 6.3 times as long as vein 1-SR and 1.2 times vein m-cu; vein 2-SR as long as vein r; vein r ends 0.4 times length of pterostigma behind level of apex of pterostigma.

Legs.— Hind coxa elongate spindle-shaped, with spaced transverse rugae; hind femur with two large teeth and with small teeth between booth teeth and behind apical one (fig. 453); apical half of hind femur with short setosity; outer side of hind tibia below depression parallel-sided, straight ventrally (fig. 453), inner side rather convex, with many fine punctures mostly in a triple row and with distinct transverse depression; hind basitarsus parallel-sided, slender (fig. 455), its ventral length 6.6 times its width.

Metasoma.— First tergite 10.3 times as long as its maximum width, and densely regularly transversely striate but basal third rather superficially and irregularly rugose and apically smooth, parallel-sided, but slightly narrowed posteriorly; basally second tergite narrowly somewhat superficially rugose; pygidial area coriaceous (but reduced posteriorly) and distinctly punctate medially and anteriorly, with long straight setae; length of ovipositor sheath 2.2 times fore wing, ivory part 2.1 times as long as dark apical part.

Colour.— Black or dark brown; head and neck orange-brown; malar space ivory, weakly contrasting with temple (fig. 109); fore and middle legs (except dark fore coxa) yellowish-brown; veins and pterostigma mainly brown, but base of pterostigma narrowly yellowish; mainly first subdiscal cell of fore wing and its surroundings distinctly infusate, remainder of fore wing membrane largely subhyaline or nearly so.

Distribution.— Thailand; Laos, West Malaysia; Singapore, East Malaysia (Borneo: Sarawak, Sabah), Brunei, Indonesia (Java, Lombok, Sumatra, Borneo), Philippines (Luzon, Samar, Mindanao, Basilan, Negros, Palawan, Homohon). Most commonly collected *Megischus* species west of the Wallace's Line.

Note.— The first carina behind the pronotal fold can be as strong as the pronotal fold; the middle of the fore wing may be weakly pigmented, large specimens (e.g., ♀ from Java (BMNH)) may have the first tergite 1.3 times wider submedially than apically and except subapically not regularly striate; the hind tibia and tarsus may be completely orange-yellowish and the carinae of the neck may be rather weak and widely interrupted (e.g., ♀ (USNM, Philippines, Negros). Setae of hind tibia may be longer than maximum width of tibia (holotype of *Stephanus philippinensis* Ceballos, 1926). Small specimens occur, especially among males, e.g., a male from West Java (BMNH) has the length of fore wing 7 mm. Ivory part of ovipositor sheath (1.4-) 1.6-3.5 times as long as dark part (fig. 115). Males have the digitus of the genitalia distinctly protruding submedially (fig. 370) and paramere with long setosity (fig. 372).

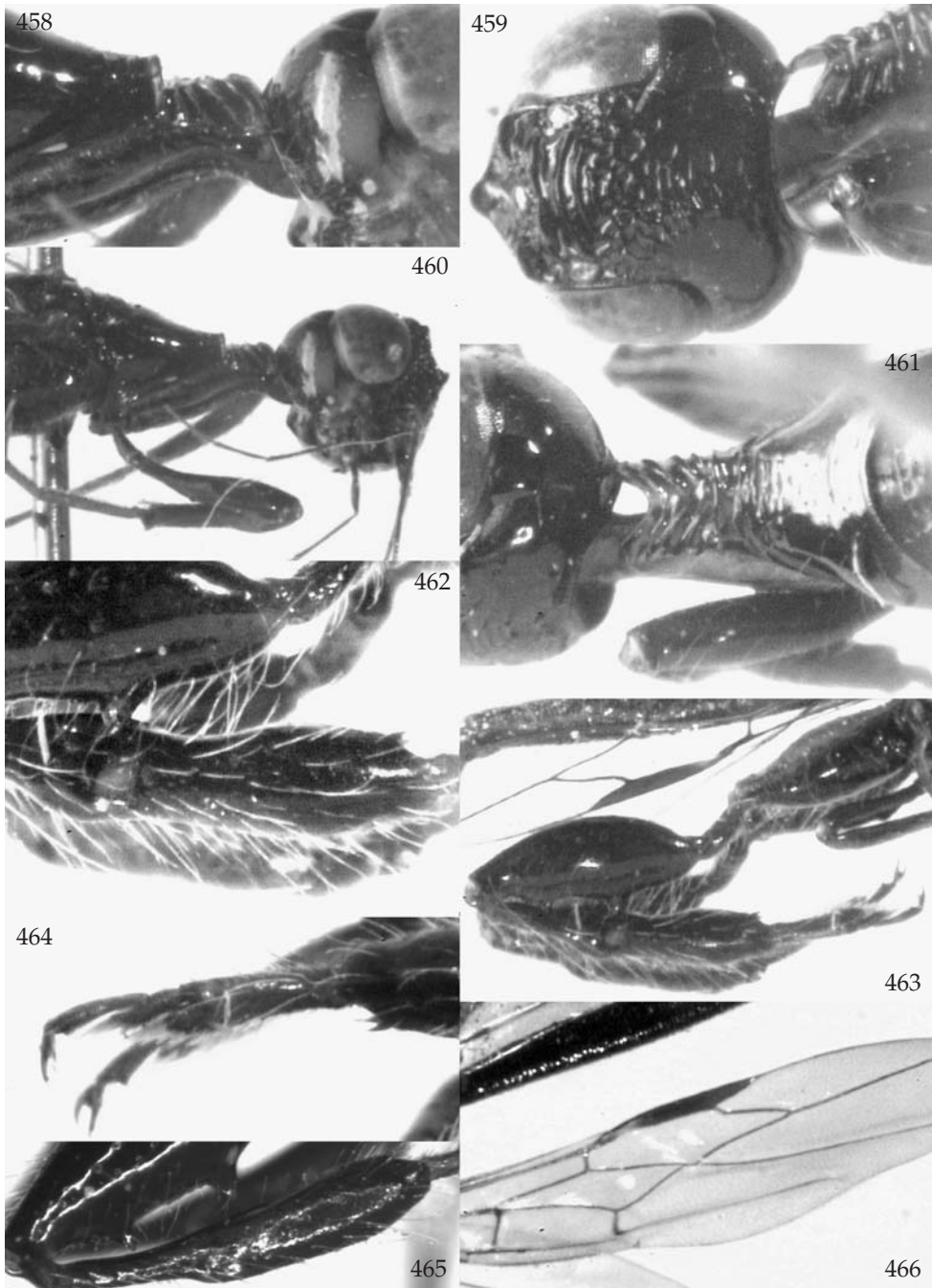
Megischus krombeini spec. nov.
(figs 458-466)

Material.— Holotype, ♀ (USNM), "Sri Lanka: Amp. Dist., Ekgal Oya Sanot., 145 m, 12.ix.1977, K.V. Krombein". Paratypes (8 ♀♀ + 2 ♀♀; USNM, National Museum of Sri Lanka, RMNH): 4 ♀♀ + 1 ♂, "Sri Lanka: Tri. Dist., Trincomalee, China Bay Ridge Bungalow, 0-100' [ft], 13-17.v.1976", "collected by K.V. Krombein, P.B. Karunaratne, S. Karunaratne, D.W. Balasooriya" (one collected in malaise trap); 2 ♀♀, id., but 16-17.v.1976; 1 ♀, id., but 0-30 m, 27.ii.1979, L. Jayawickrema; 1 ♀, "Sri Lanka: Put. Dist., 17 mi SE Puttalam, 18.vi.1975, S.L. Wood & J.L. Petty"; 1 ♂, "Sri Lanka: Tri. Dist., Amarivayal, 18.v.1976", "collected by K.V. Krombein, P.B. Karunaratne, S. Karunaratne, D.W. Balasooriya".

Holotype, ♀, length of body 14.2 mm, and of fore wing 7.7 mm.

Head.— Antenna with 32 segments; length of third antennal segment 2.8 times its maximum width, and fourth segment 1.3 times as long third segment; frons mainly coarsely reticulate; three anterior coronal teeth large, lobe-shaped, both posterior ones small and wide, part of wide sinuate transverse lamella, which is narrowed medially; after this lamella three strong weakly curved lamelliform carinae followed by a weakly convex area with some reticulation anteriorly, with some transverse carinae medially and remainder largely smooth (fig. 459); temple roundly narrowed behind eyes, but slightly bulging (fig. 459), smooth (except for some punctulation) and shiny; occipital carina weak ventrally and absent above lower level of eyes, remaining distinctly removed from hypostomal carina; postgenal bridge widely and gradually declivous; hypostomal flange large, somewhat elevated and with some superficial rugae.

Mesosoma.— Neck rather slender (fig. 461) and anteriorly rather deeply emarginate, neck with one medium-sized carina anteriorly and followed by three widely interrupted very strong oblique carinae, postero-dorsally at much lower level than



Figs 458-466, *Megischus krombeini* spec. nov., ♀, holotype, but 465 of ♂, paratype. 458, neck, lateral aspect; 459, head and neck, dorsal aspect; 460, head and neck, lateral aspect; 461, pronotum, dorsal aspect; 462, detail of hind tibia; 463, hind leg; 464, hind tarsus; 465, hind tibia; 466, part of fore wing.

middle part of pronotum, flat and smooth medio-posteriorly (fig. 458); pronotal fold strongly developed, evenly rounded and below it with rather large concavity; with indistinct short median carina directly behind pronotal fold and with one complete distinct transverse carinae, and followed by three incomplete and indistinct rugae (fig. 461), middle part weakly differentiated from posterior part of pronotum (fig. 460); posterior part of pronotum evenly and comparatively weakly protruding postero-laterally (fig. 461), largely glabrous, without short setosity and with some setiferous punctures, posteriorly shortly crenulate; propleuron sparsely and moderately coarsely punctate; convex part of mesopleuron without short whitish setosity and sparsely punctate with wide smooth interspaces; mesosternum largely smooth, without short setosity; convex part of metapleuron moderately and spaced reticulate, rather elongate and without dense setosity, only with some setae, both anterior depressions deep and large; propodeum coarsely foveolate with only laterally rather narrow smooth interspaces.

Wings.— Fore wing (fig. 466): vein 1-M 6.6 times as long as vein 1-SR and 1.2 times vein m-cu; vein 2-SR 1.3 times vein r; vein r ends 0.15 times length of pterostigma behind level of apex of pterostigma; vein 1-SR 0.7 times as long as parastigmal vein.

Legs.— Hind coxa rather robust (fig. 463), subtriangular, largely smooth with some punctures and some rugosity basally; apical third of hind femur with short setosity, femur robust and swollen, and teeth between large teeth obsolescent (fig. 463); outer side of hind tibia steeply depressed at widened part near end of narrow basal part (fig. 462), ventrally shallowly concave and apical part robust (fig. 462), inner side rather convex, without row of fine punctures and with deep transverse depression; hind basitarsus moderately widened and oblique apically (fig. 464), its ventral length 3.8 times its width.

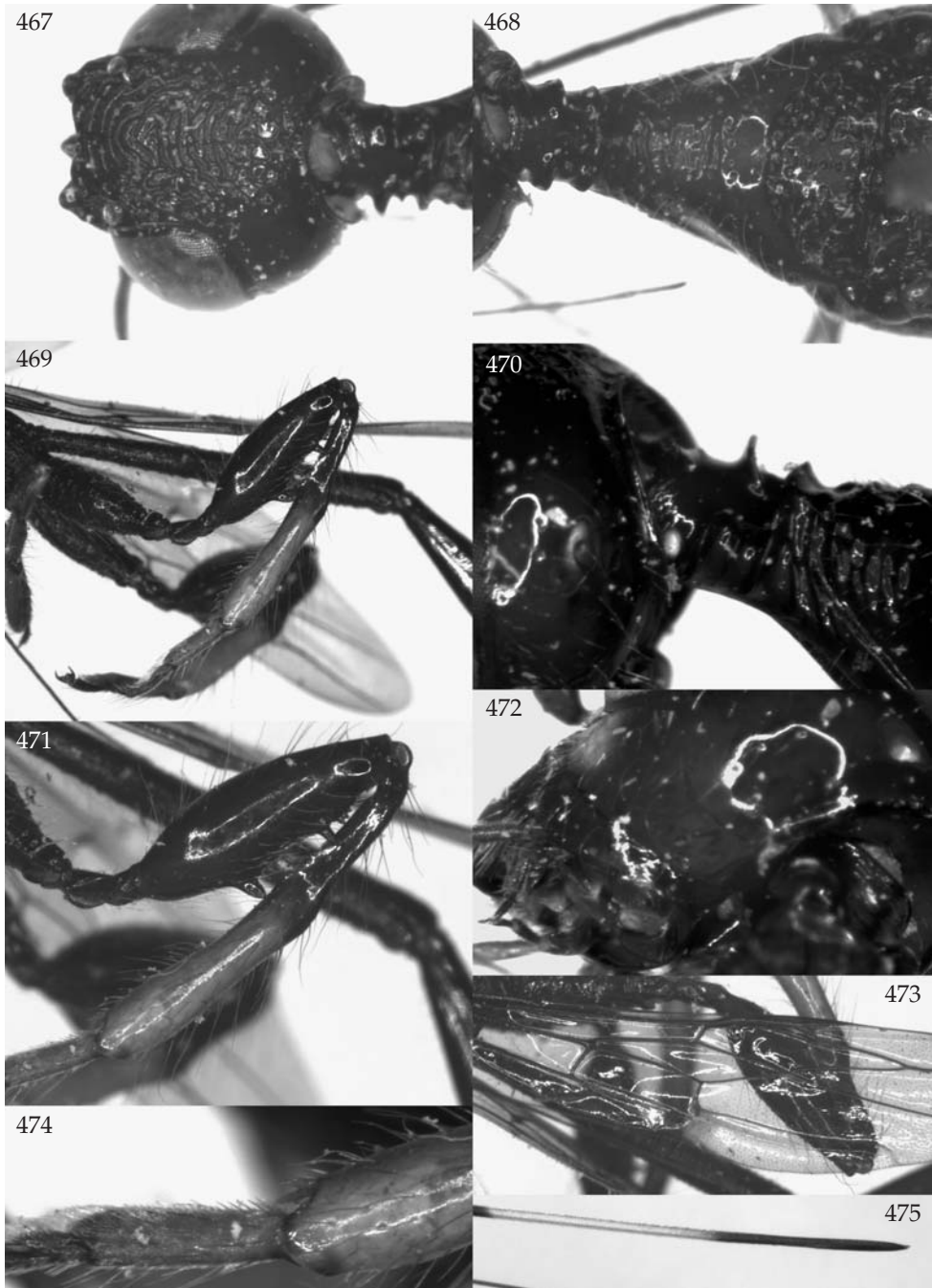
Metasoma.— First tergite 8.7 times as long as its maximum width (and 10.0 times its apical width), and densely regularly transversely striate but basal third rugose and apically narrowly smooth; basally second tergite smooth medially; pygidial area moderately differentiated, micro-sculptured and without distinct punctures, setae rather short (much shorter than setae of cerci) and surroundings finely granulate and rather sparsely setose; length of ovipositor sheath 2.0 times fore wing (and 1.1 times body), ivory part 0.9 times as long as dark apical part.

Colour.— Brownish-black; basal fifth of antenna, tegulae, fore and middle legs (except for coxae) and hind tarsus more or less dark yellowish-brown; malar space ivory, contrasting with temple and vertex (fig. 458); first tergite chestnut-brown, basally more orange-brown, neck, veins and pterostigma dark brown; fore wing membrane evenly slightly infusate, subhyaline.

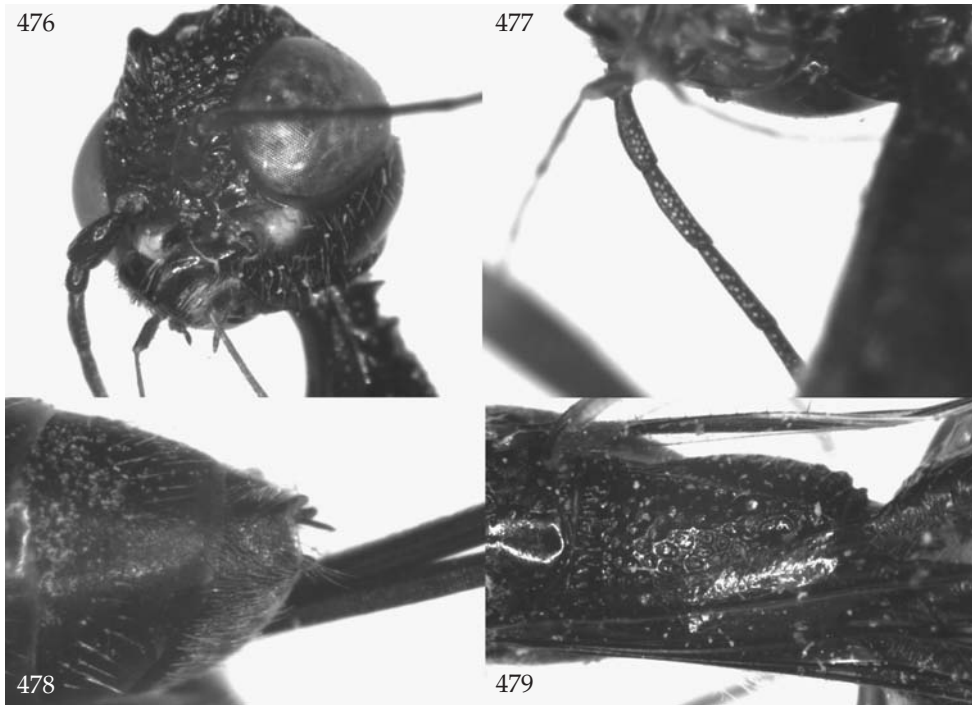
Distribution.— Sri Lanka.

Notes.— It is a great pleasure to name this species after its collector, the eminent Hymenopterist, Dr K.V. Krombein (Washington).

The males have antenna with 27 or 28 segments, length of fore wing 4.7-5.2 mm, the hind tibia widened apically but ventrally straight and submedially gradually depressed (fig. 465) and vein r ends near level of apex of pterostigma. The females have length of fore wing 6.6-8.4 mm, antenna with 31(1), 32 (2), 33(3) or 34(2) segments, the first tergite sometimes much more robust than of holotype, as low as 5.0 times as long as its maximum width, and largely or basally and apically orange-brown and the hind leg may be nearly completely yellowish-brown.



Figs 467-475, *Megischus lieftincki* spec. nov., ♀, holotype. 467, head and neck, dorsal aspect; 468, pronotum, dorsal aspect; 469, hind leg; 470, neck, latero-dorsal aspect; 471, hind femur and tibia; 472, head, latero-ventral aspect; 473, part of fore wing; 474, hind basitarsus; 475, apex of ovipositor sheath.



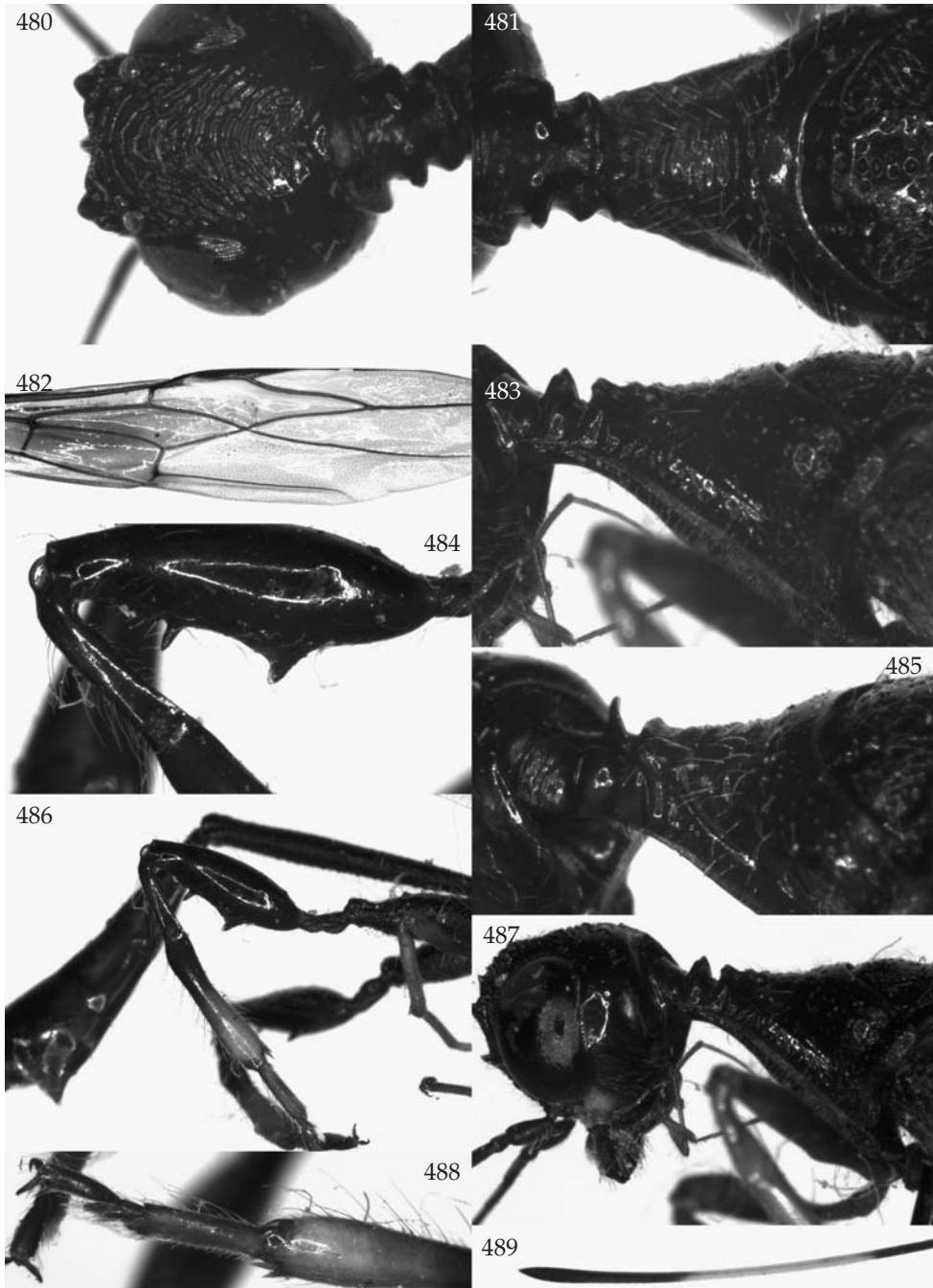
Figs 476-479, *Megischus lieftincki* spec. nov., ♀, holotype. 476, head, ventro-frontal aspect; 477, basal antennal segments, ventral aspect; 478, pygidium, latero-dorsal aspect; 479, propodeum, dorsal aspect.

Megischus lieftincki spec. nov.
(figs 467-489)

Material.— Holotype, ♀ (RMNH), “NW New Guinea [= Irian Jaya], Sorong, Kp. [Kampung = village] Baroe, 8.vii-14.viii.1948, M.A. Lieftinck”. Paratypes (4 ♀♀ + 3 ♂♂): 1 ♀ (ZMA), “Ned. Nw Guinea, H’dia [= Hollandia], ii.[19]57, G. den Hoed”; 1 ♂ (RMNH), “Aroe [= Aru Islands], Rosenb[erg]”; 1 ♀ (ANIC), “Aru Isld, Elgner, 1911”; 1 ♀ (ZSM) “Asian Arch., Key Ins., 1900, Kühn”; 1 ♀ (BPBM), “New Guinea: NE, Bulolo R., 680 m, 2.ii.1969”, “J. Sedlacek Collector, Bishop Mus.”; 1 ♂ (CAS), “New Guinea, Finschhafen, 6.v.[19]44, E.S. Ross”; 1 ♂ (CAS), id., iv.1944.

Holotype, ♀, length of body 21.5 mm, and of fore wing 12.0 mm.

Head.— Antenna with 38 segments; length of third antennal segment 3.1 times its maximum width, and fourth segment 1.3 times as long as third segment (with many circular sensillae; fig. 477); frons coarsely transversely rugose, and partly reticulate; three anterior coronal teeth large, lobe-shaped, both posterior ones small, part of transverse, sinuate lamella widened towards both ends; after this lamella five strong curved regular lamelliform carinae followed by a flattened (and partly shallowly concave) area with short coarse regular transverse rugae surrounded by reticulation, almost reaching occipital carina (fig. 472); temples largely smooth and shiny, except for several rather coarse punctures and directly narrowed; occipital carina strongly



Figs 480-489, *Megischus lieftincki* spec. nov., ♀, paratype from Aru Islands. 480, head and neck, dorsal aspect; 481, pronotum, dorsal aspect; 482, part of fore wing; 483, pronotum, lateral aspect; 484, hind femur; 485, pronotum, latero-dorsal aspect; 486, hind leg; 487, head and pronotum, lateral aspect; hind leg; 488, hind tarsus; 489, apex of ovipositor sheath.

developed and almost reaching hypostomal carina (fig. 472); postgenal bridge widely and very steeply declivous behind wide lamelliform hypostomal carina (fig. 472); hypostomal flange comparatively large and with only with some punctures.

Mesosoma.— Neck elongate and anteriorly slightly concave, neck postero-dorsally at much lower level than middle part of pronotum, flat and smooth medially, with a pair of very robust ear-like carinae laterally somewhat converging to pronotal fold (more robust than pronotal fold and far removed from it; figs 468, 481, 483), with one weak anterior carina laterally and at left side with short carina between ear-like carina and pronotal fold, near narrow and somewhat uplifted anterior margin; pronotal fold robust, slightly sinuate and with large concavity below it; behind pronotal fold medially hardly impressed (figs 470, 483); middle part of pronotum with two indistinct transverse carinae and some coarse punctures dorsally, laterally with shallow oblique groove, with one short carina and no median carina directly behind pronotal fold, middle part gradually merging into posterior part of pronotum (fig. 483); posterior part of pronotum largely glabrous (except for the usual long setae), without short setosity and with several very coarse punctures, and postero-laterally with some short crenulae; propleuron coarsely and rather extensively punctate; convex part of mesopleuron with rather short whitish dense setosity and very coarsely punctate, with interspaces larger than punctures and anteriorly with some rugae; mesosternum largely smooth and narrowly short setose posteriorly; convex part of metapleuron coarsely reticulate, rather elongate and densely rather long whitish setae, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with medium-sized smooth interspaces.

Wings.— Fore wing (figs 473, 482): vein 1-M 6.3 times as long as vein 1-SR and 1.3 times vein m-cu; vein 2-SR slightly long as vein r; vein r ends 0.5 times length of pterostigma behind level of apex of pterostigma and vein 1-SR 0.7 times as long as parastigmal vein.

Legs.— Hind coxa elongate spindle-shaped (fig. 469), medially largely smooth except some short rugae, basally rugose, and apically transversely striate; hind femur without short setosity and outer side smooth; outer side of hind tibia gradually depressed, ventrally slightly concave and apically rather slender (figs 469, 471, 486), inner side convex basally, with many punctures more or less in a triple row and bristly setose, and with distinct transverse depression; hind basitarsus nearly parallel-sided, robust (figs 474, 488), its ventral length 4.0 times its width.

Metasoma.— First tergite 10.4 times as long as its maximum width (and 11.3 times its apical width), and densely rather irregularly transversely striate but basal half irregularly rugose and apically narrowly smooth, slightly narrowed posteriorly; basally second tergite narrowly rugose, remainder largely smooth; third and following tergites matt and superficially finely granulate; pygidial area coriaceous basally and smooth apically, long densely setose except apically, medially distinctly convex and without distinct punctures, with long straight setae; length of ovipositor sheath 1.8 times fore wing (and about as long as body), ivory part 1.3 times as long as its dark apical part (figs 475, 489).

Colour.— Black; malar space and small part of temple ventrally ivory, distinctly contrasting with remainder of temple and vertex; palpi, inner side of fore femur, fore and middle tibiae, hind basitarsus (but slightly darker than apex of hind tibia) and

apical half of hind tibia yellowish-brown (fig. 469); remainder of fore and middle legs (except dark coxae) second and third segments of hind tarsus, tegulae, veins and pterostigma rather dark brown; hind coxa, femur, basal half of hind tibia and first tergite blackish-brown; fore and hind wing membrane weakly infusate, but medially slightly darker (fig. 482).

Distribution.— Indonesia (Irian Jaya; Aru Islands); Papua New Guinea.

Notes.— This species is named after its collector, the former director of the Museum Zoologicum Bogoriense (now Cibinong, Indonesia) and specialist in Odonata and Apidae, the late Dr M.A. Lieftinck.

The male paratypes have the middle part of the pronotum mainly smooth, without distinct transverse carinae. The pair of short carinae between the “ears” and the pronotal fold may be rather strong; the sculpture of the mesopleuron varies from densely foveolate to remotely punctate. The length of the ivory part of the ovipositor sheath 0.8 (Papua New Guinea)-1.3 times blackish apical part.

Megischus longicaudatus Costa, 1866, stat nov.
(figs 3-10, 116-125)

Megischus longicaudatus Costa, 1866a: 81-82, figured; Schletterer, 1889: 114 (as synonym of *M. coronator* (Fabricius, 1804) [examined].

Megischus longicaudatus [sic!]; Costa, 1866b: 271 (id. but without figures).

Material.— Lectotype here designated, ♀ (DEZA), “*Megischus longicaudatus* n., Giava [= **Indonesia, Java**]”, “M. Zool. N. 8639”. Paralectotypes: 1 ♂ + 1 ♀, not examined.

Lectotype, ♀, length of body 19.7 mm, and of fore wing 11.6 mm.

Head.— Antenna with 41 segments, length of third antennal segment 2.7 times its maximum width and 1.3 times as long as third segment (figs 7, 118); frons coarsely transversely rugose ventrally, dorsally obliquely so; three anterior coronal teeth lobe-shaped of head stronger than both posterior ones; with lamelliform carina carrying both medium-sized posterior teeth, followed by four more or less curved and coarse transverse carinae, posteriorly rather convex and coarsely reticulate-rugose; posteriorly vertex irregularly and sparsely transversely rugose, and sculpture absent near strong lamelliform occipital carina (figs 6, 116); temples smooth and shiny; occipital carina ventrally weaker than laterally and almost reaching medium-sized hypostomal carina (fig. 124); postgenal bridge rather wide and gradually declivous (fig. 124).

Mesosoma.— Neck elongate (lateral length of neck 0.9 times its maximum width; fig. 117) and anteriorly weakly concave and hardly upcurved, with a widely interrupted subanterior carina, followed by two strong and somewhat less widely interrupted, not widened or ear-like carinae (fig. 117); neck postero-dorsally at much lower level than middle part of pronotum, flat and smooth medially in front of pronotal fold (fig. 119); pronotal fold strongly developed, nearly straight in dorsal view and below it with a wide and moderately deep concavity and with short median carina behind it dorsally (fig. 117); middle part of pronotum elongate and slender, with eight rather weak and more or less regular and transverse carinae, middle part weakly differentiated from posterior part of pronotum (in lateral view without distinct “step” between these parts; fig. 118); oblique lateral groove of pronotum distinct and rather wide,

impression and ventral area below it smooth and with rather long and dense setosity, without crenulae; posterior part of pronotum largely with dense and rather short setosity laterally; propleuron punctulate and with long setae; mesopleuron completely covered with rather long short whitish dense setosity, and sparsely coarsely punctate; mesosternum largely smooth and glabrous, with a patch of whitish setosity near middle coxae; metapleuron rather elongate and strongly convex, densely and long whitish setose, convex part coarsely reticulate, anterior depression large smooth and with both depressions deep; spiracular groove indistinct, flat and largely smooth; propodeum coarsely foveolate, with distinct smooth interspaces.

Wings.— Fore wing (fig. 122): length of vein 1-M 4.6 times vein 1-SR and 1.1 times vein m-cu; vein 1-SR 1.2 times parastigmal vein; vein r ends 0.4 times length of pterostigma behind level of apex of pterostigma; vein 2-SR 1.1 times as long as vein r; basal cell sparsely setose.

Legs.— Hind coxa slender, subparallel-sided (fig. 123; slender spindle-shaped), largely smooth, with some short transverse wrinkles; outer side of hind femur largely glabrous; outer apical 0.6 of hind tibia gradually widened, largely smooth and weakly concave ventrally (fig. 121), inner side rather convex, with a few coarse punctures in a double row and rather sparsely bristly setose, and with rather shallow transverse depression; hind tibia somewhat narrowed apically; hind basitarsus parallel-sided or nearly so, elongate, its ventral length 6.0 times its width (fig. 120).

Metasoma.— First tergite 8.9 times as long as its maximum width (and 9.6 times its apical width, and densely transversely striate except apically, parallel-sided; second tergite narrowly and coarsely rugose basally, remainder of tergite largely smooth and shiny; third and following tergites micro-sculptured and rather matt; pygidial area widely transverse and deeply impressed, with acute (and notched) edge anteriorly (fig. 4), with few long setae surpassing apex of metasoma; length of ovipositor sheath 2.6 times fore wing (and 1.5 times body); subapical ivory band of ovipositor sheath 0.8 times as long as its dark apical part.

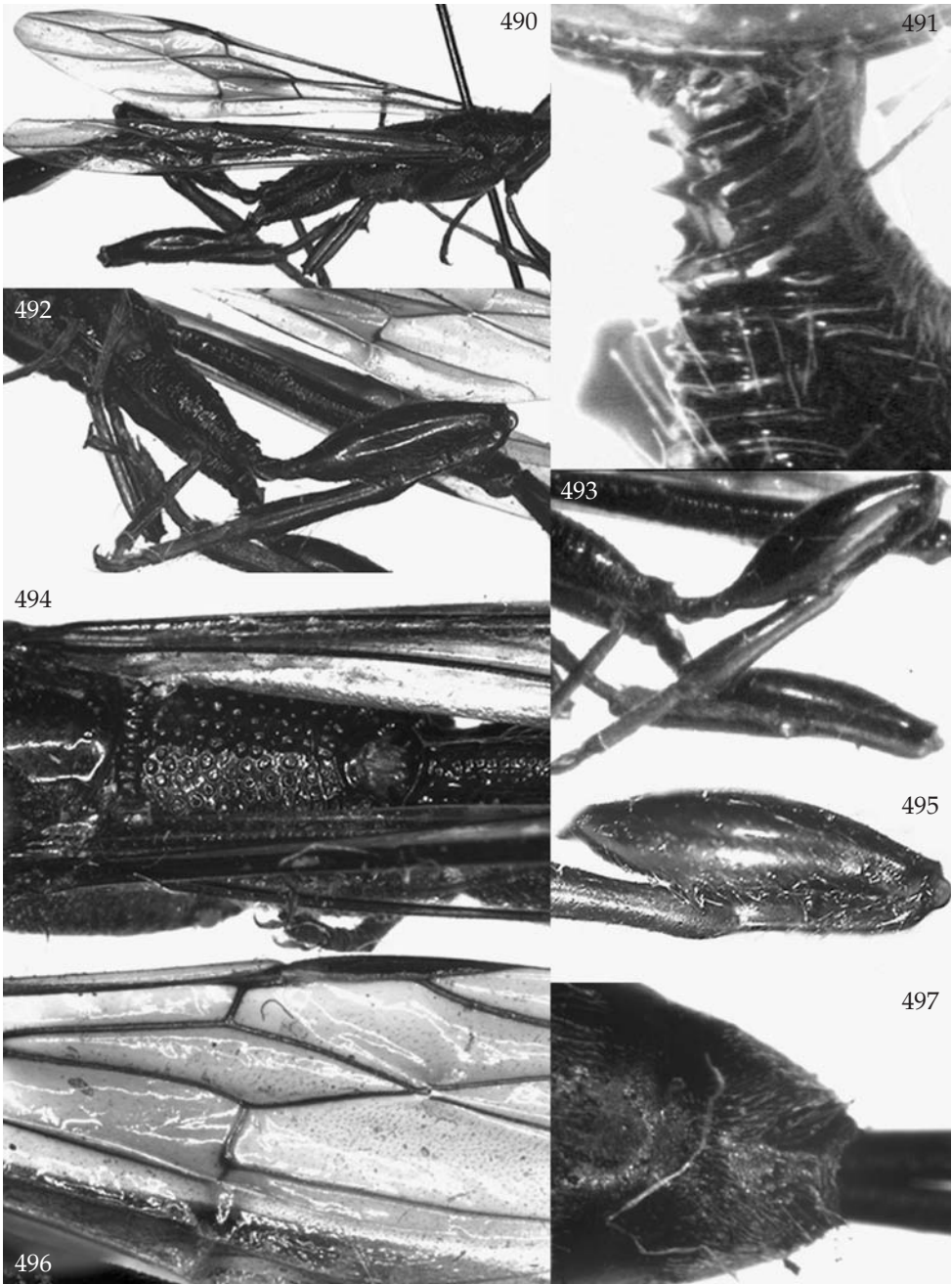
Colour.— Black or dark brown; head orange-brown; malar space slightly paler, but almost concolorous with temple and vertex; fore leg (except dark fore coxa) yellowish-brown; middle leg dark brown; hind femur blackish-brown; basal (= compressed) dark brown and its apical (= dilated) part of hind tibia largely brownish-yellow, but dorsally dark brown (fig. 121); hind basitarsus brown, and remainder of tarsus dark brown; mainly first subdiscal cell of fore wing distinctly infusate, remainder of fore wing membrane subhyaline or nearly so (fig. 122).

Distribution.— Indonesia (Java).

Megischus lucidus (Szépligeti, 1902) comb. & stat. nov.
(figs 126-132, 369, 371, 490-497)

Stephanus lucidus Szépligeti, 1902: 532; Enderlein, 1905: 475; Kieffer, 1908: 4; Elliott, 1922: 740 (as synonym of *M. ducalis* Westwood, 1851) [examined].

Material.— Lectotype of *M. lucidus* (having the best condition of all syntypes) here designated, ♂ (TMA), “[Papua] N. Guinea, Biró, 1899”, “Sattelberg, Huon Golf”, “*lucidus* det. Szépligeti”; paralectotypes: 5 ♂♂ (TMA), all from Papua New Guinea (Finschhafen, Sattelberg, Huon Golf). Redescribed ♀ (RMNH), “[Papua] N[ew] Guinea, Biró, 1899”, “Sattelberg, Huon Golf”.



Figs 490-497, *Megischus lucidus* (Szépligeti), ♀, Papua New Guinea (Sattelberg). 490, fore wing; 491, neck, lateral aspect; 492, 493, hind leg; 494, propodeum, dorsal aspect; 495, hind femur and tibia; 496, part of fore wing; 497, pygidium, dorsal aspect.

Additional specimens examined: Papua New Guinea (BMNH, RMNH, ZMA), New Britain (as "Neu Pommeren"; TMA, USNM, BMNH), and Irian Jaya (RMNH, BMNH, ZMA).

Redescribed from a topotypic ♀ (RMNH) compared with the lectotype, length of body 32.6 mm, and of fore wing 17.7 mm.

Head.— Head comparatively transverse (fig. 127); antenna with 43 segments; third antennal segment 2.8 times its maximum width (fig. 129), with small circular multiporous plate sensillae, and fourth segment 1.2 times as long as third segment; frons coarsely and spaced obliquely rugose; three anterior coronal teeth large, lobe-shaped, both posterior ones medium-sized, part of strong, sinuate transverse lamella; after this lamella six regular, strong, complete and more or less curved lamelliform carinae followed by medially steeply lowered and weakly concave area with rather close and regular bell-shaped rugae, rugae laterally near eyes, behind level of eyes and medially forming together bell-shaped pattern (more extensively so than in *M. coronator*), mostly regular (figs 126, 127), posteriorly transverse and reaching occipital carina (fig. 130); temples roundly narrowed behind eyes (fig. 127), smooth and shiny, except for some fine punctures and sparsely setose ventrally; occipital carina strongly developed, laterally wide lamelliform, and ventrally reaching lamelliform hypostomal carina and partly running subparallel; postgenal bridge widely and gradually declivous; hypostomal flange large and with several coarse punctures.

Mesosoma.— Neck rather robust and anteriorly rather concave (fig. 127), anteriorly somewhat uplifted, with distinct subanterior carina, but interrupted medially, neck postero-dorsally at lower level than middle part of pronotum (fig. 129), flat and smooth medially because of all widely interrupted carinae (fig. 491), with subposterior carina much stronger than posterior carina and rather curved to pronotal fold (fig. 126); pronotal fold strong, porching over medium-sized and wide depression (fig. 129), without median keel and concave behind it; middle part of pronotum with five more or less complete and strong transverse carinae and with rather distinct oblique lateral groove, middle part distinctly separated from posterior part of pronotum, and pronotum latero-posteriorly moderately convex (fig. 126); posterior part of pronotum largely with rather sparse setosity, latero-ventrally densely setose but dorso-posteriorly glabrous, with several very coarse punctures and latero-posteriorly with some crenulae; propleuron with several coarse punctures and densely setose; convex part of mesopleuron with dense short whitish setosity and coarsely punctate, anteriorly foveolate and intermingled with distinct rugae; mesosternum largely smooth (except some fine punctures) and only posterior quarter densely short setose; convex part of meta-pleuron coarsely reticulate, rather elongate and moderately densely and rather short setose below long whitish setae, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with distinct (and partly wide) smooth interspaces (fig. 494); side of scutellum densely whitish setose.

Wings.— Fore wing (figs 490, 496): vein 1-M 6.3 times as long as vein 1-SR and 1.3 times vein m-cu; vein 2-SR 0.9 times as long as vein r; vein 1-SR as long as parastigmal vein and vein r ends 0.7 times length of pterostigma behind level of apex of pterostigma.

Legs.— Hind coxa rather elongate spindle-shaped (fig. 492), with rather dense and rather long transverse rugae, basally rugose and apically transversely carinate; apical 0.4 of hind femur largely with short setosity and remotely punctate; widened part of

hind tibia slender and slightly concave ventrally (fig. 131), outer side superficially micro-granulate and shiny, remotely punctate and densely short setose; inner side of tibia rather convex, with many punctures and mostly in a triple row and with distinct transverse depression; hind basitarsus subparallel-sided, rather slender (figs 128, 493), its ventral length 4.9 times its width.

Metasoma.— First tergite 9.0 times as long as its maximum width (and 10.6 times its apical width), and densely regularly transversely striate but basal quarter irregularly rugose and apically smooth, somewhat widened near spiracles; basally second tergite with some short and distinct rugae; remainder of second tergite shiny and indistinctly micro-sculptured; third and following tergites distinctly micro-sculptured and rather matt; pygidial area largely smooth (except for row of coarse punctures medially) and shiny, with long weakly curved setae surpassing apex of metasoma and medially semicircularly convex, apically with rather wide and medially weakly concave hyaline lamella (fig. 497); length of ovipositor sheath 2.5 times fore wing (and 1.4 times body), ivory part 1.1 times as long as dark apical part (fig. 132).

Colour.— Black; head (and neck anteriorly somewhat) intensely orange-brown; malar space and temple narrowly ventrally pale yellowish, weakly contrasting with temple (fig. 129); palpi, scapus, fore and middle tarsi, and fore tibia basally, middle tibia, middle femur largely, apex of hind tibia and hind tarsus rather reddish-brown; remainder of fore leg (except blackish coxa), hind trochanter and trochantellus, tegulae, and narrowed part of hind tibia rather reddish dark chestnut-brown; remainder of hind tibia blackish-brown; antenna (except for scapus), veins and pterostigma more or less dark brown, but base of pterostigma pale brown; wing membrane largely slightly infuscate, with first subdiscal cell of fore wing rather dark brown.

Distribution.— Papua New Guinea (Finschhafen; Sattelberg, Huon Golf); New Britain; Indonesia (Irian Jaya: Kapaur; Hattam (= area of NE Vogelkop, near Biak)). Syntype of *M. lucidus* from Bacan has the head missing and probably belongs to *M. coronator*.

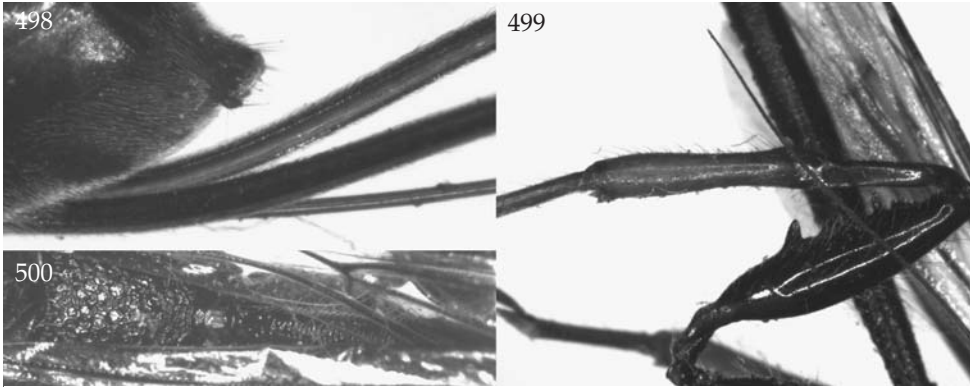
Notes.— Length of fore wing varies from [10-]15-20 mm; carinae of neck comparatively coarsely developed (fig. 491); subposterior carina of neck widely interrupted medially and more or less V-shaped (fig. 126), distinctly stronger than posterior carina in lateral view (fig. 491); length of ovipositor sheath (2.1-)2.3-2.7 times fore wing. The lectotype of *M. lucidus* has the hind tarsus rather dark reddish brown but this seems to be more common in males of this species (as in males of *M. coronator*) and the basal cell of fore wing is glabrous, which is also variable. Males have the digitus of the genitalia distinctly concave submedially (fig. 369) and parameres with medium-sized setosity (fig. 371).

Megischus luzonicus spec. nov.
(figs 133-141, 498-500)

Material.— Holotype, ♀ (MNCN) “[Philippines], Luzon, Imugan”; MNCN Type Catalogue no. 9088.

Holotype, ♀, length of body 31.4 mm, and of fore wing 17.4 mm.

Head.— Antenna with 45 segments; length of third antennal segment 3.8 times its maximum width, and fourth segment 1.4 times as long as third segment (fig. 140); frons very coarsely obliquely rugose; three anterior coronal teeth large, lobe-shaped,



Figs 498-500, *Megischus luzonicus* spec. nov., ♀, holotype. 498, pygidium, lateral aspect; 499, hind femur and tibia; 500, propodeum, dorsal aspect.

both posterior ones rather small but wide, part of sinuate and strong transverse lamella and not well differentiated; after this lamella four very strong complete regular and somewhat curved lamelliform carinae followed by flattened (and medially slightly concave) reticulate-rugose area anteriorly and regularly transversely rugose posteriorly, almost reaching strong occipital carina (fig. 133); temples smooth and shiny, except for some fine punctures; occipital carina rather strongly developed ventrally but not reaching hypostomal carina and ends above lower level of eye; postgenal bridge widely and gradually declivous; hypostomal flange large and only with some coarse punctures.

Mesosoma.— Neck moderately robust and anteriorly subtruncate and uplifted (fig. 134), neck postero-dorsally at same level as middle part of pronotum (fig. 136), with large shallowly concave and posteriorly smooth area medially, extending behind weak but distinct pronotal fold, with five narrowly interrupted and weak carinae; behind pronotal fold largely smooth, and with a weak interrupted carina (fig. 134); convex middle part of pronotum with six part incomplete and rather weak transverse carinae and without median carina, middle part very well separated from posterior part of pronotum (figs 134, 136, 140), no distinct oblique groove, and pronotum latero-posteriorly weakly convex (fig. 134); posterior part of pronotum with rather sparse short setosity (but medially glabrous), with few coarse punctures and latero-posteriorly with some coarse crenulae; propleuron with some sparse coarse punctures; convex part of mesopleuron rather sparsely coarsely punctate, anterior weaker punctate than medially and with weak short elevations in front of punctures, without short whitish dense setosity but antero-ventrally and posteriorly with some short setosity; mesosternum largely smooth and anteriorly and ventro-posteriorly sparsely short setose; convex part of metapleuron coarsely reticulate, rather elongate and rather sparsely and short setose below long whitish setae, both anterior depressions deep and large; propodeum largely coarsely reticulate, but laterally with some smooth interspaces.

Wings.— Fore wing (fig. 138): vein 1-M 6.7 times as long as vein 1-SR and 1.5 times vein m-cu; vein 2-SR 0.9 times as long as vein r; vein r ends 0.6 times length of pterostigma behind level of apex of pterostigma; vein 1-SR 0.8 times parastigmal vein.

Legs.— Hind coxa elongate spindle-shaped, with spaced transverse mostly long rugae (fig. 135); apical 0.7 of hind femur with short setosity, largely smooth, small teeth between both large teeth somewhat less developed than in *M. reticulatus*; outer side of hind tibia below depression nearly parallel-sided and slender, micro-granulate (as in *M. reticulatus*) and nearly straight ventrally (fig. 135), inner side rather convex, basal quarter with only few fine punctures and no triple row, transverse depression rather deep; hind basitarsus parallel-sided, slender (fig. 139), its ventral length 5.9 times its width.

Metasoma.— First tergite 10.0 times as long as its maximum width (and 11.5 times its apical width), and densely regularly transversely striate but basal third rather irregularly rugose and apically narrowly smooth, parallel-sided; basally second tergite with some distinct rugae and remainder smooth; third and following tergites micro-sculptured, matt; only apical third of pygidial area largely smooth and shiny, apically with medium-sized weakly sinuate and subhyaline lamella, remainder densely setose, without distinct punctures, and with long straight setae surpassing apex of metasoma; length of ovipositor sheath 2.2 times fore wing (and 1.2 times body), ivory part 1.41 times as long as dark apical part.

Colour.— Black; malar space and temple ventrally largely ivory, moderately contrasting with temple (fig. 136); remainder of head yellowish-brown; antenna (but scapus brown), palpi, tegulae largely, fore and middle legs (except black fore coxa and orange-brown tibiae), hind telotarsus, metasoma except first tergite, veins and pterostigma dark brown; but base of pterostigma narrowly paler; hind femur, trochanter and trochantellus dark chestnut-brown; hind tibia nad remainder of hind tarsus orange-brown and strongly contrasting with hind femur; mainly first subdiscal cell of fore wing and its surroundings rather infusate, remainder of wings largely subhyaline or light brownish.

Distribution.— Philippines (Luzon).

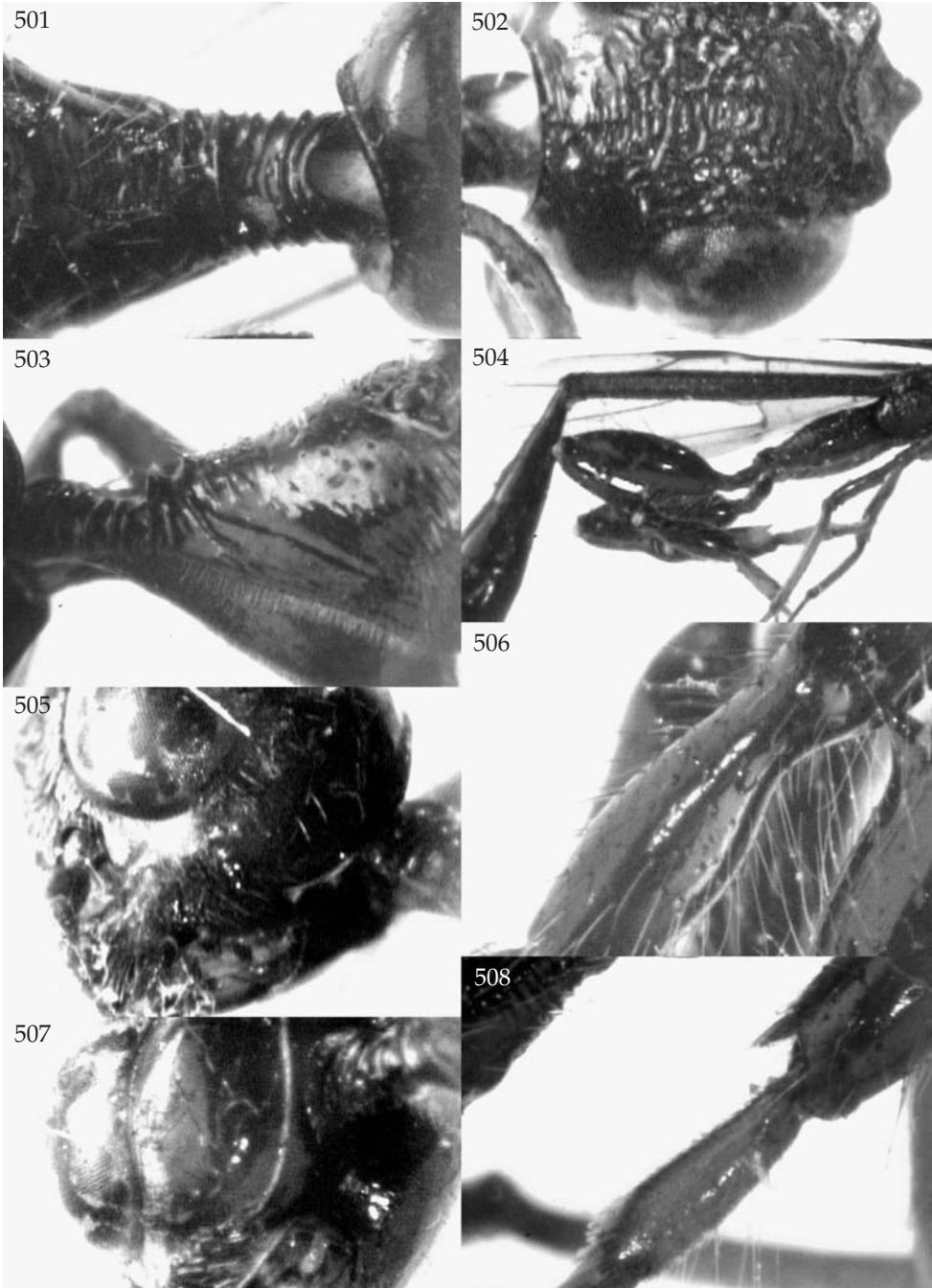
Megischus maxi Schönmann, 1991
(figs 501-514)

Megischus maxi Schönmann, 1991: 492-493, fig. 6 [examined].

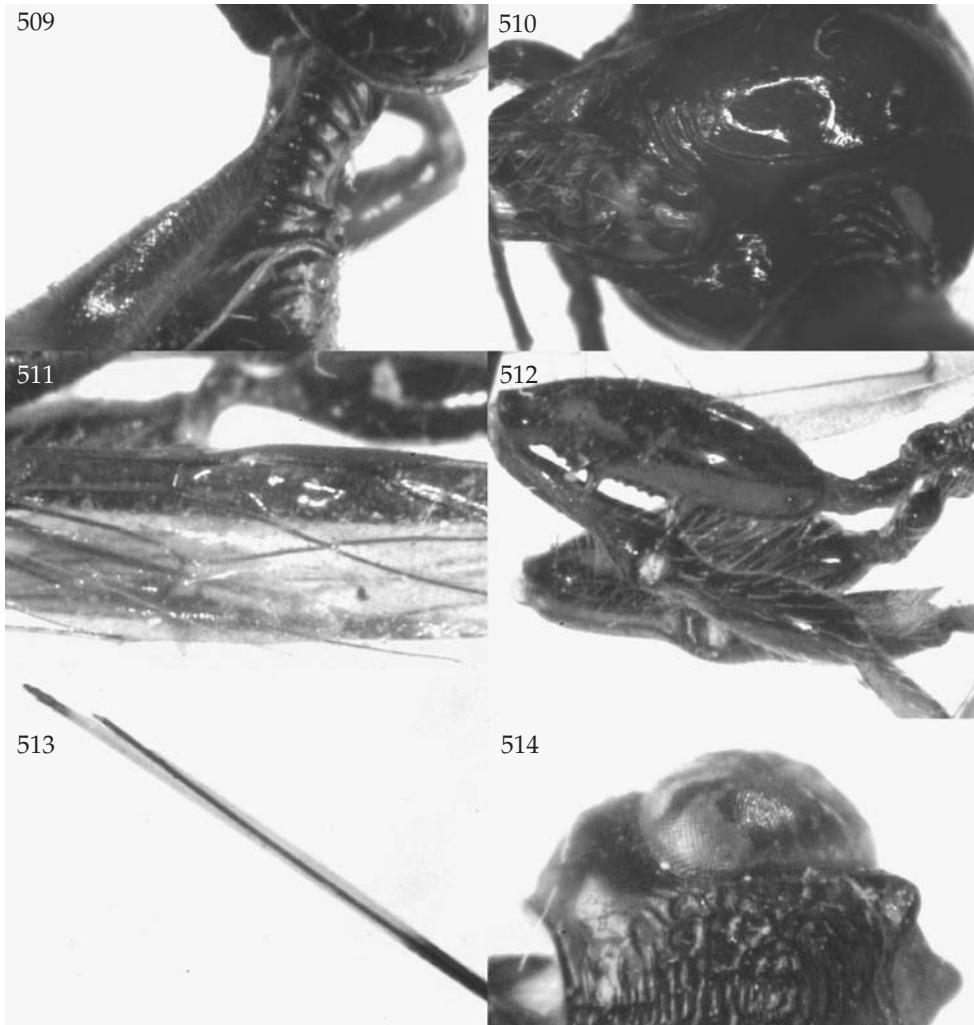
Material.— Holotype, ♀ (USNM), "Indonesia: Halmahera Isl., Jailolo Dist., Kampung Pasir Putih, 0°53'N, 127°41'E", "vi.1981, A.C. Messer & P.M. Taylor", "Holotype *Megischus maxi* n. sp. ♀ det. Schönmann, 1991". 1 ♀ (AEI), "Isl. Ternate, Ake Addas, 1500 m, 15.ix.1951"; 1 ♀ (RMNH), "Indonesia: N Ceram, 9 km E Wahai, nr PHPA-Q[quarters], 11.iii.1997, (nr) rainforest, C. van Achterberg & R. de Vries, RMNH'97".

Holotype, ♀, length of body 19.0 mm, and of fore wing 10.5 mm.

Head.— Antennae of holotype partly missing; length of third antennal segment 2.5 times its maximum width, and fourth segment 1.4 times as long as third segment; frons coarsely reticulate-rugose; three anterior coronal teeth large, lobe-shaped, both posterior ones small and wide, part of transverse widened lamella narrowed medially; after this lamella five strong regular lamelliform carinae (last one short and less regular) followed by a flattened area with short transverse carinae medially and coarse and sparsely reticulate laterally, reaching close to occipital carina (fig. 502); temple roundly narrowed behind eyes (fig. 502), smooth and shiny, except for some



Figs 501-508, *Megischus maxi* Schönmann, ♀, holotype. 501, pronotum, dorsal aspect; 502, head, dorsal aspect; 503, pronotum, lateral aspect; 504, hind leg; 505, head, lateral aspect; 506, head, latero-ventral aspect; 507, detail of hind tibia; 508, hind basitarsus.



Figs 509-514, *Megischus maxi* Schönmann, ♀, holotype. 509, pronotum, latero-dorsal aspect; 510, head, postero-lateral aspect; 511, part of fore wing; 512, hind leg; 513, apex of ovipositor sheath; 514, left side of head, dorsal aspect.

fine punctures near eye; occipital carina strongly developed and almost reaching lower level of eyes, bent away from lamelliform hypostomal carina (fig. 510); postgenal bridge rather widely and steeply declivous (fig. 510); hypostomal flange large and with several strong oblique rugae.

Mesosoma.— Neck moderately slender (fig. 501) and anteriorly deeply emarginate (fig. 501, neck postero-dorsally at distinctly lower level than middle part of pronotum, widely flat and smooth medially, with two rather strong and more or complete curved carinae anteriorly and with three widely interrupted carinae behind it (fig. 501); pronotal fold strongly developed and below it a shallow concavity and behind it

a medium-sized median carina (fig. 503); middle part of pronotum with strong and laterally present transverse carina, followed by five weak and only dorsally present rugae, middle part weakly differentiated from posterior part of pronotum (fig. 503); posterior part of pronotum moderately convex, not tuberculate postero-laterally (fig. 501), large glabrous, without short setosity and with few coarse punctures, posteriorly coarsely crenulate; propleuron sparsely and rather coarsely punctate; convex part of mesopleuron without short whitish dense setosity and coarsely punctate-rugose; mesosternum largely smooth and sparsely long setose, without short setosity; convex part of metapleuron coarsely reticulate, rather elongate and with sparse short whitish setosity, both anterior depressions deep and large; propodeum coarsely and densely foveolate, without rather wide smooth interspaces.

Wings.— Fore wing (fig. 511): vein 1-M 6.8 times as long as vein 1-SR and 1.2 times vein m-cu; vein 2-SR 1.2 times vein r; vein r ends 0.3 times length of pterostigma behind level of apex of pterostigma; vein 1-SR half as long as parastigmal vein.

Legs.— Hind coxa rather slender, spindle-shaped (fig. 504), ventrally largely smooth dorsally rugose basally and remainder more or less transversely rugose, near apex transversely carinate; hind femur swollen and robust, apical third of hind femur with some short setosity; outer side of hind tibia steeply depressed at widened part at end of narrow basal part (fig. 512), widened part deeply concave ventrally and apical part robust (figs 506, 512), inner side convex, without row of fine punctures and with deep transverse depression; hind basitarsus distinctly widened apically, robust (fig. 508), its ventral length 3.2 times its width and apically oblique.

Metasoma.— First tergite 11.0 times as long as its maximum width (and 12 times its apical width), and densely regularly transversely striate but less regularly basally and apically narrowly smooth; basally second tergite narrowly rugulose; pygidial area distinctly depressed and evenly moderately long setose, without long apical setae but cerci with very long setae, largely smooth and with indistinct punctures; length of ovipositor sheath about 1.6 times (probably 1.7 considering the missing part of the ovipositor) fore wing and 0.9 times body ivory part about 7 times as long as dark apical part, but apical part incomplete (fig. 513), in other specimens ivory part of ovipositor sheath 2.2-3.5 times dark apical part.

Colour.— Black; malar space ivory, distinctly contrasting with temple and vertex (fig. 507); scapus, fore and middle legs (except blackish coxae) and hind tarsus yellowish-brown, veins and pterostigma dark brown; hind trochantellus, narrow part of hind femur and its apex chestnut brown, submedial depressed part of tibia dark brown, blackish; fore wing membrane evenly slightly brownish, subhyaline.

Distribution.— Indonesia (Halmahera, Ternate, Ceram).

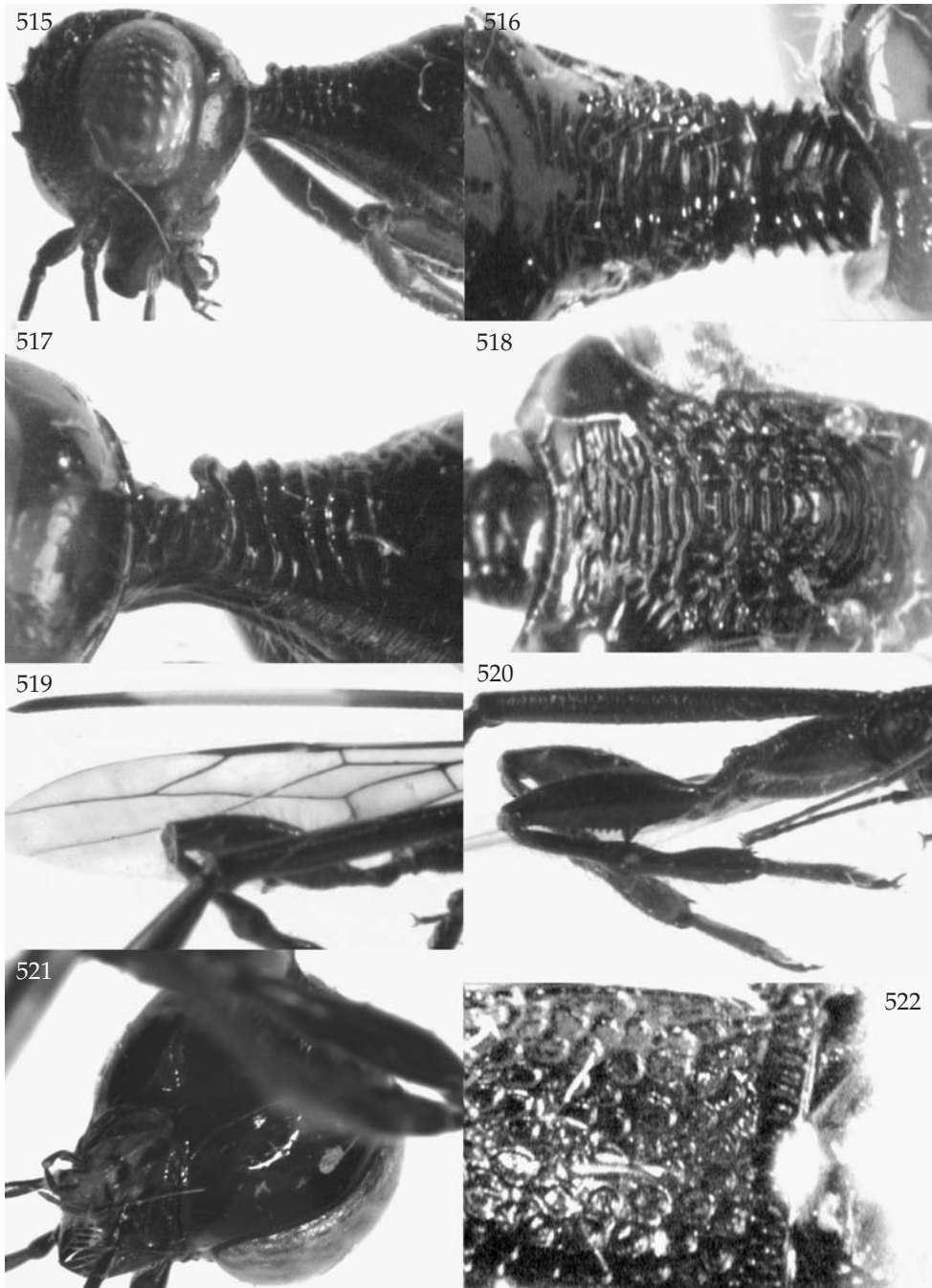
Megischnus nigricans Sichel, 1866
(figs 515-526)

Megischnus tarsatus var. *nigricans* Sichel, 1866: 476 [♀, holotype MNHN (Ceylon)].

Stephanus nigricans; Schletterer, 1889: 109; Dalla Torre, 1902: 8; Kieffer, 1908: 4; Elliott, 1922: 716, 733.

Stephanus ceylonicus Cameron, 1903: 102; Kieffer, 1908: 4; Morley, 1917a: 34; Elliott, 1922: 717, 735; Dutt, 1926: 2 [holotype lost?]. **Syn. nov.**

Material.— Holotype of *Megischnus nigricans*, ♀ (MNHN), "Ceylon, Schaum, 63", "var. *nigricans* ♀",



Figs 515-522, *Megischus nigricans* Sichel, ♀, Sri Lanka. 515, head and neck, lateral aspect; 516, pronotum, dorsal aspect; 517, neck, lateral aspect; 518, vertex, dorsal aspect; 519, part of fore wing; 520, hind leg; 521, head, latero-ventral aspect; 522, propodeum, dorsal aspect.

"Holotype", "Holotype, *Megischus tarsatus nigricans* Sichel, Balt'58"; holotype of *Stephanus ceylonicus*, ♀ (Trincomali, Ceylon, leg. Yerbury), probably lost, not found in BMNH or OUM; but examined an old ♀ (BMNH), without ovipositor sheath and with Cameron's label "*Stephanus ceylonicus* Cam., Ceylon". Also the additional specimens examined are all from Sri Lanka (USNM, RMNH, BMNH).

Holotype of *M. nigricans*, ♀, length of body 29.8 mm, and of fore wing 16.8 mm.

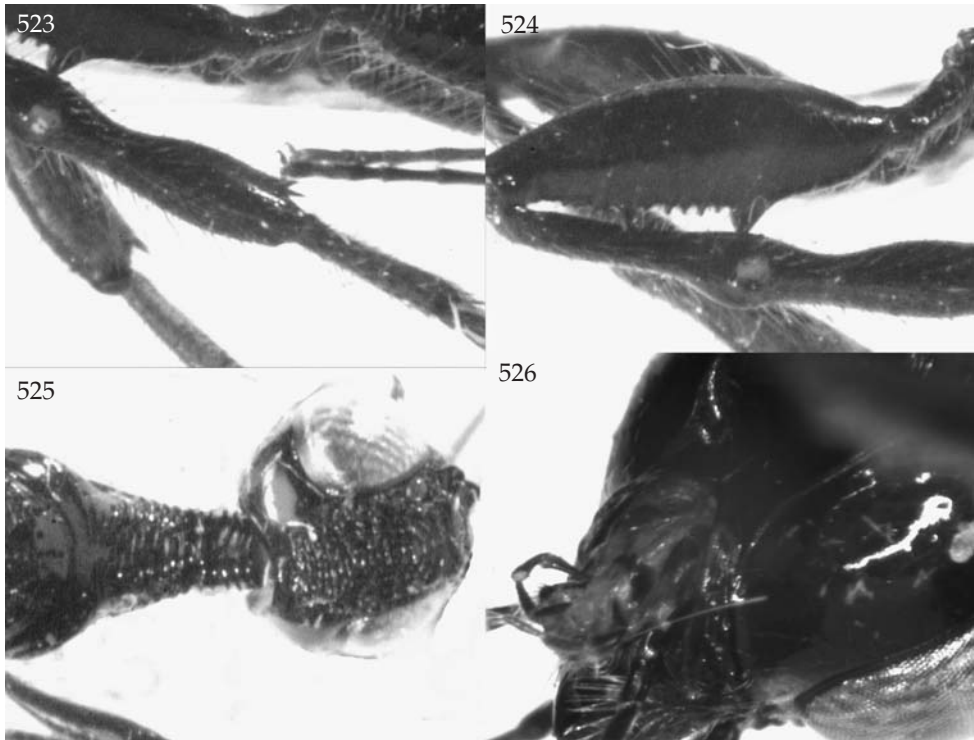
Head.— Antenna with 45 segments, length of third antennal segment 2.6 times its maximum width, and fourth segment 1.2 times as long as third segment; frons coarsely transversely rugose and rather convex; three anterior coronal teeth large, lobe-shaped, both posterior ones medium-sized, not part of transverse lamella; after these teeth with five very coarse regular transverse carinae (last one rather short) followed by flattened area with coarse regular carinae up to close to occipital carina and laterally very coarsely reticulate-rugose (figs 518, 525); temple roundly narrowed posteriorly (fig. 525), smooth and shiny, except for some fine punctures; occipital carina strongly developed and almost reaching wide hypostomal carina (fig. 526); postgenal bridge widely and gradually declivous (fig. 526); hypostomal flange comparatively large, distinctly elevated and with some superficial rugae.

Mesosoma.— Neck rather robust (fig. 516) and anteriorly moderately emarginate, neck postero-dorsally at much lower level than middle part of pronotum, flat and smooth postero-medially (fig. 517), with four pairs of strong carinae, the two posterior ones interrupted and more or less oblique submedially (fig. 516); pronotal fold very strongly developed and below it a large concavity; middle part of pronotum with seven more or less complete transverse and very strong carinae, no median carina directly behind pronotal fold but area elevated, middle part distinctly differentiated from posterior part of pronotum (fig. 517); posterior part of pronotum convex posterolaterally (fig. 525), large glabrous, without short setosity and with few very coarse punctures dorsally, coarsely crenulate latero-posteriorly; propleuron rather sparsely and very coarsely punctate; convex part of mesopleuron largely without short whitish dense setosity, anteriorly and medially coarsely rugose, medio-posteriorly and dorsally coarsely punctate, and posteriorly rugose; mesosternum largely smooth and sparsely long setose, without short setosity posteriorly, or setosity somewhat developed; convex part of metapleuron coarsely reticulate, elongate and without dense short whitish setosity, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with narrow smooth interspaces (fig. 522).

Wings.— Fore wing (fig 519): vein 1-M 6.4 times as long as vein 1-SR and 1.0 times vein m-cu; vein 2-SR 1.1 times vein r; vein r ends 0.4 times length of pterostigma behind level of apex of pterostigma; vein 1-SR distinctly shorter than parastigmal vein.

Legs.— Hind coxa rather robust (fig. 520), triangular, outer side largely smooth (except for rugose base and transversely rugose apex), dorsally with some short transverse rugae; apical third of hind femur without short setosity; outer side of hind tibia steeply depressed at widened part at end of narrow basal part (fig. 524), ventrally rather shallowly concave and apical part rather robust (figs 523, 524), inner side convex, with comparatively few punctures basally, posterior half with several rows of bristly setae and with deep transverse depression; hind basitarsus moderately widened apically, rather slender (fig. 523), its ventral length 4.2 times its width.

Metasoma.— First tergite 9.5 times as long as its maximum width (as its apical width, not distinctly narrowed apically), and densely regularly transversely striate but



Figs 523-526, *Megischus nigricans* Sichel, ♀, Sri Lanka. 523, detail of hind tibia; 524, hind femur; 525, head and pronotum, dorsal aspect; 526, head, ventral aspect.

less regularly basally and apically smooth; basally second tergite narrowly rugose; second-sixth tergites smooth; pygidial area rather differentiated, coriaceous and with some punctures, setae long and straight; length of ovipositor sheath 2.1 times fore wing and 1.2 times body, ivory part 1.6 times as long as dark apical part.

Colour.— Black; malar space ivory, distinctly contrasting with temple and vertex; fore and middle legs (except blackish coxae and darkened tarsi and apices of tibiae), hind femur and tarsus blackish-brown, but submedial depressed part of tibia dark chestnut-brown; veins and pterostigma dark brown; fore wing membrane slightly brownish, subhyaline (fig. 529).

Distribution.— Sri Lanka (Ceylon: Trincomali, Kandy and Galgamua).

Notes.— Length of fore wing. 6-14 mm; colour of legs and body varies from dark brown to blackish; in small specimens first tergite may be orange-yellowish, contrasting with dark brown propodeum, the length of the ovipositor sheath is 2.0-2.4 times as long as fore wing, and not about 2.9 times as given in the translated description by Elliott (1922).

Megischus nigripes (Elliott, 1927) stat. nov.
(figs 142-151, 527-530)

Stephanus nigripes Elliott, 1927: 220; Baltazar, 1966: 16 (as synonym of *M. coronator* (Fabricius, 1804) [examined]).

Stephanus punctatus Elliott, 1927: 219; Baltazar, 1966: 16 (as synonym of *M. coronator* (Fabricius, 1804) [examined]). **Syn. nov.**

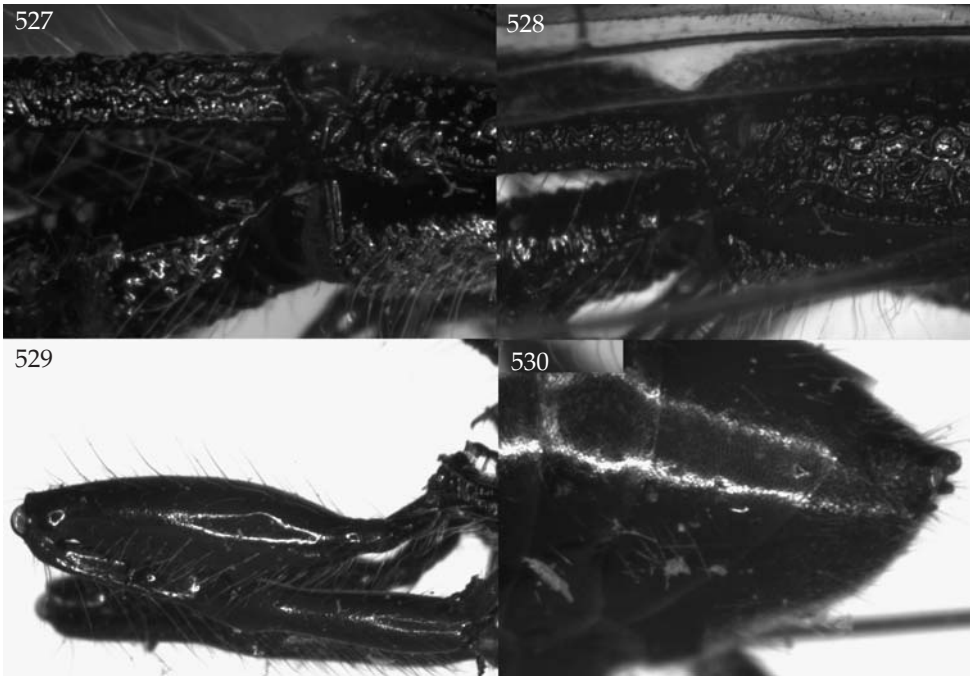
Stephanus hirsutus Elliott, 1927: 231; Baltazar, 1966: 16 (as synonym of *M. coronator* (Fabricius, 1804) [examined]). **Syn. nov.**

Material.— Holotype of *Stephanus nigripes* ♀ (USNM), “[Philippines:] Surigao, Mindanao, Baker”, “*S. nigripes* Elliott, type”. Holotype of *Stephanus punctatus*, ♀ (USNM), metasoma missing, “Island Samar, Baker” [should be from Sibuyan, but considering the following label it is considered a miswriting in Elliott’s description], “*S. punctatus* Elliott, type [in Elliott’s handwriting]”. Holotype of *Stephanus hirsutus*, ♂ (USNM), “[Philippines:] Davao, Mindanao, Baker”, “*S. hirsutus* Elliott, type”.

Holotype, ♀, length of body 18.9 mm, and of fore wing 10.6 mm.

Head.— Antenna incomplete; length of third antennal segment 3.4 times its maximum width, and fourth segment 1.2 times as long as third segment (with many circular sensillae); frons with coarse, more or less curved spaced carinae and dorsally reticulate; three anterior coronal teeth large, lobe-shaped, both posterior ones medium-sized, part of transverse, sinuate lamella distinctly widened towards both ends; after this lamella four strong regularly curved lamelliform carinae followed by flattened and regularly transversely rugose area with rugae almost reaching medium-sized occipital carina and near eye coarsely reticulate (fig. 144); head rather slender (fig. 142); temples largely smooth and shiny, except for several rather fine punctures and directly narrowed behind eyes (fig. 142); occipital carina strongly developed, reaching almost hypostomal carina (fig. 146); postgenal bridge widely and gradually declivous behind wide lamelliform hypostomal carina (fig. 146); hypostomal flange comparatively large and only punctate (fig. 143).

Mesosoma.— Neck slender and anteriorly subtruncate, with complete and rather strong subanterior transverse carina, flat and smooth medially, with two pair of rather weak and widely interrupted carinae, slightly or not converging to pronotal fold (fig. 147), neck postero-dorsally at somewhat lower level than middle part of pronotum (fig. 146); pronotal fold strong, weakly sinuate and below it with shallow concavity (fig. 145); middle part of pronotum with seven more or less complete transverse carinae dorsally, antero-medially directly behind pronotal fold weakly concave, with keel and with few punctures postero-laterally, laterally with indistinct oblique groove, middle part distinctly differentiated from posterior part of pronotum (fig. 143); posterior part of pronotum with some sparse short setosity and with few coarse setiferous punctures far removed from each other, postero-laterally distinctly convex (fig. 147) and with some short crenulae; propleuron with few coarse punctures; convex part of mesopleuron coarsely foveolate-punctate with in front more or less elevated, anteriorly resulting in distinct rugae, with rather sparse short setosity; side of scutellum sparsely setose; mesosternum largely smooth (except some punctures) and with short setosity posteriorly; convex part of metapleuron coarsely reticulate, rather elongate and densely rather long whitish setae, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with narrow smooth interspaces (fig. 528).



Figs 527-530, *Megischus nigripes* (Elliott), ♀, holotype. 527, base of first metasomal tergite, latero-dorsal aspect; 528, propodeum, latero-dorsal aspect; 529, hind femur and tibia; 530, pygidium, latero-dorsal aspect.

Wings.— Fore wing (fig. 148): vein 1-M 7.4 times as long as vein 1-SR and 1.3 times vein m-cu; vein 2-SR 1.1 times as long as vein r; vein r ends 0.5 times length of pterostigma behind level of apex of pterostigma and vein 1-SR 0.7 times as long as parastigmal vein.

Legs.— Hind coxa elongate spindle-shaped (fig. 149), medially partly smooth, but with large setiferous punctures and medium-sized transverse rugae, basally somewhat rugose; outer side of hind femur largely smooth and apical 0.6 partly with short setosity; basal 0.4 of hind tibia weakly narrowed and comparatively slender and submedially very gradually depressed (fig. 529) and outer apical 0.6 short setose, inner side rather convex, with most punctures in a triple row and rather long bristly setose medially but near base less bristles, and with distinct transverse depression; hind basitarsus nearly parallel-sided, slender (fig. 150), its ventral length 5.8 times its width.

Metasoma.— First tergite 14.4 times as long as its maximum width (and 13.1 times its apical width), without distinct medio-longitudinal carina basally (but with longitudinal ruga; fig. 527), and densely regularly transversely rugose but basally more rugose and apically narrowly smooth; basally second tergite indistinctly rugose; remainder of second tergite shiny and micro-sculptured, third and following tergites matt and micro-sculptured; pygidial area largely coriaceous, largely setose and rather matt, medially strongly convex and with indistinct punctures submedially, with long

straight setae surpassing apex of metasoma (fig. 530); length of ovipositor sheath 1.9 times fore wing (and 1.1 times as long as body), ivory part 1.9 times as long as its dark apical part (fig. 151).

Colour.— Black; malar space and large part of temple ventrally yellowish-ivory, weakly contrasting with remainder of temple and vertex (fig. 146); remainder of head, orange-brown; antenna (but scapus brown), palpi, tegulae, fore and middle legs (but fore and middle coxa blackish), hind trochanter and trochantellus, apical 0.6 of hind tibia, hind tarsus, veins and pterostigma (except slightly paler base) dark brown; hind femur and basal 0.4 of hind tibia brownish-black; wing membrane completely weakly infusate.

Distribution.— Philippines (Mindanao, Samar).

Megischus nigripoides spec. nov.
(figs 152-160, 531-534)

Material.—Holotype, ♀ (RMNH) "Indonesia: N. Sulawesi, Dumoga-Bone N.P., ca 220 m, nr Base Camp Toraut R[iver], 0°34'N 123°54'E, 22.xi.1985, C. v. Achterberg, RMNH'86", "*Megischus coronator* (Fabricius) ♀, A.P. Aguiar, det/[19]99". Paratypes (5 ♀♀ + 11 ♂♂): 2 ♂♂ (RMNH), same label data; 1 ♀ (ZMA), "Indonesia: Sulawesi Utara, Dumoga-Bone N.P., Project Wallace", "Toraut, 29-30.ix.1985, M.R. de Jong", "lowland rainforest", "*Megischus coronator* (Fabricius) ♀, A.P. Aguiar, det/[19]99"; 1 ♀ (ZMA), id., but "Bank Toraut R[iver], nr base camp, 29.i-1.ii.1985, J.P. Duffels", "Stat. 4, secondary forest"; 1 ♂ (ZMA), id., but "Toraut, bank of Tumpah R[iver], (recreation area), 8.ii.1985, J.P. Duffels", "Stat. 11, lowland forest"; 1 ♀ (RMNH), "Indonesia: N. Sulaw[esi], 20 km N. Bitung, Tangkoko N.P., 0-200 m, 1°34'N 125°12'E, 19.iv.1988, R. Hensen", 1 ♂ (RMNH), "Indonesia: N. Sulawesi, Tangkoko-Dua Saudara N.R., ± 100 m, 1°30'N 125°10'E, 28.xi.1985, C. v. Achterberg, RMNH'86"; 1 ♂ (USNM), Indonesia: Celebes, Sulawesi Utara province, 0°44'N 124°27'E, 1000-1200 m, montane forest above Lake Mooat, above Kotamobagu, 9.ix.1985, J.D. Weintraub"; 4 ♂♂ (RMNH, ZMB), "Indonesia: C. Sulawesi, Lore Lindu N.P., nr Dongi-Dongi shelter, ca 975 m, 1°15'S 120°20'E, 7.xii.1985, C. v. Achterberg, RMNH'86", 1 ♂ labelled "*Megischus coronator* (Fabricius) ♂, A.P. Aguiar, det/[19]99"; 1 ♀ (BMNH) "[Indonesia:] Sulawesi Tengah, nr Morowali, Ranu River area, 27.i-20.iv.1980"; 1 ♂ (RMNH), "Indonesia: SE Sulawesi, nr Sanggona, Mt. Watuwila Base Camp, c 200 m, 15.x.1989, K.A. van der Blom, RMNH'89", "*Megischus coronator* (Fabricius) ♂, A.P. Aguiar, det/[19]99"; 1 ♂ (RMNH), Indonesia: Sulawesi, nr Bantimurung, Ciaker Alam, Laya, 20.iv.1991, c 450 m, C. v. Achterberg, RMNH'91"; 1 ♀ (OUM), "Mak" (= round Wallace label: = Makassar, but most likely also from Bantimurung, S. Sulawesi; see Baker (2001)), "*Megischus ducalis* Westw."

Holotype, ♀, length of body 30.6 mm, and of fore wing 17.3 mm.

Head.— Head comparatively globular (fig. 152); antenna with 40 segments; length of third antennal segment 3.5 times its maximum width, and fourth segment 1.2 times as long as third segment; frons coarsely transversely rugose basally and obliquely rugose dorsally; three anterior coronal teeth large, lobe-shaped, both posterior ones medium-sized, part of strong sinuate transverse lamella; after this lamella five regular, strong, complete and more or less curved lamelliform carinae followed by medially steeply lowered and slightly concave area with first coarse curved rugae, followed by transverse rugae, rugae laterally oblique and more irregular near eyes, bell-shaped, bust behind level of eyes only regularly and densely rugose, up to occipital carina (fig. 152); temples roundly narrowed behind eyes, smooth and shiny, except for some fine punctures (fig. 152); occipital carina strongly developed, laterally wide lamelliform, and ventrally almost reaching lamelliform hypostomal carina (fig. 154); postgenal

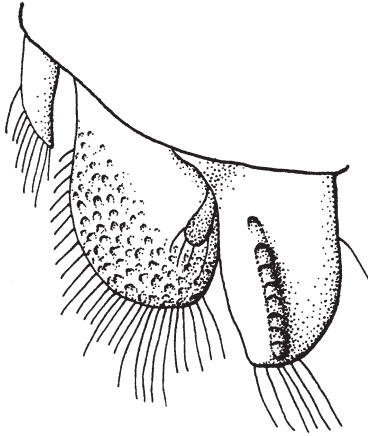


Fig. 531, *Megischus nigripoides* spec. nov., ♂, paratype (Lore Lindu); male genitalia and pygidium, lateral aspect.

bridge widely and gradually declivous; hypostomal flange large and with several coarse punctures.

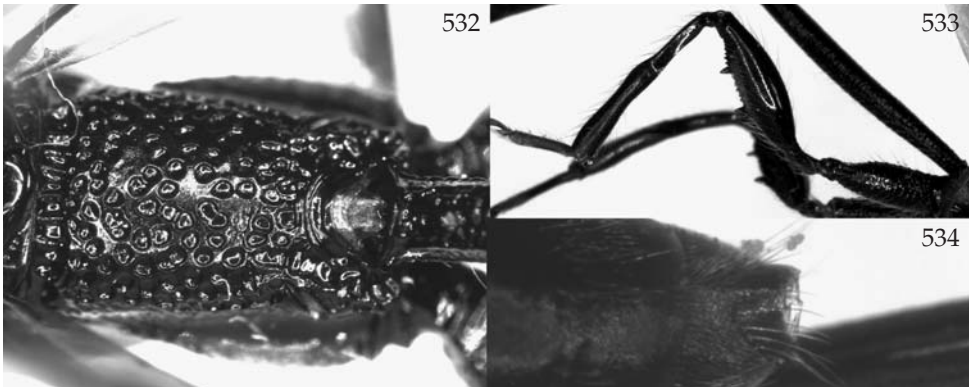
Mesosoma.— Neck rather slender and anteriorly weakly concave (fig. 153), margin not uplifted, but with nearly complete rather weak subanterior carina, neck postero-dorsally at much lower level than middle part of pronotum (fig. 156), flat and widely smooth medially, with three robust (especially posterior two) carinae, anterior one near subanterior carina narrowly interrupted, followed by a very robust and complete carina but less developed medially, and a posterior one widely interrupted, and somewhat pointed to pronotal fold; pronotal fold strong, porching over deep and wide depression (fig. 156),

without median keel and concave behind it; middle part of pronotum with four more or less complete and medium-sized transverse carinae and with rather distinct oblique lateral groove, middle part gradually merging into posterior part of pronotum, and pronotum latero-posteriorly weakly convex (fig. 153); posterior part of pronotum largely covered by rather sparse and long setosity (fig. 153), laterally densely setose but dorso-posteriorly glabrous, with several very coarse punctures and latero-posteriorly with some crenulae; propleuron with several coarse punctures and densely setose; convex part of mesopleuron with dense short whitish setosity and coarsely foveolate, anteriorly intermingled with weak rugae; mesosternum largely smooth (except some fine punctures) and only posterior 0.3 rather densely short setose; convex part of metapleuron coarsely reticulate, rather elongate and moderately densely and rather short setose below long whitish setae, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with distinct (and partly wide) smooth interspaces (fig. 532); side of scutellum densely conspicuously setose.

Wings.— Fore wing (fig. 158): vein 1-M 7.5 times as long as vein 1-SR and 1.3 times vein m-cu; vein 2-SR 0.9 times as long as vein r; vein 1-SR 0.7 times as long as parastigmal vein and vein r ends 0.6 times length of pterostigma behind level of apex of pterostigma.

Legs.— Hind coxa rather elongate spindle-shaped (fig. 533), with spaced short transverse rugae, partly smooth, basally rugose and apically transversely rugose; apical 0.7 of hind femur largely with short setosity and remotely punctate; outer side of widened part of hind tibia slender, superficially micro-granulate and shiny, remotely punctate and densely short setose, nearly parallel-sided, and slightly concave ventrally (fig. 157), inner side rather convex, with many punctures, mostly in a triple row and with distinct transverse depression; hind basitarsus parallel-sided, slender (fig. 159), its ventral length 5.2 times its width.

Metasoma.— First tergite 9.1 times as long as its maximum width (and 10.8 times



Figs 532-534, *Megischus nigripoides* spec. nov., ♀, holotype. 532, propodeum, dorsal aspect; 533, hind leg; 534, pygidium, latero-dorsal aspect.

its apical width), and densely regularly transversely striate but basal third irregularly rugose and apically smooth, widened near spiracles; basally second tergite with some short and distinct rugae; remainder of second tergite and following tergites micro-sculptured and rather matt, but second tergite more shiny than following tergites; basal half of pygidial area setose, whole area micro-sculptured and shiny, distinctly punctate medially, with long straight setae surpassing apex of metasoma and posteriorly semicircularly convex, apically with rather wide and medially nearly straight hyaline lamella (fig. 534); length of ovipositor sheath 2.3 times fore wing (and 1.2 times body), ivory part 1.6 times as long as dark apical part (fig. 160).

Colour.— Black; head orange-brown; malar space and face largely yellowish, weakly contrasting with temple (fig. 155); palpi brown; neck anteriorly dark chestnut-brown; antenna (except for brownish-yellow scapus), tegulae, fore and middle legs (except blackish brown coxae), hind tarsus, veins and pterostigma more or less dark brown, but base of pterostigma pale brown; hind tibia blackish-brown; basal two-thirds of wings evenly and rather strongly dark brown (fig. 158), remainder of fore wing membrane less darkened.

Distribution.— Indonesia (Sulawesi).

Notes.— Length of fore wing 11.7-17.3 mm (♀) or 8.4-17.8 mm (♂); antenna of ♀ with 38(1) or 40(1) segments, of ♂ with 32(1), 34(2), 35(1), 38(3), or 39(1) segments; length of ovipositor sheath 2.1-2.3 times fore wing and the ivory part 1.6-2.0 times as long as dark apical part; small males may have the middle part of the pronotum largely smooth; the most robust carina of the pronotum may be absent medially and “ear”-like laterally; and the subanterior carina of pronotum is often rather strong. Males have the pygidium robust (similar to the pygidium of the males of *M. coronator*) and truncate apically, with a deep lateral furrow with large punctures; the paramere coarsely and densely punctate and with rather long setosity (fig. 531).

Most common and wide-spread *Megischus* species on Sulawesi. Resembles *M. nigripes* (Elliott) but differs by having the sculpture of the vertex more bell-shaped, the basal half of the fore wing distinctly darker than the apical half, the sides of the scutellum densely conspicuously setose (as in *M. coronator* and *M. lucidus*), the mesopleuron

densely short setose, the mesosternum more setose apically, and part of carinae of neck coarser and more directed to the coarser pronotal fold.

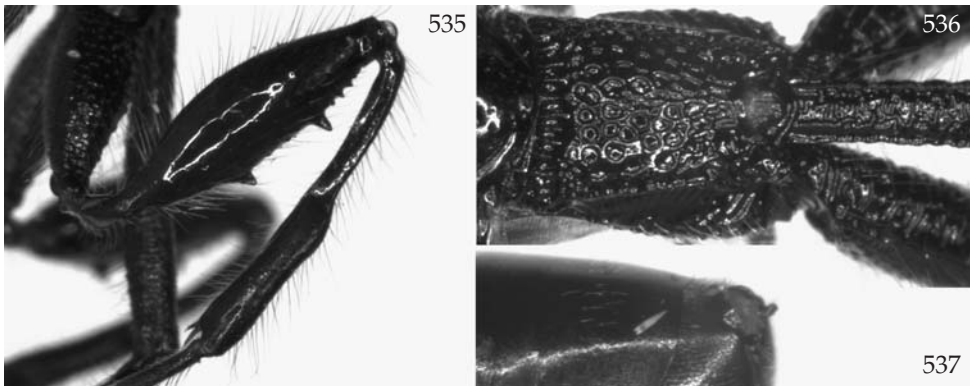
Megischus planifrons spec. nov.
(figs 161-169, 535-537)

Material.— Holotype, ♀ (RMNH), "Indonesia: N. Sulawesi, 7 km N Malibagu, ca. 125 m, 0°27'N 123°58'E, 12.xi.1985, C. v. Achterberg, RMNH'86". Paratype: ♀ (ZMB), topotypic, but 19-20.xi.1985.

Holotype, ♀, length of body 16.5 mm, and of fore wing 10.1 mm.

Head.— Length of third antennal segment 2.2 times its maximum width, and fourth segment 1.4 times as long as third segment (fig. 165), antenna with 39 segments; frons flattened (fig. 165), coarsely obliquely rugose; three anterior coronal teeth large, lobe-shaped, both posterior ones small, but wide and part of widened transverse lamella, and medially weakly developed; after this lamella six regular and strong curved carinae (posterior two short) followed by a convex and rather coarse rugose-reticulate area, without bell-shaped pattern and posteriorly rather close to occipital carina (fig. 161); temples directly roundly narrowed posteriorly, smooth and shiny, except for some fine punctures near eye (fig. 161); occipital carina absent ventrally, ending near level ventral 0.3 of eyes and far from hypostomal carina (fig. 163), area near moderately strong hypostomal carina smooth; postgenal bridge with a rather shallow median groove-like depression (fig. 163); hypostomal flange medium-sized and smooth.

Mesosoma.— Neck robust and anteriorly deeply concave (fig. 162), neck postero-dorsally at somewhat lower level than middle part of pronotum, with small flattened part postero-medially and with four lamelliform carinae, anterior two complete or nearly so, remainder incomplete (fig. 164); pronotal fold absent, only with transverse carina (fig. 161), middle part of pronotum with six weak and irregular transverse carinae, which are laterally largely absent; no median carina anteriorly, middle part rather



Figs 535-537, *Megischus planifrons* spec. nov., ♀, holotype. 535, hind leg; 536, propodeum, dorsal aspect; 537, pygidium, latero-dorsal aspect.

weakly differentiated from posterior part of pronotum (fig. 164), and latero-posteriorly rather weakly protruding (fig. 162); posterior part of pronotum largely glabrous, except for sparse long setae, and with a few coarse punctures and posteriorly with some medium-sized curved crenulae; propleuron sparsely coarsely punctate, but posteriorly more closely so; convex part of mesopleuron with short setosity, but rather sparsely so and coarsely rugose-punctate; mesosternum sparsely coarsely rugose-punctate and densely rather long setose posteriorly; convex part of metapleuron coarsely vermiculate-reticulate, rather elongate and with rather sparse moderately short setosity below long whitish setae, both anterior depressions deep and large; propodeum coarsely and densely foveolate, without distinct smooth interspaces as wide as fova (fig. 537).

Wings.— Fore wing (fig. 167): vein 1-M 4.8 times as long as vein 1-SR and 1.3 times vein m-cu; vein 2-SR as long as vein r; vein r ends 0.2 times length of pterostigma behind level of apex of pterostigma.

Legs.— Hind coxa rather robust triangular (figs 166, 535), largely transversely striate-rugose, but basally mainly rugose; hind femur distinctly swollen and robust (fig. 535), with some short setosity posteriorly, and apically more strongly widened than in other species; outer side of hind tibia largely parallel-sided, rather abruptly widened submedially and straight ventrally (fig. 535), inner side convex, narrow basal part of tibia without medium-sized bristly setae, except for the usual long setae and with distinct transverse medial depression; hind basitarsus parallel-sided, slender (fig. 168), its ventral length 6.7 times its width.

Metasoma.— First tergite comparatively robust, ending rather far behind level of end of hind coxa and hardly narrowed apically, 7.0 times as long as its maximum width (and 7.5 times its apical width), its apical half densely regularly transversely rugose and basal half coarsely irregularly rugose and apically narrowly smooth; basally second tergite with a coarse transverse ruga and a few weaker rugae behind it; third and following tergites micro-sculptured; pygidial area well delimited surrounded by densely setose area, shiny and with some fine punctures subbasally and long and mainly straight setae (fig. 537); length of ovipositor sheath 1.4 times fore wing (and 0.9 times body), its ivory part 1.9 times as long as dark apical part (fig. 169).

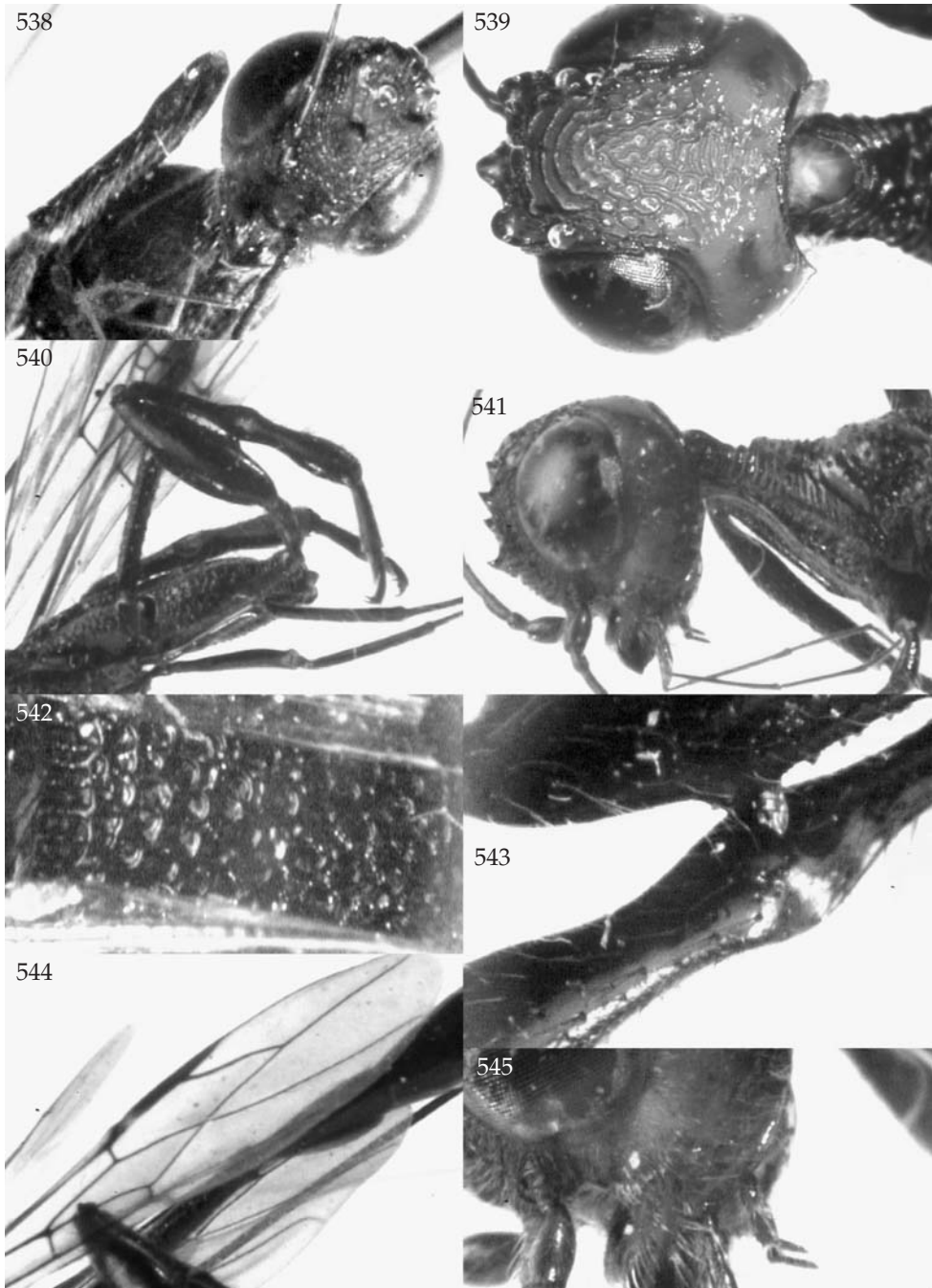
Colour.— Black; head orange-red; scapus yellowish-brown, remainder of antenna dark brown; malar space pale yellowish, not contrasting with temple; fore and middle legs (except blackish coxae) dark brown; hind femur, tibia and tarsus blackish; basal half of fore wing largely distinctly infuscate (fig. 167), and remainder of fore wing membrane weaker infuscate.

Distribution.— Indonesia (Sulawesi).

Notes.— The paratype has 39 antennal segments, vein 1-M of fore wing 4.9 times as long as vein 1-SR; neck with three lamelliform carinae.

Megischus ptosimae Chao, 1964
(figs 170-178, 538-545)

Megischus ptosimae Chao, 1964: 378, 387-388 [the large type series from Foochow (China, Fukien) including both sexes in the private collection of the late Prof. Chao could not be traced by his son (in litt.); interpretation of the species based on the illustrations in the original paper]; Belokobylskij, 1995: 22.



Figs 538-545, *Megischus ptosimae* Chao, ♀, India. 538, head, frontal aspect; 539, head and neck, dorsal aspect; 540, hind leg; 541, head and pronotum, lateral aspect; 542, propodeum, dorsal aspect; 543, detail of hind tibia; 544, part of fore wing; 545, lower half of head, lateral aspect.

Material.— Redescribed ♀, (CNC), “S India, Anamalai Hills, Madras St., 3500' [ft], v.1969, P.S. Nathan”.

Redescribed after ♀ from India, length of body 23.5 mm, and of fore wing 13.7 mm.

Head.— Antenna with 43 segments; length of third antennal segment 2.8 times its maximum width, and fourth segment 1.3 times as long as third segment; frons coarsely transversely rugose and dorsally strongly upcurved rugose; three anterior coronal teeth large, lobe-shaped, both posterior ones smaller and wide, part of transverse widened lamella narrowed medially; after this lamella three strong regular lamelliform carinae followed by a coarse and rather densely reticulate flattened area. medio-posteriorly with short transverse carinae medially, remaining removed from occipital carina (figs 175, 176, 539); temple roundly narrowed behind eye (fig. 539), largely smooth and shiny, except for several coarse punctures laterally; occipital carina strongly developed and almost reaching lower level of eyes, bent away from lamelliform hypostomal carina (fig. 178); postgenal bridge with groove-like depression medially and with pair of distinct teeth above it (fig. 178); hypostomal flange large and with a strong oblique rugae (fig. 178).

Mesosoma.— Neck moderately robust and anteriorly deeply emarginate (fig. 176), neck postero-dorsally at distinctly lower level than middle part of pronotum (fig. 541), widely flat and smooth postero-medially, with three rather robust and more or less complete curved carinae anteriorly and with four widely interrupted strong carinae behind it (fig. 176); pronotal fold strongly developed and below it a pair of rather shallow concavities (fig. 172) and behind it a medium-sized crest-like median elevation; middle part of pronotum with five more or less complete, strong and laterally present transverse carinae; middle part distinctly differentiated from posterior part of pronotum (fig. 171); posterior part of pronotum strongly convex, rather tuberculate postero-laterally (fig. 539), dorsally without short setosity and with several very coarse punctures, postero-laterally coarsely crenulate; propleuron very coarsely and posteriorly rather densely punctate; convex part of mesopleuron without short whitish dense setosity and anterior half coarsely punctate-rugose, posterior half mainly punctate; mesosternum largely smooth (except for lateral punctures) and sparsely long setose, without short setosity; convex part of metapleuron coarsely reticulate, rather elongate and with sparse moderately short whitish setosity, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with rather wide smooth interspaces (fig. 542).

Wings.— Fore wing (fig. 544): vein 1-M 7.4 times as long as vein 1-SR and 1.2 times vein m-cu; vein 2-SR 1.1 times vein r; vein r ends 0.3 times length of pterostigma behind level of apex of pterostigma; vein 1-SR 0.7 times as long as parastigmal vein.

Legs.— Hind coxa rather slender, spindle-shaped (fig. 540), very coarsely more or less transversely and incompletely rugose; hind femur swollen and robust (fig. 540), apical third of hind femur with some short setosity; outer side of hind tibia steeply depressed at base of widened part (fig. 543), widened part moderately concave ventrally and apical part robust (fig. 173), inner side convex, narrow part with triple row of fine punctures and medium-sized bristly setae, medially with deep transverse depression; hind basitarsus somewhat widened apically, rather slender (fig. 174), its ventral length 4.2 times its width and apically oblique.

Metasoma.— First tergite 12.4 times as long as its maximum width (and 14 times

its apical width), and densely coarsely and regularly transversely striate but its basal third less regularly so and apically narrowly smooth; basally second tergite narrowly rugose; pygidial area shallowly impressed and posteriorly glabrous and shiny, with submedial row of coarse punctures with long setae comparable to setae of cerci; length of ovipositor sheath 2.0 times fore wing and 1.1 times body, ivory part 1.3 times as long as dark apical part (fig. 170).

Colour.— Black; head and hind trochantellus apically dark reddish; malar space ivory, area slightly extending on temple, distinctly contrasting with temple and vertex (fig. 177); scapus and pedicellus largely, fore and middle legs (except blackish coxae), widened submedial part of hind tibia and hind tarsus, veins and pterostigma dark brown; narrow part of hind femur and its apex blackish, including spurs, fore wing membrane evenly light brownish.

Host.— *Ptosima chinensis* Marseul, 1867 (Buprestidae) in peach trees (Chao, 1964).

Distribution.— China (Fukien), India.

Megischus reticulatus (Elliott, 1926)

(figs 179-186, 546-551)

Stephanus reticulatus Elliott, 1926: 519-520 [examined].

Megischus reticulatus; Baltazar, 1966: 17.

Stephanus lepidus Elliott, 1927: 230; Baltazar, 1966: 17 (as synonym of *M. reticulatus* (Elliott, 1926)) [examined].

Stephanus panayanus Elliott, 1927: 225-226; Baltazar, 1966: 16 (as synonym of *M. coronator* (Fabricius, 1804) [examined]). **Syn. nov.**

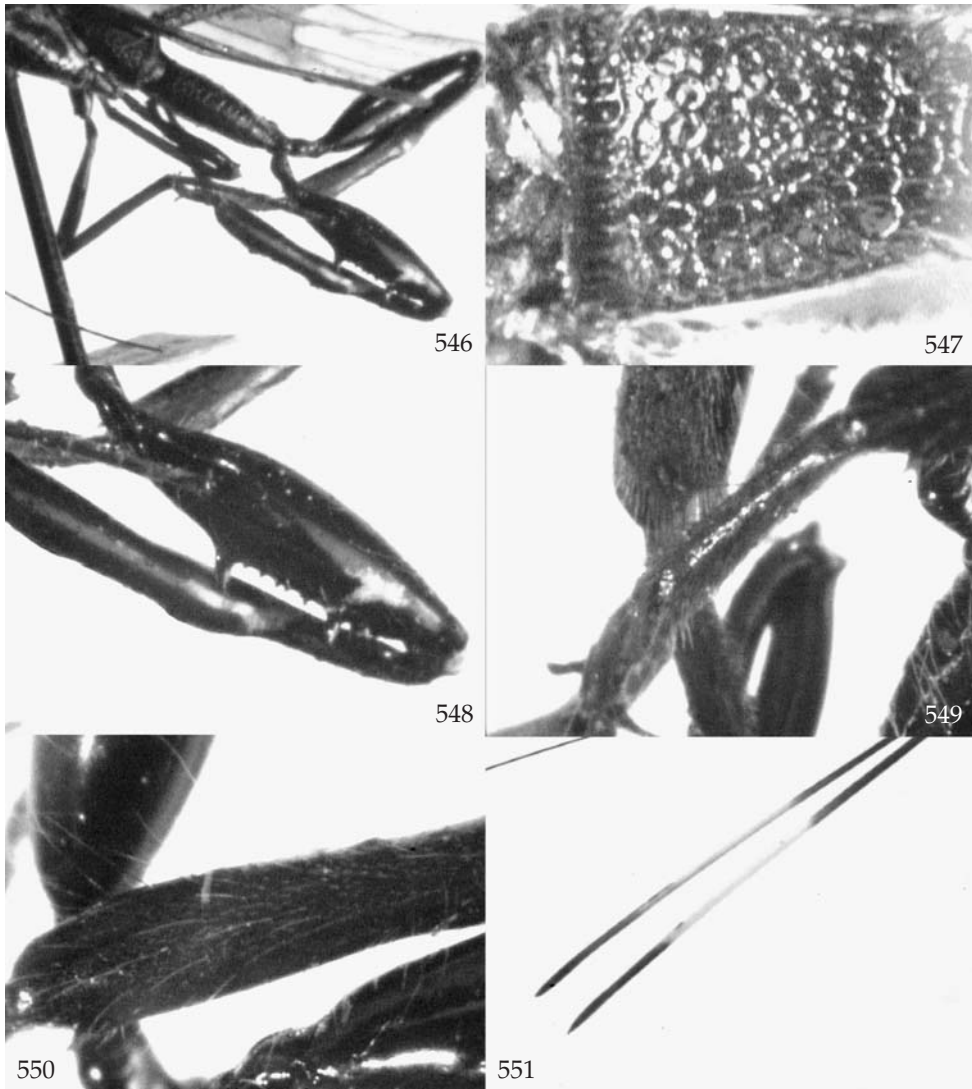
Material.— Lectotype of *Stephanus reticulatus* here designated, ♀ (USNM) “[Philippines], Island Sibuyan, Baker”, “21 435””, “*Stephanus reticulatus* Elliott”; paralectotypes: 1 ♀ (USNM) + 1 ♀ (BMNH: labelled as “lectotype”, but it is a rather decoloured specimen, with hind tibia dark brown and hind tarsus rather light brown, “Type”, “B.M. Hym. Type 3.a.131”). Holotype of *Stephanus lepidus*, ♂ (USNM), rather damaged, “[Philippines], Island Sibuyan, Baker”, “*Stephanus lepidus* Elliott”. Holotype of *Stephanus panayanus*, ♀ (USNM), “[Philippines], N[orth] W[est] Panay, Baker”, “*S. panayanus* Type [in Elliott’s handwriting]”.

Additional specimens examined from Philippines: Sibuyan (RMNH), Mindanao (Suriago, Camerines (Mt Iriga, 500-600 m; BPBM, CNC), and Luzon (BPBM).

Lectotype of *M. reticulatus*, ♀, length of body 21.7 mm, and of fore wing 12.9 mm.

Head.— Antenna incomplete; length of third antennal segment 3.6 times its maximum width, and fourth segment 1.4 times as long as third segment; frons coarsely curved reticulate-rugose, dorso-laterally with oblique elements; three anterior coronal teeth large, lobe-shaped, both posterior ones small, part of sinuate transverse lamella a quarter from both ends; after this lamella three strong complete regular and somewhat curved lamelliform carinae followed by a flattened, completely reticulate area, sculpture posteriorly weaker and absent near occipital carina (fig. 180); temples smooth and shiny, except for some fine punctures; occipital carina rather strongly developed ventrally but not reaching hypostomal carina and ends above lower level of eye; postgenal bridge widely and gradually declivous; hypostomal flange large and without distinct rugae, only some punctures.

Mesosoma.— Neck elongate and anteriorly weakly concave, neck postero-dorsally



Figs 546-551, *Megischus reticulatus* (Elliott), ♀, holotype. 546, hind leg; 547, propodeum, dorsal aspect; 548, hind femur; 549, hind tarsus; 550, detail of hind tibia; 551, apex of ovipositor sheath.

at same level as middle part of pronotum (figs 184, 185), with rather large shallowly concave and posteriorly smooth area medially, with six complete and three widely interrupted and weak carinae; pronotal fold largely absent (fig. 183), and behind it with depression, its anterior margin not uplifted; middle part of pronotum with seven incomplete and rather weak transverse carinae and without short median carina directly behind pronotal fold, middle part well separated from posterior part of pronotum (fig. 184), and pronotum latero-posteriorly moderately convex (fig. 79); posterior part of pronotum rather sparsely short setose (but medially glabrous), with

coarse punctures and posteriorly some oblique striae; propleuron with some sparse coarse punctures; convex part of mesopleuron rather sparsely coarsely punctate and with short elevations in front of punctures, without short whitish dense setosity but antero-ventrally and posteriorly with some short setosity; mesosternum largely smooth and only posteriorly densely short setose; convex part of metapleuron coarsely reticulate, rather elongate and distinctly moderately densely and rather short setose below long whitish setae, both anterior depressions deep and large; propodeum largely coarsely reticulate, but laterally with some smooth interspaces (fig. 547).

Wings.— Fore wing (fig. 186): vein 1-M 7.2 times as long as vein 1-SR and 1.3 times vein m-cu; vein 2-SR 1.1 times as long as vein r; vein r ends 0.5 times length of pterostigma behind level of apex of pterostigma; vein 1-SR 0.7 times parastigmal vein.

Legs.— Hind coxa elongate spindle-shaped (fig. 546), with spaced transverse rugae; apical 0.6 of hind femur with short setosity, largely smooth; outer side of hind tibia below depression nearly parallel-sided and slender, nearly straight ventrally (fig. 548), inner side rather convex, with many fine punctures more or less in a triple row and with distinct transverse depression; hind basitarsus parallel-sided, slender (fig. 549), its ventral length 5.8 times its width.

Metasoma.— First tergite 12.4 times as long as its maximum width or apical width, and densely regularly transversely striate but basal third rather superficially and irregularly rugose and apically smooth, parallel-sided; basally second tergite with some distinct rugae and remainder smooth; third and following tergites micro-sculptured, matt; pygidial area largely smooth and shiny and moderately punctate medially and anteriorly rather sparsely short setose, with long setae straight and surpassing apex of metasoma, apically with narrow inconspicuous lamella; length of ovipositor sheath 2.0 times fore wing (and 1.1 times body), ivory part 1.4 times as long as dark apical part (fig. 551).

Colour.— Black or dark brown; malar space and temple ventrally largely ivory, moderately contrasting with temple; remainder of head yellowish-brown; antenna, palpi, tegulae largely, fore and middle legs (except dark fore coxa), metasoma except first tergite, veins and pterostigma dark brown; but base of pterostigma narrowly yellowish; hind leg, propodeum and first tergite very dark chestnut brown; mainly first subdiscal cell of fore wing and its surroundings distinctly infuscate, remainder of wings largely light brownish (fig. 186).

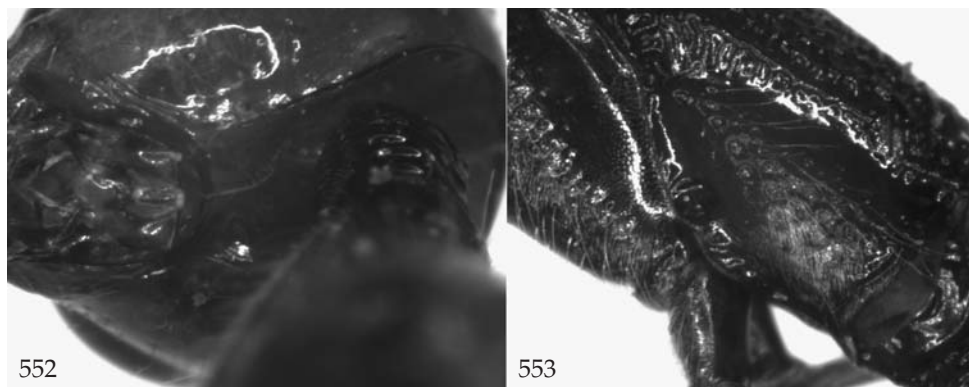
Distribution.— Philippines (Sibuyan, Panay, Mindanao, Luzon).

Note.— Colour of hind tibia and tarsus may be more or less dark chestnut-brown instead of black or blackish-brown. The specimens from Camarines (Mindanao) have the sculpture of the vertex more obliquely rugose than reticulate as in holotype and the apical lamella of pygidial area is wider (but narrower than in *M. luzonicus*).

Megischus rubripes (Kieffer, 1916) comb. nov. & stat. nov.
(figs 187-195, 552, 553)

Stephanus tinctipennis var. *rubripes* Kieffer, 1916: 405; Elliott, 1927: 220 (listed (as *S. tinctipes* [sic!] var. *rubripes* Kieffer); Baltazar, 1966: 16 (as synonym of *M. coronator* (Fabricius, 1804) [examined]).

Stephanus aequalis Elliott, 1927: 221-222; Baltazar, 1966: 16 (as synonym of *M. coronator* (Fabricius, 1804) [examined]). **Syn. nov.**



Figs 552-553, *Megischus rubripes* (Kieffer), ♀, lectotype. 552, head, latero-ventral aspect; 553, metapleuron.

Stephanus aequalis var. *ruficauda* Elliott, 1927: 222; Baltazar, 1966: 16 (as synonym of *M. coronator* (Fabricius, 1804) [examined]. **Syn. nov.**

Stephanus petiolatus Elliott, 1927: 225; Baltazar, 1966: 16 (as synonym of *M. coronator* (Fabricius, 1804) [examined]. **Syn. nov.**

Material.— Two specimens in USNM have label “*S. tinctipes* (sic!) v. *rubripes* Kieffer” but disagree with the original description (both have hind tibia and tarsus blackish, are clearly mislabelled, and belong to *M. insularis* Smith). Therefore as lectotype of *Stephanus tinctipennis* var. *rubripes* is here designated a ♀ (USNM) labelled “[Philippines], Mindanao, Dapitan, Baker”, “21427”, “*Stephanus coronator* Fab., Elliott”. Lectotype of *Stephanus aequalis* here designated, ♀ (USNM) “Mindanao, Dapitan, Baker”, “*S. aequalis* Elliott [in Elliott’s handwriting]”; paralectotypes (USNM): 14 types (plus 1 ♂ in BMNH) from Dapitan, 7 types (plus 1 ♀ in BMNH) from Davao (Mindanao), 2 types from Basilan, and 1 type from Tayabas (Mindanao). Holotype of *Stephanus aequalis* var. *ruficauda*, ♀ (USNM) “Dapitan, Mindanao, Baker”, “*S. aequalis* v. *ruficauda* Elliott”. Lectotype of *Stephanus petiolatus* here designated, ♂ (USNM), “Surigao, Mindanao, Baker”, “*S. petiolatus* Elliott, ♂, type (in Elliott’s handwriting)”. The female specimen in USNM (labelled by Elliott as *S. petiolatus* type) originates from Dapitan; either it is not a type, or it is wrongly cited by Elliott (1927).

Additional female examined from Mindanao (MNCN) with hind tarsus dark chestnut-brown and apex of hind tibia blackish.

Lectotype, ♀, length of body 24.5 mm, and of fore wing 13.4 mm.

Head.— Antenna with 40 segments; length of third antennal segment 3.0 times its maximum width (fig. 189), and fourth segment 1.3 times as long as third segment (with many circular sensillae); frons with coarse spaced, more or less curved and dorsally oblique rugae; three anterior coronal teeth large, lobe-shaped, both posterior ones medium-sized, part of strong transverse, sinuate lamella distinctly widened towards both ends; after this lamella four strong complete regularly curved lamelliform carinae followed by steep depression to weakly concave area with coarse, moderately spaced and rather irregular transverse rugae reaching almost medium-sized occipital carina and near eye coarsely spaced reticulate-rugose (fig. 187); temples largely smooth and shiny, except for several rather fine punctures and directly narrowed (fig. 187); occipital carina strongly developed, but weaker near hypostomal carina, and remaining somewhat removed from it (fig. 552); postgenal bridge widely

and gradually declivous behind wide lamelliform hypostomal carina (fig. 553); hypostomal flange comparatively large and only punctate.

Mesosoma.— Neck elongate and anteriorly weakly emarginate (fig. 188), with two pair weak, interrupted subanterior transverse carina, flat and smooth medially, with three pair of rather weak and widely interrupted carinae, slightly or not converging to pronotal fold (fig. 190), neck postero-dorsally at somewhat lower level than middle part of pronotum; pronotal fold moderately strong, hardly sinuate and below it without concavity; middle part of pronotum with seven more or less complete transverse carinae dorsally, antero-medially directly behind pronotal fold distinctly concave, without keel and with few punctures postero-laterally, laterally with indistinct oblique groove, middle part distinctly differentiated from posterior part of pronotum (fig. 190); posterior part of pronotum with moderately dense short setosity and with several very coarse setiferous punctures, postero-laterally moderately convex (fig. 188) and with some short crenulae; propleuron coarsely and sparsely punctate; convex part of mesopleuron with conspicuous dense short setosity and coarsely punctate mostly with short rather coarse rugae in front of punctures and with wide interspaces; mesosternum largely smooth (except some punctures) and with large patch of short setose posteriorly; convex part of metapleuron coarsely reticulate, rather robust (fig. 553) and densely rather long whitish setae, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with narrow smooth interspaces, antero-laterally somewhat wider.

Wings.— Fore wing (fig. 194): vein 1-M 6.9 times as long as vein 1-SR and 1.6 times vein m-cu; vein 2-SR 0.9 times as long as vein r; vein r ends 0.6 times length of pterostigma behind level of apex of pterostigma and vein 1-SR 0.8 times as long as parastigmal vein.

Legs.— Hind coxa elongate spindle-shaped, largely transversely and rather sparsely with rather short transverse striae, but basal third sparsely rugose; outer side of hind femur largely smooth, its apical 0.6 with short setosity; outer side of hind tibia gradually depressed at base of widened part (fig. 191), widened part slightly concave ventrally and apical part rather slender (fig. 191), inner side rather convex, narrow part with triple row of punctures and medium-sized bristly setae, medially with deep transverse depression; hind basitarsus parallel-sided, slender (fig. 195), its ventral length 5.3 times its width and apically hardly oblique.

Metasoma.— First tergite 11.3 times as long as its maximum width (and 11.8 times its apical width), and densely regularly transversely striate but basally irregularly rugose and apically narrowly smooth; basally second tergite narrowly rugose; second tergite rather shiny and micro-sculptured; third and following tergites matt and finely coriaceous; pygidial area largely coriaceous, densely setose except apically, medially moderately convex and without distinct punctures subapically, with long straight setae surpassing apex; length of ovipositor sheath 2.1 times fore wing (and 1.2 times as long as body), ivory part 2.2 times as long as its dark apical part (fig. 193).

Colour.— Black; malar space and large part of temple ventrally yellowish-ivory, not contrasting with remainder of temple and vertex (fig. 189); remainder of head, tibiae (except basal half of hind tibiae) and tarsi, orange-brown; tegulae, scapus, palpi, fore and middle femorae, trochanters and trochantelli brown; remainder of antenna, veins and pterostigma (except slightly paler base) more or less dark brown; remainder

of hind leg and first tergite more or less very dark chestnut-brown; wing membrane weakly infusate, but medially somewhat darker (fig. 194).

Distribution.— Philippines (Mindanao, Basilan).

Note.— This species is very similar to *M. insularis* Smith from which it differs mainly by the less regular, coarser and only weakly bell-shaped sculpture of the vertex, by the dark chestnut- or orange-brown colour of the hind tarsus, and the moderately convex latero-posterior part of the pronotum in dorsal view (fig. 188).

Megischus rufofemoratus (Szépligeti, 1902) comb. nov.
(figs 196-204, 554-559)

Stephanus rufofemoratus Szépligeti, 1902: 532; Enderlein, 1905: 475; Kieffer, 1908: 4; Elliott, 1922: 718, 74 [examined].

Megischus froggattii Cameron, 1911: 357-358 [examined]. **Syn. nov.**

Stephanus rubripes Morley, 1917b: 107; Elliott, 1919a: 28, 1922: 718 (as synonym of *S. froggattii* (Cameron, 1911)) [examined; not *S. rubripes* Kieffer, 1916]. **Syn. nov.**

Stephanus froggattii; Brues, 1918: 98; Elliott, 1919a: 28, 1919b: 75, 1922: 717-8, 734.

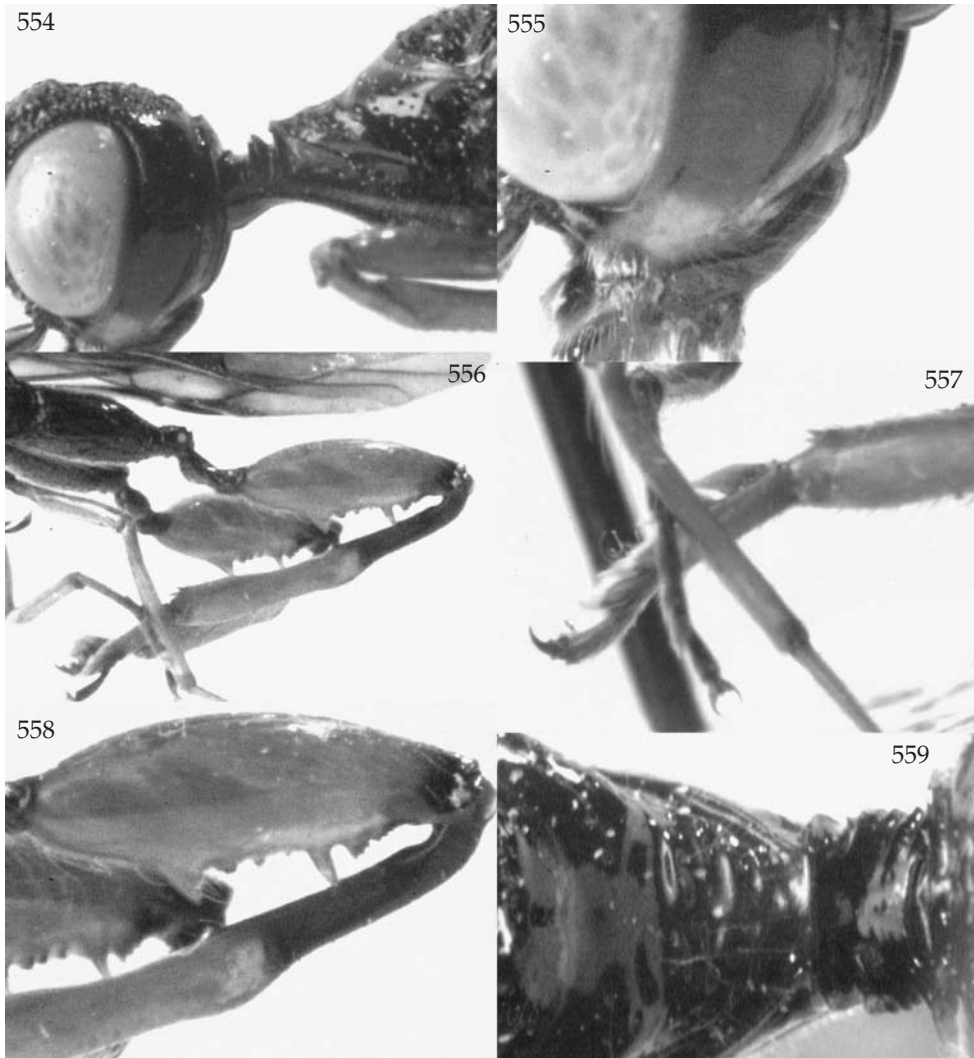
Material.— Holotype of *Stephanus rufofemoratus* Szépligeti, ♂ (Budapest Museum), "New Georgien: Rubiana". Lectotype of *Megischus froggattii* here designated, ♀ (BMNH), "Type, C.M.", B.M. Type 3.a.82", "*Megischus froggattii* Cam., Type [in Cameron's handwriting; but added by C. Morley: MS, C.M.]"; paralectotypes: 6 ♀♀ (not found in BMNH) + 2 ♂♂, "2c", "Solomon Isl., vii-viii.1909, W.W. Froggatt", "P. Cameron coll., 1914-110". Holotype of *Stephanus rubripes*, ♀ (BMNH), "Type C.M.", "B.M. Type 3.a.78", "*Stephanus rubripes* sp. n., 1.1917, C.M.", "Salomon [sic!] [Islands]"; paratypes: 1 ♀ (BMNH), "Salomon, 87.31" + 2 ♂♂ (BMNH), "Salomon, 87.3". Redescribed ♀ (BPBM), "Solomon Is[lands]: Nggela Sule I[island], Mboromole, 2-200 m, 31.x.1981", "Freycinetia", "J.L. Gressitt, coll. Bishop Museum. Acc. # 1981.505", "*Megischus rufofemoratus* Szépliget ♀, A.P. Aguiar det./99".

All additional specimens examined are from Solomon Islands (BMNH, RMNH, BPBM).

The ♀ from Nggela Sule Island compared to male holotype of *M. rufofemoratus* is used for the redescription, because the primary types are either male or females not in good condition. Length of body 25.0 mm, and of fore wing 14.1 mm.

Head.— Antenna incomplete; length of third antennal segment 2.9 times its maximum width, and fourth segment 1.2 times as long as third segment; frons very coarsely vermiculate rugose; three anterior coronal teeth large, lobe-shaped, both posterior ones smaller and wide, part of transverse widened lamella narrowed medially; after this lamella four strong regular lamelliform carinae followed by coarse and rather densely transversely rugose flattened area and laterally coarsely reticulate rugose, and mostly remaining removed from occipital carina (fig. 198); temple directly narrowed behind eye (fig. 196), largely smooth and shiny, except for some indistinct punctures laterally; occipital carina strongly developed and reaching lower level of eyes, close to lamelliform hypostomal carina (fig. 555); postgenal bridge widely grooved and steeply declivous after hypostomal carina; and without pair of distinct teeth above it; hypostomal flange large and with a some distinct oblique rugae.

Mesosoma.— Neck moderately slender (fig. 196) and anteriorly truncate, neck postero-dorsally at much lower level than middle part of pronotum (fig. 554), medially flat and smooth, with two rather weak complete transverse carinae anteriorly, two widely interrupted rather weak carinae and with pair of two ear-like carinae, which



Figs 554-559, *Megischus rufofemoratus* (Szépligeti), ♀, Solomon Islands. 554, head and pronotum, lateral aspect; 555, lower part of head, lateral aspect; 556, hind leg; 557, hind tarsus; 558, hind femur; 559, pronotum, dorsal aspect.

are widely separated medially and close to pronotal fold (figs 196, 197); pronotal fold strongly developed and with a large concavity below it, behind pronotal fold somewhat elevated medially; middle part of pronotum with four incomplete, rather weak and laterally absent transverse carinae; middle part weakly differentiated from posterior part of pronotum (fig. 554); posterior part of pronotum strongly convex, rather flat postero-laterally (fig. 559), dorsally without short setosity and with several coarse punctures, postero-laterally coarsely shortly crenulate; propleuron coarsely and sparsely punctate; convex part of mesopleuron without short whitish dense setosity

and anterior third coarsely and densely punctate, remainder mainly sparsely punctate; mesosternum largely smooth, without short setosity; convex part of metapleuron coarsely reticulate, rather elongate and with sparse moderately short whitish setosity anteriorly, both anterior depressions deep and large; propodeum coarsely and rather remotely foveolate, with wide smooth interspaces (fig. 200).

Wings.— Fore wing (fig. 202): vein 1-M 6.1 times as long as vein 1-SR and 1.3 times vein m-cu; vein 2-SR 1 about as long as vein r; vein r ends 0.6 times length of pterostigma behind level of apex of pterostigma; vein 1-SR 0.8 times as long as parastigmal vein.

Legs.— Hind coxa rather robust, spindle-shaped, largely smooth except some punctures and posteriorly transversely carinate; hind femur swollen and robust, apical third of hind femur without short setosity; outer side of hind tibia gradually depressed at base of widened part (figs 199, 294, 558), widened part slightly concave ventrally and apical part rather slender (figs 199, 201), inner side rather convex, narrow part with double or triple row of punctures and medium-sized bristly setae, medially with deep transverse depression; hind basitarsus parallel-sided, rather slender (fig. 203), its ventral length 4.2 times its width and apically weakly oblique.

Metasoma.— First tergite 10.0 times as long as its maximum width (and 10.5 times its apical width), and densely coarsely and regularly transversely striate but its basal third rugose and apically distinctly smooth; basally second tergite with some rugae; pygidial area shallowly impressed laterally, medially keeled, densely setose as its surroundings, without coarse punctures, and with long straight setae comparable to setae of cerci; length of ovipositor sheath 2.0 times fore wing and 1.1 times body, ivory part 1.3 times as long as dark apical part.

Colour.— Black; temple (except for ivory part) and propodeum blackish-brown; ivory patch of malar space distinctly extending on temple, up to halfway hypostomal flange, distinctly contrasting with temple and vertex (fig. 554); antenna, tegulae, coxae, hind trochanter and trochantellus, apex of hind femur narrowly, narrow basal part of hind tibia, first tergite, telotarsi, veins and pterostigma dark brown; remainder of legs orange; two basal segments of hind tarsus slightly darker than hind tibia; fore wing membrane evenly moderately brownish (fig. 202).

Distribution.— Solomon Islands (Rubiana, Auki, Malaita; Tulagi; Fulakora; Malaili; Nggela Sule, Vella Lavella, San Cristoval, Guadalcanal), New Georgia.

Note.— Length of hind basitarsus ventrally 4.1-4.7 times as long as wide. A female of this species in BMNH (identified by Dr Narendran as a *Parastephanellus*) has the length of fore wing only 8 mm.

Megischus rufus (Elliott, 1927) comb. nov.
(figs 205-214)

Stephanus rufus Elliott, 1927: 229.

Material.— Holotype, ♂ (USNM), “[Philippines:] Zamboanga, Mindanao, Baker”, “*S. rufus* Elliott, type”, “Paratype No. 42053 U.S.N.M.”.

Holotype, ♂, length of body 16.6 mm, and of fore wing 8.4 mm.

Head.— Antenna incomplete; length of third antennal segment 3.0 times its maxi-

num width, distinctly wider than fourth segment, and fourth segment 1.4 times as long as third segment; frons transversely regularly rugose; three anterior coronal teeth large, tooth-shaped, both posterior ones small, part of transverse lamella widened near both ends; after this lamella three strong complete regular and slightly strong curved carinae followed by a medially flattened area with coarse vermiculate rugosity almost reaching occipital carina and absent behind eyes (fig. 205); temple rather strongly roundly narrowed (fig. 205), smooth and shiny, except for some punctulation; occipital carina strongly developed, lamelliform (also subventrally), ends somewhat above very wide lamelliform hypostomal carina; postgenal bridge widely and gradually declivous (fig. 208); hypostomal flange comparatively large, wide and with some punctures (fig. 208).

Mesosoma.— Neck elongate and anteriorly shallowly emarginate (figs 206, 207, 214), its anterior rim not elevated, neck medio-dorsally at lower level than middle part of pronotum because of flat and smooth medial triangular depression, without strong carinae, only laterally with four short and weak carinae (fig. 207); pronotal fold weak, carina-like and not porching over small cavity; middle part of pronotum somewhat keeled (but not forming a median carina) behind pronotal fold, without complete transverse carinae and behind irregularly finely rugose, middle part differentiated from posterior part of pronotum and gradually merging (fig. 207); dorsally posterior part of pronotum without short setosity and with few coarse punctures, long setae and latero-posteriorly shortly obliquely striate; propleuron with only few coarse punctures; convex part of mesopleuron largely with short (but somewhat longer than average) whitish dense setosity and coarsely punctate-rugose; mesosternum largely smooth and only posteriorly short setose; convex part of metapleuron coarsely reticulate, rather elongate and with medium-sized yellowish setosity below long setae, both anterior depressions moderately deep and rather large; propodeum coarsely and widely reticulate, without smooth interspaces (fig. 211).

Wings.— Fore wing (fig. 212): vein 1-M 6.7 times as long as vein 1-SR and 1.5 times vein m-cu; vein 2-SR 1.1 times vein r; vein r ends 0.2 times length of pterostigma behind level of apex of pterostigma.

Legs.— Hind coxa elongate spindle-shaped, with spaced coarse transverse rugae and with fine regular striae in between; hind femur rather robust (fig. 209), without short setosity, ventrally with two large teeth, with few small teeth between large teeth and behind apical tooth with more pronounced short teeth; outer side of hind tibia below narrowed basal part gradually widened, micro-sculptured, ventrally straight (fig. 209), inner side rather convex, rather sparsely punctate mostly in a double row, and with moderate transverse depression; hind basitarsus parallel-sided, slender (fig. 213), its ventral length 6.4 times its width.

Metasoma.— First tergite 12.7 times as long as its maximum width, and densely and regularly transversely striate but basal fifth irregularly rugose and apically narrowly smooth, parallel-sided; basally second tergite with few coarse transverse rugae; pygidial area convex and with some coarse punctures, without setae.

Colour.— Dark brown; head yellowish-brown; malar space and large part of temple ventrally ivory-yellowish and weakly contrasting with brown temple and vertex (fig. 208); fore and middle legs (except darker coxae) brown; hind leg dark brown, but apical fifth of hind tibia and tarsus yellowish-brown; wing membrane evenly light brown (fig. 212).

Distribution.— Philippines (Mindanao).

Note.— This enigmatic species is similar to *M. longicaudatus* Costa, but *M. rufus* has the propodeum coarsely and widely reticulate, without smooth interspaces (fig. 211), more slender pronotum and without coarse carinae and slightly more slender hind tibia (fig. 209).

Megischus saussurei (Schulz, 1907) comb. nov.
(figs 215-222, 560-563)

Megischus ruficeps de Saussure, 1904: 201 (not *M. ruficeps* Cameron, 1887); Chao, 1964: 378-9, 387-388; Belokobylskij, 1995: 22 [examined].

Stephanus ruficeps; Elliott, 1922: 717, 737-738; Dutt, 1926: 4.

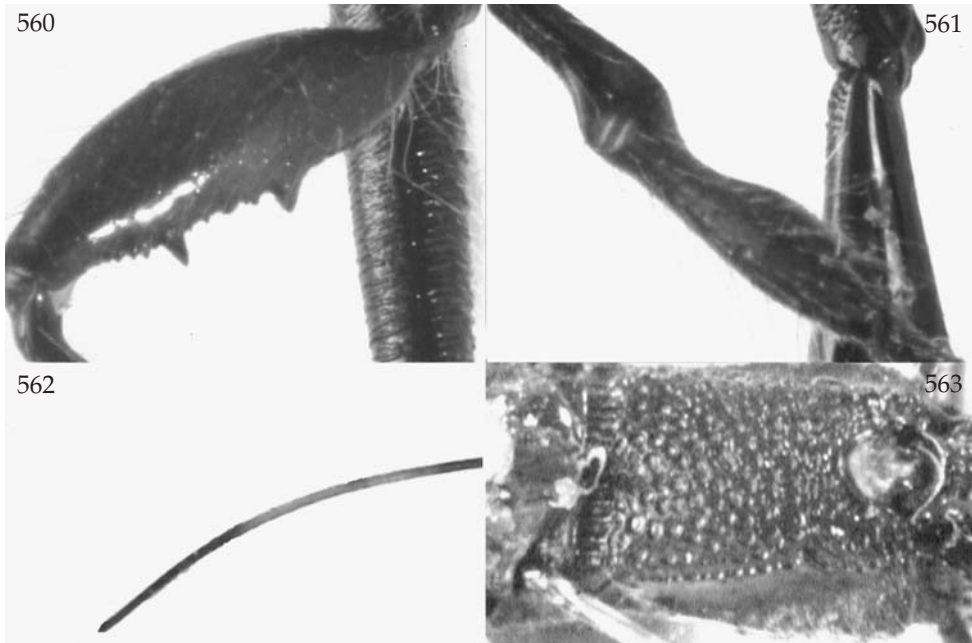
Stephanus saussurei Schulz, 1907: 322 (replacement name for primary homonym); Kieffer, 1908: 4. [examined].

Material.— Lectotype of *Megischus ruficeps* here designated, ♀ (MHNG), "Cambodge, 1886, Pavie, Museum Paris", "Type", "*Megischus ruficeps* Sss, ♀". Paralectotypes: 1 ♀ (MHNG), "Siam, 1886, Pavie, Museum Paris", "Type", "Cn de Saussure"; 1 ♀ (MNHN, Museum Paris; mesosoma damaged), "Cambodge, 1886, Pavie, Museum Paris", "Type de *saussurei*", "*Megischus ruficeps* Sss., Cambodge, ♀, n. sp."; 1 ♀ from Vietnam (Ba-Chieu, arrondissement Saigon) should be in MNHN, but not examined. Additional specimen: 1 ♀ (BMNH), "[West Malaysia], Perak, F.M.S., Batak Padang, Kuala Woh, 23.iii.1940".

Lectotype, ♀, length of body 23.5 mm, and of fore wing 15.0 mm.

Head.— Antenna with 48 segments; length of third antennal segment 2.2 times its maximum width, and fourth segment 1.4 times as long as third segment; frons coarsely reticulate-rugose; three anterior coronal teeth large, lobe-shaped, both posterior ones smaller and wide, part of sinuate transverse and wide lamella, which is narrowed medially; after this lamella one strong lamelliform carina and three weaker regular transverse carinae followed by coarse reticulate flattened area, medially with series of short transverse carinae, and close to occipital carina (figs 215, 218); temple rather angulate narrowed behind eye (fig. 218), largely smooth and shiny, except for several punctures laterally; occipital carina strongly developed and reaching lower level of eyes, bent away from strong lamelliform hypostomal carina (fig. 222); postgenal bridge wide and gradually reclivous; hypostomal flange large and with a strong oblique rugae.

Mesosoma.— Neck moderately slender (fig. 215) and anteriorly subtruncate, neck postero-dorsally at much lower level than middle part of pronotum (fig. 216), narrowly smooth postero-medially and with oblique carinae, with one complete weak anterior carina, followed by one weak and two robust, narrowly interrupted, oblique carinae (fig. 217); pronotal fold strongly developed, medially protruding dorsad, below it a large concavity and behind it elevated, but not crest-like; middle part of pronotum with distinct oblique lateral groove and with seven more or less complete, strong and laterally present transverse carinae; middle part distinctly differentiated from posterior part of pronotum (fig. 215); posterior part of pronotum distinctly convex, not tuberculate postero-laterally (fig. 215), dorsally with rather sparse short setosity and with anteriorly some carinae and several coarse punctures, postero-laterally coarsely crenulate; propleuron very coarsely and posteriorly rather densely punctate; convex part of



Figs 560-563, *Megischus saussurei* (Schulz), ♀, lectotype. 560, hind femur; 561, detail of hind tibia; 562, apex of ovipositor sheath; 563, propodeum, dorsal aspect.

mesopleuron with rather sparse short whitish setosity and coarsely punctate-rugose, medially mainly punctate; mesosternum largely smooth (except for lateral punctures) and sparsely long setose, without short setosity; convex part of metapleuron coarsely reticulate, rather robust and with dense moderately short whitish setosity, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with narrow smooth interspaces (fig. 563).

Wings.— Fore wing (fig. 221): vein 1-M 6.6 times as long as vein 1-SR and 1.2 times vein m-cu; vein 2-SR 1as long as vein r; vein r ends 0.6 times length of pterostigma behind level of apex of pterostigma; vein 1-SR 0.7 times as long as parastigmal vein.

Legs.— Hind coxa rather robust, subtriangular, coarsely more or less transversely and incompletely rugose; hind femur swollen and robust, hind femur with some short setosity; outer side of hind tibia steeply depressed at base of widened part (fig. 219), widened part deeply concave ventrally and apical part rather robust (fig. 561), inner side convex, narrow part with irregular triple row of fine punctures and medium-sized bristly setae, medially with deep transverse depression; hind basitarsus strongly widened apically, robust (fig. 220), its ventral length 3.5 times its width and apically hardly oblique.

Metasoma.— First tergite 8.1 times as long as its maximum width (and 9.7 times its apical width), and densely coarsely and regularly transversely striate but its basal third less regularly so and apically narrowly smooth; basally second tergite distinctly rugose; pygidial area moderately impressed and medially pimply, without coarse

punctures and with row of medium-sized straight setae, shorter than setae of cerci; length of ovipositor sheath 2.2 times fore wing and 1.2 times body, ivory part 1.2 times as long as dark apical part (fig. 562).

Colour.— Black; head dark reddish; malar space pale yellowish, spot extending onto temple and close to hypostomal flange, weakly contrasting with temple and vertex (fig. 222); fore legs (except coxae), tegulae, veins and pterostigma, widened submedial part of hind tibia and antenna dark brown but scapus brown; hind tarsus, narrow part of hind femur and its apex blackish, including spurs, fore wing membrane evenly light brownish (fig. 221).

Distribution.— Cambodia; Thailand, Vietnam.

Note.— The specimen from Malaysia has the vertex hardly reticulate, mainly rugose, the frons only ventrally reticulate and dorsally obliquely rugose, the hind basitarsus weakly widened, its ventral length of 3.7 times its width and the sculpturing of the middle and the posterior part of pronotum less developed.

Megischus tangkokoensis spec. nov.
(figs 223-231)

Material.— Holotype, ♀ (RMNH), “Indonesia: N. Sulawesi, Tangkoko-Dua Saudara N.R., ± 100 m, 1°30'N 125°10'E, 28.xi.1985, C. v. Achterberg, RMNH'86”. Paratypes: 1 ♀ + 3 ♂♂ (ZMB, RMNH), same data, one ♂ labelled “*Megischus coronator* (F.), ♂, A.P. Aguiar det/99”. Excluded from type series: 1 ♀ (RMNH), “Soemalatta [= Sumalata, 0°02'N 122°30'E, N Sulawesi], ii”.

Holotype, ♀, length of body 22.4 mm, and of fore wing 11.9 mm.

Head.— Antenna incomplete (36 in ♀ paratype); length of third antennal segment 2.8 times its maximum width, and fourth segment 1.4 times as long as third segment (with many circular sensillae); frons coarsely transverse spaced rugae, and dorsally obliquely so; three anterior coronal teeth large, lobe-shaped, both posterior ones indistinct, part of transverse, sinuate lamella hardly widened towards both ends; after this lamella three strong complete regularly curved lamelliform carinae followed by a flattened area with coarse regular and spaced transverse rugae reaching almost the wide lamelliform occipital carina (but only narrow medial part) and near eye narrowly reticulate (figs 229, 231); temples largely smooth and shiny, except for several rather fine punctures and directly narrowed; occipital carina strongly developed, but remains distinctly removed from hypostomal carina; postgenal bridge widely and gradually declivous behind wide lamelliform hypostomal carina; hypostomal flange comparatively large and only punctate.

Mesosoma.— Neck elongate and anteriorly subtruncate (fig. 224), with strong subanterior transverse carina, flat and smooth medially, with a pair of strong and robust ear-like carinae laterally, far removed from and slightly converging to pronotal fold (stronger than pronotal fold; fig. 228), neck postero-dorsally at much lower level than middle part of pronotum (fig. 225); pronotal fold rather strong, hardly sinuate and below it with shallow concavity; middle part of pronotum with four incomplete transverse carinae dorsally, antero-medially directly behind pronotal fold weakly keeled and with some punctures, laterally with shallow oblique groove, middle part gradually merging into posterior part of pronotum (fig. 228); posterior part of pronotum largely glabrous, without short setosity and with several very coarse setiferous punc-

tures, postero-laterally weakly convex (fig. 224) and with some short crenulae; propleuron coarsely and rather extensively punctate; convex part of mesopleuron with short whitish dense setosity and coarsely punctate, mostly with wide interspaces; mesosternum largely smooth (except some punctures) and narrowly short setose posteriorly; convex part of metapleuron coarsely reticulate, rather elongate and densely rather long whitish setae, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with medium-sized smooth interspaces, especially laterally.

Wings.— Fore wing (fig. 227): vein 1-M 6.4 times as long as vein 1-SR and 1.3 times vein m-cu; vein 2-SR nearly as long as vein r; vein r ends 0.6 times length of pterostigma behind level of apex of pterostigma and vein 1-SR 0.7 times as long as parastigmal vein.

Legs.— Hind coxa elongate spindle-shaped (fig. 226), largely smooth, except for coarse punctures with short elevations in front of them, and basally with few rugae; outer side of hind femur largely smooth and with short setosity on its apical 0.6; outer side of hind tibia gradually depressed, ventrally slightly concave and apically rather slender (fig. 223), inner side somewhat convex basally, with few coarse punctures basally, subbasally and posteriorly more numerous punctures more or less in a double row and bristly setose, and with distinct transverse depression; hind basitarsus nearly parallel-sided, slender (fig. 226), its ventral length 5.1 times its width.

Metasoma.— First tergite 10.4 times as long as its maximum width (and 12.7 times its apical width), and densely rather irregularly transversely striate but basal half irregularly rugose and apically narrowly smooth, rather narrowed posteriorly; basally second tergite narrowly rugose; second tergite shiny but superficially micro-sculptured; third and following tergites matt and superficially finely granulate; basal half of pygidial area coriaceous and densely setose, remainder largely smooth, medially distinctly convex and without distinct punctures, with long straight setae, apically with narrow subhyaline lamella; length of ovipositor sheath 2.0 times fore wing (and 1.1 times as long as body), ivory part 1.6 times as long as its dark apical part (fig. 230).

Colour.— Black; malar space and large part of temple ventrally yellowish-ivory, not or hardly contrasting with remainder of temple and vertex (fig. 228); remainder of head, scapus, apical half of hind tibia, hind basitarsus and largely second hind tarsal segment rather dark orange-brown; middle femur largely, fore and middle tarsi, hind telotarsus, basal half of hind tibia, tegulae, remainder of antenna, veins and pterostigma (except pale base) dark brown; fore femur and tibia, and middle tibia brown; wing membrane weakly infuscate, but postero-medially fore wing darker (fig. 227).

Distribution.— Indonesia (Sulawesi).

Notes.— The paratypes are very similar to holotype, one male has the inner side of the hind tibia largely with a triple row of punctures, but others have at most a double row; males may have widened part of hind tibia more or less darkened, with apical 0.1-0.5 of hind tibia brownish-yellow, and with 32 (2) antennal segments. Female paratype has length of fore wing 11.0 mm, length of ovipositor sheath 1.9 times fore wing and ivory part of sheath 1.7 times dark apical part of sheath. The specimen from Sumalata is excluded from the type series because it has the inner side of the narrowed part of the hind tibia with a triple row of setae, the ivory part of the ovipositor sheath as long as the dark apical part, the interrupted carina of the neck "ear"-shaped, the hind basitarsus slightly widened apically, the head more brownish and the hind

coxa and the first tergite more robust (first tergite 8.3 times as long as its maximum width). At least part of the differences seems to be caused by its size; the length of the fore wing is almost 15 mm. Specimens distinctly larger than normal for a species of *Megischus* have the hind coxa and the first tergite more robust and carinae of neck more developed.

This species is very similar to *M. nigripes* (Elliott), but the latter species differs by having the rugae of the flattened part of the vertex less spaced and less strongly developed, the hind tibia and tarsus black, the mesopleuron more densely and coarsely punctate, the pygidial area more convex, the ivory part of ovipositor sheath about 2.3 times its dark part and neck with two-three pairs of widely interrupted carinae.

I have seen two males from the Aru Islands (RMNH), which key out to *M. tangkokoensis* but differ by a more irregular sculpture of the vertex laterally, and the neck with pair of short carinae between the pronotal fold and the "ears".

Megischus tarsalis Smith, 1861
(figs 126, 564-576)

Megischus tarsalis Smith, 1861b: 137, 1863: 6, 1873: 400; Schletterer, 1889: 107 (as possible synonym of *Stephanus tarsatus* (Sichel, 1866)); Dalla Torre, 1902: 9 (id.); Elliott, 1922: 729, 829 [examined].
Stephanus haematipoda; Szépligeti, 1902: 533.

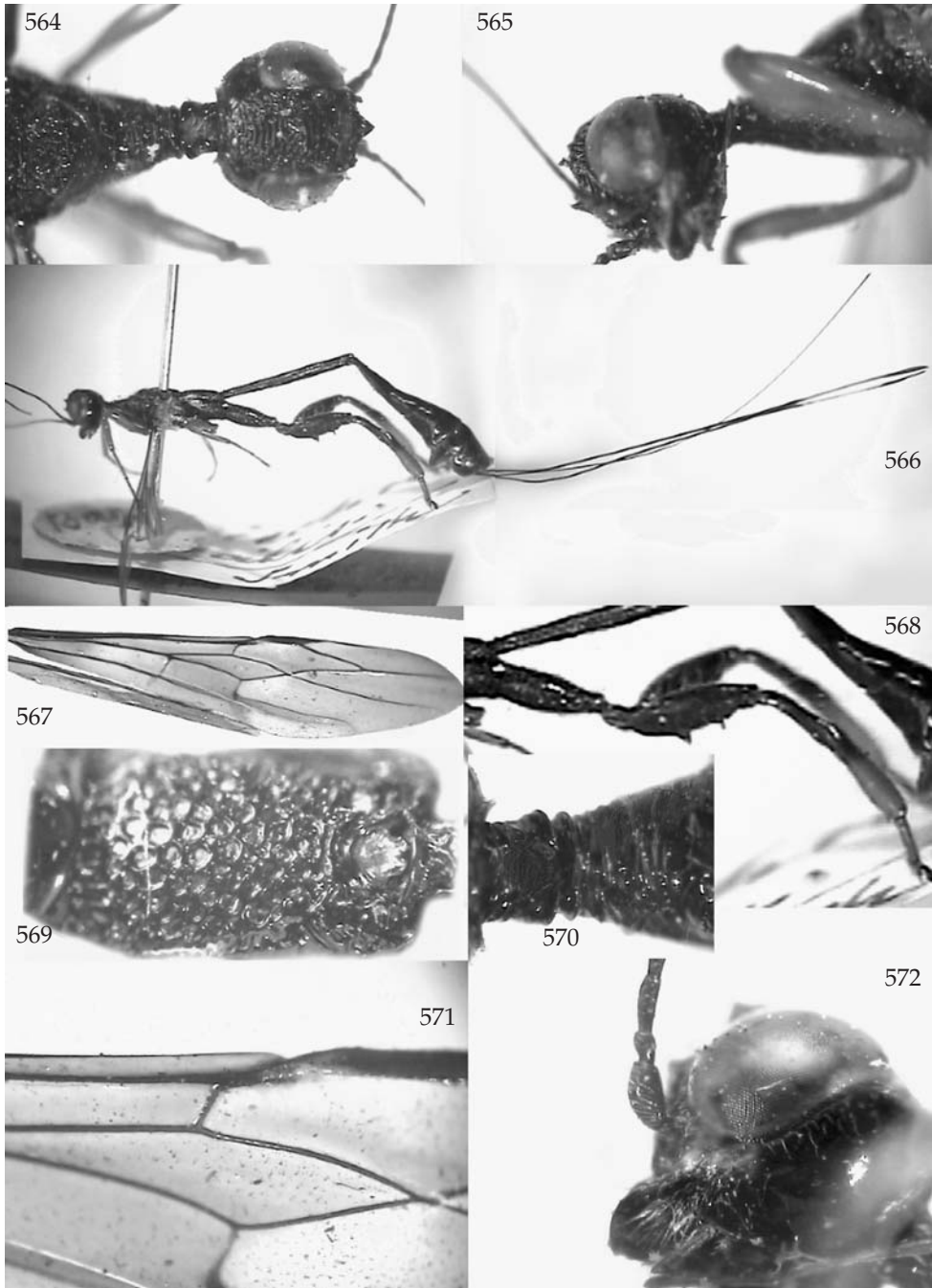
Material.— Holotype of *Megischus tarsalis* ♀ (OUM, "Bac. [= **Indonesia: Batchian**]" (Wallace label), white label "*Megischus tarsalis* Smith [in Smith's handwriting]". 1 ♀ (OUM), non-type, "Cer. [= **Ceram**]" (Wallace label), bluish "*Megischus tarsalis* Smith" label and hind basitarsus 4.7 times as long as wide.

Non-type specimens examined from Obi (TMA), Morotai (AMNH, BPBM, RMNH), Ceram (OUM), Salawatti (RMNH), ?Batchian (LEW) and Halmahera (RMNH).

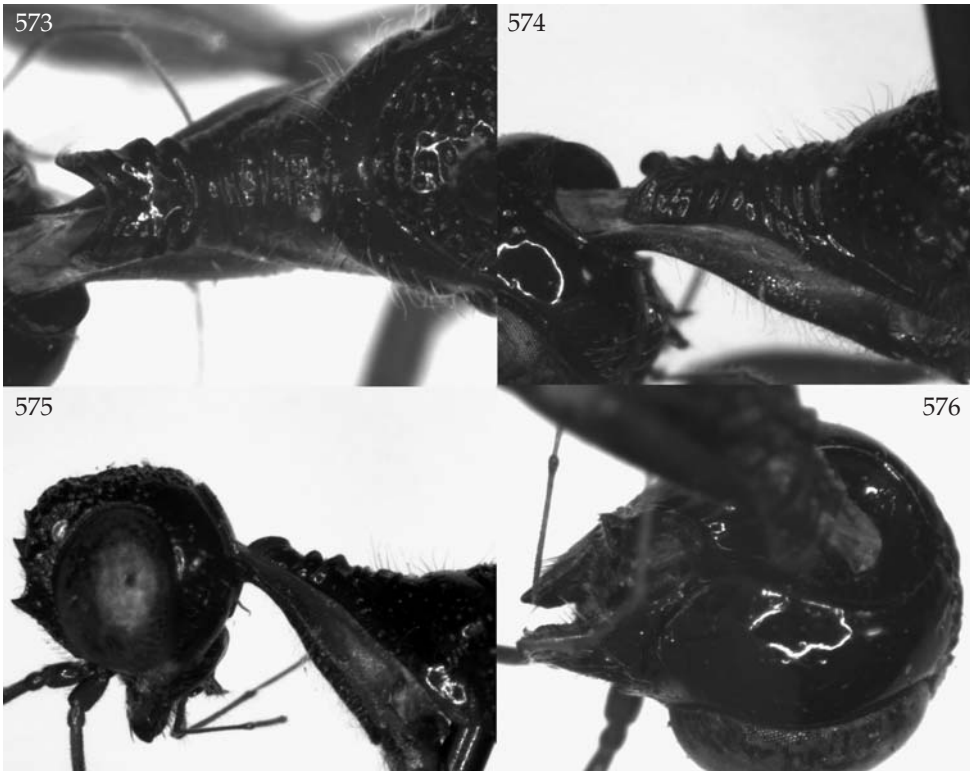
Holotype, ♀, length of body 20.2 mm, and of fore wing 11.2 mm.

Head.— Antenna with 38 segments; length of third antennal segment 2.8 times its maximum width, and fourth segment 1.3 times as long as third segment; three anterior coronal teeth large, lobe-shaped, both posterior ones small, part of transverse lamella widened at both ends; after this lamella four strong complete regular lamelliform carinae followed by a flattened area with coarse irregular rugosity almost reaching occipital carina (fig. 564); temples smooth and shiny, except for some fine punctures; occipital carina strongly developed and almost reaching hypostomal carina (fig. 572); postgenal bridge widely and steeply declivous behind wide hypostomal carina (figs 572, 576); hypostomal flange comparatively large and with one strong rugae and faint indication of some rugosity at one side.

Mesosoma.— Neck elongate and anteriorly rather concave (figs 570, 573), lateral length of neck 0.9 times its maximum width, neck postero-dorsally at much lower level than middle part of pronotum (figs 574, 575), flat and smooth medially, with pair of very strong ear-like carinae laterally converging to pronotal fold and evenly curved (fig. 570), with pair of weak carinae anteriorly, near narrow and somewhat uplifted anterior margin; middle part of pronotum with three nearly complete transverse strong carinae and one interrupted one behind first one and no median carina directly behind pronotal fold, middle part gradually merging into posterior part of pronotum



Figs 564-572, *Megischus tarsalis* Smith, ♀, holotype. 564, head and pronotum, dorsal aspect; 565, head, lateral aspect; 566, habitus, lateral aspect; 567, fore wing; 568, hind leg; 569, propodeum, dorsal aspect; 570, pronotum (except posterior part), dorsal aspect; 571, part of fore wing; 572, head, lateral aspect.



Figs 573-576, *Megischus tarsalis* Smith, ♀, Morotai. 573, pronotum, dorsal aspect; 574, neck, latero-dorsal aspect; 575, head and pronotum, lateral aspect; 576, head, posterior aspect.

(fig. 566); posterior part of pronotum large glabrous, without short setosity and with coarse punctures; propleuron coarsely punctate; convex part of mesopleuron without short whitish dense setosity and coarsely reticulate-rugose; mesosternum largely smooth and sparsely long setose; convex part of metapleuron coarsely reticulate, rather elongate and mainly with long whitish setae, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with narrow smooth interspaces (fig. 569).

Wings.— Fore wing (figs 567, 571): vein 1-M 5.4 times as long as vein 1-SR and 1.5 times vein m-cu; vein 2-SR 1.1 times vein r; vein r ends 0.6 times length of pterostigma behind level of apex of pterostigma.

Legs.— Hind coxa elongate spindle-shaped (fig. 568), largely smooth, with some short transverse rugae; hind femur without short setosity; basal narrowed part of hind tibia comparatively robust (also compared with the similar *M. lieftincki* from New Guinea); outer side of hind tibia slightly widened and ventrally not distinctly concave (fig. 568), inner side rather convex, with a few punctures in a double row and rather sparsely bristly setose but near base largely smooth, and with distinct transverse depression; hind basitarsus nearly parallel-sided, rather robust (fig. 568), its ventral length 4.0 times its width.

Metasoma.— First tergite 11.5 times as long as its maximum width, and densely regularly transversely striate but basal third irregularly rugose and apically smooth, parallel-sided, but slightly narrowed posteriorly; basally second tergite narrowly superficially rugose; pygidial area coriaceous and without distinct punctures, with long straight setae; length of ovipositor sheath 2.0 times fore wing, ivory part twice as long as dark apical part (fig. 566).

Colour.— Black; metasoma dark brown but first tergite dark reddish-brown; malar space and small part of temple ventrally ivory, distinctly contrasting with remainder of temple (fig. 575); fore and middle leg (except dark coxae and telotarsi) yellowish-brown; hind leg dark brown, with apical 0.4 of tibia and tarsus (except dark brown telotarsus) yellowish-brown; tegulae, veins and pterostigma dark brown; wing membrane rather evenly light brown, but apical half somewhat paler (fig. 567). The narrow basal part of hind tibia blackish-brown, chestnut brown or dark brown.

Distribution.— Indonesia (Moluccas: Batchian, Ceram, Obi, Morotai, Salawatti, Halmahera).

Megischus tarsatus Sichel, 1866
(figs 232-239)

Megischus tarsatus Sichel, 1866: 475-476, pl. 10-4, 5; Costa, 1866: 271; Baltazar, 1966: 17 (lectotype designation).

Stephanus tarsatus; Schletterer, 1889a: 107; Dalla Torre, 1902: 9; Szépligeti, 1902: 533; Ashmead, 1905: 157; Brown, 1906: 694; Kieffer, 1908: 4; Kieffer, 1916: 403; Elliott, 1922: 716, 718, 729, 1927a: 218.

Material.— Lectotype of *Megischus tarsatus*, ♀ (MNHN), "fig. 1", "*Stephanus rufitarsis*, ♀", "[Philippines: Luzon], Manila, *Megischus tarsatus* Sichel, n.s., ♀ ♂" (Sichel's yellow-bordered label), "Lectotype *Megischus tarsatus* Sichel, Balt'58".

Lectotype, ♀, length of body 30.7 mm, and of fore wing 16.5 mm.

Head.— Antenna incomplete; length of third antennal segment 3.3 times its maximum width, and fourth segment 1.4 times as long as third segment (with many circular multiporous plate sensillae); frons very coarsely obliquely rugose; three anterior coronal teeth large, lobe-shaped, both posterior ones small, part of transverse, sinuate lamella distinctly widened towards both ends; after this lamella four strong complete regularly curved lamelliform carinae followed by a flattened area with coarse and rather irregular transverse rugae reaching almost medium-sized occipital carina (but becoming obsolescent) and near eye coarsely spaced reticulate (fig. 232); temples largely smooth and shiny, except for several rather fine punctures and directly narrowed; occipital carina strongly developed, but weaker near hypostomal carina, and remaining somewhat removed from it (fig. 234); postgenal bridge widely and gradually declivous behind wide lamelliform hypostomal carina; hypostomal flange comparatively large and distinctly rugose (fig. 234).

Mesosoma.— Neck rather elongate and anteriorly weakly emarginate (fig. 233), with weak interrupted subanterior transverse carina, flat and smooth medially, with three pair of rather weak and widely interrupted carinae, slightly or not converging to pronotal fold (fig. 233), neck postero-dorsally at slightly lower level than middle part of pronotum (fig. 235); pronotal fold rather weak (fig. 235), hardly sinuate and

below it without concavity; middle part of pronotum with seven more or less complete transverse carinae dorsally, antero-medially directly behind pronotal fold weakly concave, and posteriorly shortly keeled and with some punctures posterolaterally, laterally with indistinct oblique groove, middle part moderately differentiated from posterior part of pronotum (fig. 235); posterior part of pronotum with rather sparse short setosity and with several very coarse setiferous punctures, posterolaterally weakly convex (fig. 233) and with some short crenulae; propleuron coarsely and rather extensively punctate; convex part of mesopleuron without short dense setosity and coarsely rugose-punctate anteriorly and medially mostly with short rather coarse rugae and wide interspaces; mesosternum largely smooth (except some punctures) and without much of short setose posteriorly; convex part of metapleuron coarsely reticulate, rather elongate and densely rather long whitish setae, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with narrow smooth interspaces (fig. 237), antero-laterally somewhat wider.

Wings.— Fore wing (fig. 238): vein 1-M 6.0 times as long as vein 1-SR and 1.4 times vein m-cu; vein 2-SR nearly as long as vein r; vein r ends 0.6 times length of pterostigma behind level of apex of pterostigma and vein 1-SR 0.8 times as long as parastigmal vein.

Legs.— Hind coxa elongate spindle-shaped (fig. 236), largely transversely and rather densely transversely striate, but basal third coarsely rugose; outer side of hind femur largely smooth and without short setosity; hind tibia and tarsus missing, but according to description and figures like those of *M. nigripes* (Elliott).

Metasoma.— First tergite 9.0 times as long as its maximum width (and 10.2 times its apical width), and densely regularly transversely striate but basally irregularly rugose and apically narrowly smooth; basally second tergite narrowly rugose; second tergite shiny and smooth; third and following tergites rather shiny and superficially finely granulate; pygidial area largely smooth, densely setose except apically, medially moderately convex and with distinct punctures subapically, with long straight setae; length of ovipositor sheath 2.3 times fore wing (and 1.3 times as long as body), ivory part 1.4 times as long as its dark apical part (fig. 239).

Colour.— Black; malar space and large part of temple ventrally yellowish-ivory, not contrasting with remainder of temple and vertex (fig. 235); remainder of head, neck anteriorly and scapus, orange-brown; tegulae, remainder of antenna, palpi, fore and middle legs (but middle coxa blackish and tibiae largely rather pale brown), veins and pterostigma (except slightly paler base) more or less dark brown; according to original description and figures apical half of hind tibia and hind tarsus orange-brown; wing membrane completely weakly infusate.

Distribution.— Philippines (Luzon).

Note.— This species is easy to confuse with *M. insularis* Smith, if the hind tibia and tarsus are comparatively dark. However, *M. tarsatus* has the convex part of mesopleuron without dense short setosity, the rugae of the vertex more spaced, neck at somewhat higher level compared with middle part of pronotum, middle part of pronotum more slender and less coarsely transversely carinate, frequently carinae are almost absent or weakly developed.

Megischus tonkinensis spec. nov.
(figs 240-249)

Material.— Holotype, ♀ (BMNH), “[N Vietnam], Tonkin, Hoabinh, viii.1918, R.V de Salvaza”, “Indo China, R.V de Salvaza, 1919-25”.

Holotype, ♀, length of body 31.6 mm, and of fore wing 16.4 mm.

Head.— Antenna incomplete; length of third antennal segment 2.8 times its maximum width, and fourth segment 1.3 times as long as third segment (fig. 242; with many circular sensillae); frons very coarsely reticulate; three anterior coronal teeth large, lobe-shaped, both posterior ones medium-sized, part of transverse, sinuate lamella distinctly widened towards both ends; after this lamella five strong regularly curved lamelliform carinae followed by a shallowly concave and largely irregularly rugose area with rugae reaching almost rather strong occipital carina and near eye coarsely reticulate (fig. 240); head rather robust (fig. 240); temples largely smooth and shiny, except for several rather fine punctures and distinctly convex behind eyes (fig. 240); occipital carina strongly developed, reaching hypostomal carina (fig. 242); postgenal bridge widely and gradually declivous behind wide lamelliform hypostomal carina; hypostomal flange comparatively large and only punctate.

Mesosoma.— Neck rather robust and anteriorly slightly emarginate (fig. 241), with almost complete subanterior transverse carina, flat and smooth medially, with two pair of rather weak and widely interrupted carinae, slightly or not converging to pronotal fold (fig. 241), neck postero-dorsally at much lower level than middle part of pronotum (fig. 247); pronotal fold strong, weakly sinuate and below it with shallow concavity (fig. 243); middle part of pronotum with five more or less complete transverse carinae dorsally, antero-medially directly behind pronotal fold weakly concave, without keel and with few punctures postero-laterally, laterally with rather distinct oblique groove, middle part weakly differentiated from posterior part of pronotum (fig. 243); posterior part of pronotum without short setosity and partly with very coarse setiferous punctures close to each other, postero-laterally distinctly convex (fig. 241) and with some short crenulae; propleuron very coarsely and partly densely punctate; convex part of mesopleuron coarsely reticulate, its anterior half with short dense setosity and posteriorly mainly without short setosity; mesosternum largely smooth (except some punctures) and with short setose posteriorly; convex part of metapleuron coarsely reticulate, rather elongate and densely rather long whitish setae, both anterior depressions deep and large; propodeum coarsely and densely foveolate, with medium-sized smooth interspaces (fig. 246).

Wings.— Fore wing (fig. 248): vein 1-M 6.7 times as long as vein 1-SR and 1.3 times vein m-cu; vein 2-SR nearly as long as vein r; vein r ends 0.4 times length of pterostigma behind level of apex of pterostigma and vein 1-SR 0.5 times as long as parastigmal vein.

Legs.— Hind coxa elongate spindle-shaped, medially partly smooth, but with large setiferous punctures and short transverse rugae, basally coarsely rugose and transversely striate apically; outer side of hind femur largely smooth and apical third with short setosity; basal 0.4 of hind tibia weakly narrowed and comparatively robust and submedially very gradually depressed (fig. 244), inner side rather convex, with

most punctures in a triple row and rather long bristly setose medially but near base less bristles, and with distinct transverse depression; hind basitarsus nearly parallel-sided, rather robust (fig. 245), its ventral length 4.4 times its width.

Metasoma.— First tergite 7.3 times as long as its maximum width (and 9.9 times its apical width), with distinct medio-longitudinal carina basally (absent in other species or nearly so), and densely irregularly and finely transversely rugose but basally coarsely rugose and apically narrowly smooth; basally second tergite distinctly rugose; remainder of second tergite and following tergites matt and superficially micro-sculptured; pygidial area largely smooth largely glabrous and strongly shiny, medially moderately convex and with distinct punctures subbasally, with medium-sized straight setae not surpassing apex of metasoma; length of ovipositor sheath 2.1 times fore wing (and 1.1 times as long as body), ivory part 2.6 times as long as its dark apical part (fig. 249).

Colour.— Black; malar space and large part of temple ventrally yellowish-ivory, rather contrasting with remainder of temple and vertex (fig. 242); remainder of head dark chestnut-brown; antenna, palpi, tegulae, fore and middle legs (but fore and middle coxa blackish), veins and pterostigma (except slightly paler base) dark brown; wing membrane weakly infusate (fig. 248).

Distribution.— Vietnam.

Megischus tortus (Morley, 1917) comb. nov.
(figs 577-587)

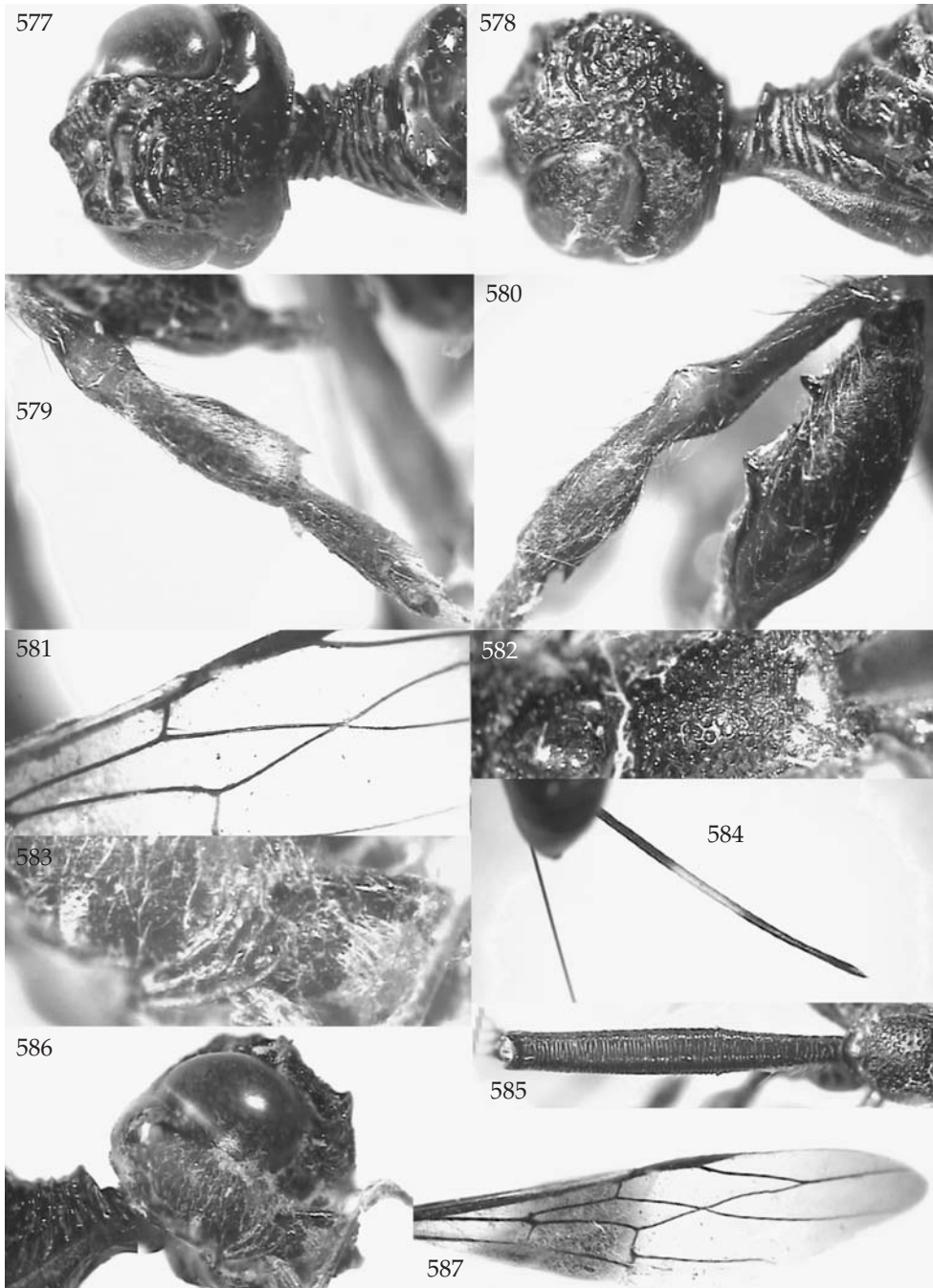
Stephanus tortus Morley, 1917a: 34; Elliott, 1922: 716, 731; Dutt, 1926: 4 [examined].

Stephanus hornianus Enderlein, 1912: 390 (2 ♂♂ + 4 ♀♀ from Ceylon: Penkulam); Elliott, 1922: 716-7, 726; Dutt, 1926: 3 (listed, distribution). **Syn. nov.**

Material.— Holotype of *Stephanus tortus*, ♀ (BMNH) "Type, C.M.", "Nedunkernie N.P. [= Nedunkeni, 09°03'N 80°39'E, Sri Lanka], ix.[19]05", "Named by Claude Morley *Stephanus tortus* sp. nov., Type, Q[otation by].E.A.E[lliott]., x.1916", "Claude Morley Collection, B.M. 1952-159", "B.M. Type Hym. 3.a.331". Syntypes of *Stephanus hornianus* Enderlein, 3 ♀♀ + 1 ♂ (DEI), (probably in Warsaw and Eberswalde are 1 ♂ + 1 ♀ syntypes from Ceylon (Penkulam), one of the syntypes with complete ovipositor sheath should be selected as lectotype; the ♀ syntype examined by the first author has a damaged ovipositor and its sheath missing), "Ceylon, Penkulam, W. Horn, [18]99", "*Stephanus hornianus* Enderl. ♀. Type. Dr. Enderlein det. 1911", "*Megischus hornianus* (End.), det. Belokobylskij, 1992". Additional specimens examined are all from Sri Lanka (0-180 ft; USNM, RMNH).

Holotype of *Stephanus tortus*, ♀, length of body 28.8 mm, and of fore wing 16.3 mm.

Head.— Antennae of holotype largely missing; length of third antennal segment 3.0 times its maximum width, and fourth segment 1.2 times as long as third segment; frons coarsely transversely rugose; three anterior coronal teeth large, lobe-shaped, both posterior ones small, part of transverse lamella widened at both ends; after this lamella three strong regular lamelliform carinae (last one short) followed by a flattened area with coarse irregular rugosity remaining far from occipital carina (fig. 577); temple rather bulging (fig. 577), smooth and shiny, except for some fine punctures near eye; occipital carina strongly developed and almost reaching hypostomal carina; postgenal bridge widely and gradually declivous; hypostomal flange comparatively large, somewhat elevated and with several strong rugae (fig. 583).



Figs 577-587, *Megischus tortus* (Morley), ♀, holotype. 577, head and pronotum, dorsal aspect; 578, head and pronotum, latero-dorsal aspect; 579, hind tibia and basitarsus, inner aspect; 580, hind femur and tibia; 581, part of fore wing; 582, propodeum, dorsal aspect; 583, hypostomal flange; 584, apex of ovipositor sheath; 585, first metasomal tergite, dorsal aspect; 586, head and neck, lateral aspect; 587, fore wing.

Mesosoma.— Neck rather robust (fig. 577) and anteriorly subtruncate, neck postero-dorsally at much lower level than middle part of pronotum, flat and smooth medially, with three pairs of robust, oblique carinae (fig. 578); pronotal fold very strongly developed and below it a large concavity; middle part of pronotum with three nearly complete, transverse and very robust carinae (area weakly elevated), no median carina directly behind pronotal fold, middle part strongly differentiated from posterior part of pronotum (fig. 577); posterior part of pronotum tuberculate protruding postero-laterally (fig. 577), large glabrous, without short setosity and with few punctures dorsally, posteriorly (as middle part of pronotum ventrally) coarsely crenulate or costate; propleuron sparsely and rather coarsely punctate; convex part of mesopleuron without short whitish dense setosity and anteriorly coarsely punctate-rugose, medially largely smooth except for some punctures and posteriorly with some short rugae; mesosternum largely smooth and sparsely long setose, narrowly short setose posteriorly; convex part of metapleuron coarsely reticulate, rather elongate and without dense short whitish setosity, both anterior depressions deep and large; propodeum coarsely and rather spaced foveolate (but narrowly rugose medially and with some transverse rugae posteriorly), with rather wide smooth interspaces (fig. 582).

Wings.— Fore wing (figs 581, 587): vein 1-M 5.0 times as long as vein 1-SR and 1.4 times vein m-cu; vein 2-SR 0.9 times vein r; vein r ends 0.6 times length of pterostigma behind level of apex of pterostigma; vein 1-SR somewhat longer than parastigmal vein.

Legs.— Hind coxa robust, triangular, outer side largely smooth (except for rugose base and transversely rugose apex), dorsally with some short transverse rugae; apical third of hind femur with short setosity; outer side of hind tibia steeply depressed at widened part at end of narrow basal part (fig. 580), ventrally deeply concave and apical part robust (fig. 580), inner side rather convex, with comparatively few fine punctures in a triple row and with deep transverse depression (fig. 579); hind basitarsus distinctly widened apically, robust (fig. 579), its ventral length 2.9 times its width.

Metasoma.— First tergite 7.0 times as long as its maximum width, and densely regularly transversely striate but less regularly basally and apically smooth (fig. 585); basally second tergite narrowly rugose; pygidial area weakly differentiated, coriaceous and without distinct punctures, setae missing (with short straight setae in other specimens); length of ovipositor sheath 2.1 times fore wing, ivory part 0.7 times as long as dark apical part (fig. 584).

Colour.— Black; some parts of head and scutellum slightly dark chestnut brown; malar space and small part of temple ventrally ivory, distinctly contrasting with temple and vertex; metasoma dark brown but first tergite dark reddish-brown and contrasting with blackish propodeum; fore and middle legs (except blackish coxae), veins and pterostigma dark brown; hind femur and tarsus chestnut brown, but submedial depressed part of tibia yellowish-brown; fore wing membrane slightly brownish, subhyaline.

Distribution.— Sri Lanka (Ceylon).

Notes.— According to Elliott (1922) *M. hornianus* should not have a white subapical band of the ovipositor sheath, but it has a medium-sized ivory band, 0.6-0.7 times as long as its dark apical part. Length of fore wing 9-16 mm, length of ovipositor sheath 1.9-2.3 times fore wing; pygidial depression of ♀ small to medium-sized.

Megischus violaceipennis Cameron, 1901
(figs 588-595)

Megischus violaceipennis Cameron, 1901: 225 [examined].
Stephanus violaceipennis; Elliott, 1922: 746.

Material.— Holotype ♀ (BMNH), “[Papua New Guinea], New Britain, A. Willey, Reg. Mar. [18]98”, “Type”, “*Megischus violaceipennis* Cam., Type (in Cameron’s handwriting), “Type” [all on the large card with the specimen], “B.M. Type, 3.a.97”, “Brit. Mus. 1931-156”.

Holotype, ♀, length of body 21.5 mm, and of fore wing 12.3 mm.

Head.— Antenna incomplete; length of third antennal segment 2.9 times its maximum width, and fourth segment 1.1 times as long as third segment; frons transversely rugose; three anterior coronal teeth large, lobe-shaped, both posterior ones small, part of transverse lamella widened near both ends; after this lamella three strong complete regular and slightly curved lamelliform carinae followed by a medially depressed area with coarse irregular rugosity almost reaching occipital carina (fig. 589); temple rather strongly narrowed (fig. 591), smooth and shiny, except for some indistinct punctures; occipital carina strongly developed, lamelliform (also ventrally) and almost reaching very wide lamelliform hypostomal carina; postgenal bridge steeply depressed, moderately narrow and with weak median carina; hypostomal flange comparatively large, wide and with some faint rugae.

Mesosoma.— Neck moderately elongate and anteriorly subtruncate (fig. 591), its anterior rim somewhat elevated, neck medio-dorsally at much lower level than middle part of pronotum, flat and smooth medially, with pair of very strong ear-like carinae laterally converging to pronotal fold (more robust than fold) and evenly curved and rather close to it (fig. 591), with pair of weak and widely interrupted carinae anteriorly; pronotal fold very strong and porching over small cavity; middle part of pronotum with four nearly complete transverse and rather strong carinae and no median carina directly behind pronotal fold, middle part distinctly differentiated from posterior part of pronotum (fig. 591); dorsally posterior part of pronotum largely glabrous, without short setosity and with few coarse punctures and latero-posteriorly obliquely striate; propleuron with only few punctures; convex part of mesopleuron largely with short whitish dense setosity and coarsely reticulate-rugose, becoming punctate posteriorly; mesosternum largely smooth and only posteriorly short setose; convex part of metapleuron coarsely reticulate, rather elongate and with short whitish setosity, both anterior depressions rather shallow and medium-sized; propodeum coarsely and densely foveolate, with narrow smooth interspaces (fig. 594).

Wings.— Fore wing: vein 1-M 5.9 times as long as vein 1-SR and 1.3 times vein m-cu; vein 2-SR 1.1 times vein r; vein r ends 0.4 times length of pterostigma behind level of apex of pterostigma.

Legs.— Hind coxa elongate spindle-shaped (fig. 592), largely smooth, with spaced short transverse rugae; apical third of hind femur with short setosity, ventrally with two large teeth, with few small teeth between large teeth and behind apical tooth with more pronounced short teeth (fig. 592); outer side of hind tibia below narrowed basal part slightly widened, but ventrally nearly straight (fig. 590), inner side rather convex, with many punctures mostly in a triple row, and with moderate transverse depres-



Figs 588-595, *Megischus violaceipennis* Cameron, ♀, holotype. 588, habitus, lateral aspect; 589, head and neck, dorsal aspect; 590, 592, hind leg; 591, head and pronotum, dorsal aspect; 593, apex of ovipositor sheath; 594, propodeum, dorsal aspect; 595, pronotum, antero-dorsal aspect.

sion; hind basitarsus nearly parallel-sided, rather robust (fig. 590), its ventral length 4.1 times its width.

Metasoma.— First tergite 9.7 times as long as its maximum width, and densely regularly transversely striate but basal third irregularly rugose and apically smooth, parallel-sided, but somewhat widened medially; basally second tergite coarsely transversely rugose; pygidial area coriaceous and without distinct punctures, with long slightly upcurved setae; length of ovipositor sheath 2.0 times fore wing, ivory part 1.9 times as long as dark apical part (fig. 593).

Colour.— Black or dark brown (but first tergite rather dark reddish-brown; malar space and small part of temple ventrally ivory and distinctly contrasting with dark brown temple and black vertex; fore and middle legs (except dark coxae and telotarsi) brownish-yellow; hind leg (including basal narrowed part of tibia) dark brown, but remainder of hind tibia and basitarsus mainly, brownish-yellow, second tarsal segment dark brown and telotarsus blackish; wing membrane evenly light brown.

Distribution.— Papua New Guinea (New Britain).

Excluded from the genus *Megischus* Brullé

Foenatopus cinctus (Matsumura, 1918) comb. nov.

Stephanus cinctus Matsumura, 1918: 163; 1931: 75 [examined].

Megischus cinctus; Belokobylskij, 1995: 22 (keyed).

Material.— Lectotype here designated, ♀ (Sapporo) "viii.1905, Okinawa", "27", "*Stephanus cinctus* n. sp."

Note.— Belongs to the genus *Foenatopus* Smith.

Distribution.— Japan (Okinawa).

Parastephanellus spoliator (Smith, 1863) comb. nov.

Megischus spoliator Smith, 1863: 6 [examined].

Stephanus spoliator; Schletterer, 1889: 117; Elliott, 1922: 828-829.

Material.— Holotype, ♀ (OUM), "Wag." (Wallace label), "*Megischus spoliator* Smith".

Distribution.— Indonesia (Waigeo).

Note.— The holotype has the ovipositor sheath completely blackish, the neck hardly elongate, deeply emarginate anteriorly and dorsally only finely transversely striate, the hind femur with 3 large teeth, vein 1-M of fore wing 1.5 times vein 1-SR and distinctly angled, hind tarsus incomplete, the fore tarsus 5-segmented and very slender, vein m-cu of fore wing as long as vein 1-M; face short and orange-brown, anterior half of temple (= outer orbita) ivory and posterior half dark brown and all tarsi brownish-yellow. Seems to be very close to *P. orbitalis* Brues, 1918, from Solomon Islands.

Genus *Pseudomegischus* nov.
(figs 250-266, 596-617)

Type species: *Stephanus sulcifrons* Schletterer, 1889.

Etymology.— A combination of “pseudo” (Latin for “false”) and the generic name *Megischus* Brullé, 1846, because it resembles this genus but is only distantly related to it (fig. 16). Gender: masculine.

Diagnosis.— Length of fore wing 7-11 mm; lateral ocelli distinctly removed from eyes (fig. 253); not almost touching eyes as in *Megischus*); temple near eye with yellowish streak, but sometimes not well differentiated (figs 252, 259); vertex anteriorly and stemmaticum with median groove, surrounded by regularly transverse costae in a more or less squarish flattened area (figs 262, 253) or only posteriorly on vertex; occipital carina complete and dorsally more or less lamelliform, comes close to base of mandible; postgenal bridge widely and gradually declivous, without median carina; neck specialised and short, with two strong converging carinae laterally, with short median transverse crest or callus in stead of pronotal fold and without large cavity below it (figs 251, 260, 262) or with at most a weak lateral carina and no distinct cavity (fig. 612); posterior part of pronotum gradually merging in rest of pronotum (fig. 596) and medially largely glabrous, laterally with short setosity; metapleuron robust (fig. 599); vein 2-1A of fore wing distinctly pigmented, straight and basally shortly sclerotised (figs 261, 604); veins 2-SR of fore wing present, straight (fig. 257); vein 2-SR+M of fore wing very short to medium-sized (figs 257, 616); basal half of fore wing largely glabrous; fore wing with 4 or more closed cells (fig. 604); vein 2-CU1 of fore wing completely present (fig. 257); vein 1-SR of fore wing differentiated because of presence of vein 1-SR+M, straight or slightly curved (fig. 257); vein M+CU1 of fore wing without spiny setae apically; vein r of fore wing ends near or distinctly distad from level of apex of pterostigma (figs 257, 604); vein 1-M of fore wing straight or nearly so, 3.1-4.8 times vein 1-SR; hind wing without trace of vein cu-a; first discal cell of fore wing reaches to middle of pterostigma (fig. 257), rarely somewhat further; hind coxa without dorsal tooth (fig. 598); hind tarsus of ♀ 3-segmented (fig. 255); hind tibia distinctly narrowed basally (fig. 254); inner side of hind tibia with wide chevron-shaped submedial depression at inner side, occupying whole width of tibia (fig. 617, but with rounded edges in subgenus *Pseudomegischus*); outer side of hind tibia with distinct oblique striae ventrally (but often fine), and frequently with some rugulosity (fig. 265) and ventrally more or less carinate (fig. 254); hind femur with 2 large ventral teeth (fig. 254) or with series of medium-sized teeth (fig. 617); sternite of first tergite not differentiated from its tergite and tergite 7-11 times as long as its apical width, cylindrical, distinctly longer than second tergite (fig. 261); second tergite more or less petiolate and sculptured basally; ovipositor sheath completely black; pygidial process present (fig. 264) or absent.

Distribution.— Indo-Australian (subgenus *Pseudomegischus* nov.) or Afrotropical and Arabian Peninsula (subgenus *Callomegischus* nov.).

Key to species of the genus *Pseudomegischus* nov.

1. Neck with two strong converging carinae laterally and middle part of pronotum with weak transverse protuberance (figs 251, 259, 596); vertex anteriorly and stem

- maticum with median groove (figs 253, 262); pygidial process of ♀ present (fig. 264); vein 1-M of fore wing 3.1-4.8 times vein 1-SR (figs 257, 261); hind tibia without small round pit at top of depression; vein 1-SR of fore wing straight; outer side of hind tibia with oblique striae or carinae (fig. 265); hind femur with two large teeth (fig. 254); subgenus *Pseudomegischus* nov.; Indo-Australian 2
- Neck at most with weak lateral carinae and middle part of pronotum with strong transverse callus-like protuberance (figs 612, 613); vertex anteriorly and stemmaticum without median groove, but with wide groove on vertex posteriorly; pygidial process of ♀ absent; vein 1-M of fore wing about 2.7 times vein 1-SR (fig. 616); hind tibia with small round pit at top of reversed V-shaped depression (figs 615, 617); vein 1-SR of fore wing more or less weakly curved (fig. 616); outer side of hind tibia without oblique striae or carinae (but with strong and sharp ventral carina: fig. 615); hind femur without large teeth (fig. 615); Afrotropical, S. Palaearctic; subgenus *Callomegischus* nov. ***P. tibiator*** (Schletterer, 1889)
2. Hind basitarsus ivory or pale yellowish or light brown, distinctly contrasting with dark brown middle of hind tibia (fig. 603); hind tibia with some fine oblique striae dorsally 3
 - Hind basitarsus yellowish-brown to dark reddish-brown, less contrasting with blackish middle of hind tibia (figs 254, 265); hind tibia without fine oblique striae dorsally (fig. 265) 4
 3. First submarginal cell of fore wing ends near level of apex of pterostigma; head infuscate dorsally; pale yellowish streak behind eye distinct (fig. 606); vein 2-SR of fore wing about 1.2 times as long as vein r; median carina of neck distinct (fig. 609); mesopleuron only antero-medially coarsely reticulate, remainder largely smooth; Philippines ***P. rugipleurae*** (Elliott, 1928)
 - First submarginal cell of fore wing ends distinctly beyond level of apex of pterostigma (fig. 604); head dark yellowish-brown dorsally; pale yellowish streak behind eye indistinct (fig. 600); vein 2-SR of fore wing about 1.4 times as long as vein r (fig. 604); median carina of neck largely absent (fig. 601); mesopleuron medially coarsely remotely punctate; Mysol ***P. insidiator*** (Smith, 1863)
 4. Hind basitarsus orange-brown, contrasting with blackish hind tibia (figs 254, 255); vein 1-M of fore wing about 3.1 times as long as vein 1-SR (fig. 257); pale streak of temple not well differentiated (fig. 252); hind femur without distinct third medium-sized tooth behind large apical tooth, only with undefined protuberance (fig. 254); length of 1-M of fore wing about 3 times as long as vein 1-SR (fig. 257); length of ovipositor sheath about 2.3 times fore wing; Sulawesi ***P. celebensis*** spec. nov.
 - Hind basitarsus more or less infuscate dark reddish-brown, dark brown or largely blackish-brown, not distinctly contrasting with blackish hind tibia (figs 263, 265); vein 1-M of fore wing 4.3-4.4 times as long as vein 1-SR (fig. 261); pale streak of temple rather differentiated (fig. 259); hind femur with distinct third medium-sized tooth behind large apical tooth (fig. 265); length of 1-M of fore wing about 5 times as long as vein 1-SR (fig. 261); length of ovipositor sheath 2.0-2.2 times fore wing; Philippines, Borneo ***P. sulcifrons*** (Schletterer, 1889)

Descriptions

Subgenus *Pseudomegischus* nov.

Pseudomegischus celebensis spec. nov. (figs 250-258, 596-599)

Material.— Holotype, ♀, "Indonesia: C. Sulawesi, nr Luwuk, Matanyo Forest, N. of Kayutanyo, c. 120 m, 29.ix.1989, C. v. Achterberg & M. Tulung, RMNH'89", "*Megischus* sp., ♀, A.P. Aguiar, det/1999".

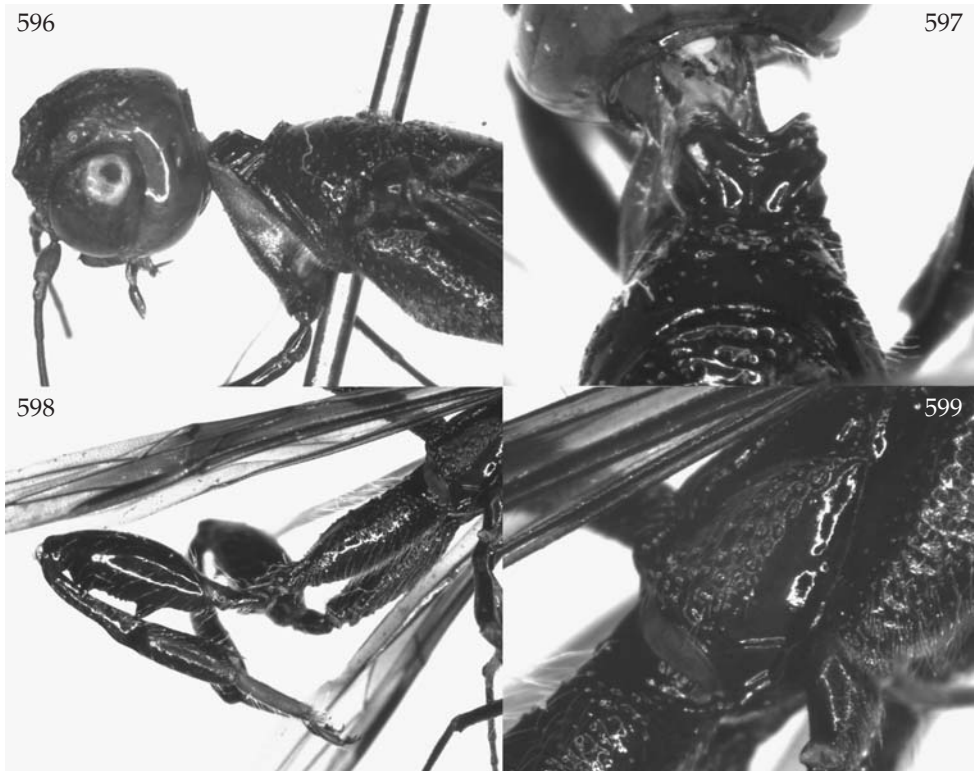
Holotype, ♀, length of body 20.9 mm, and of fore wing 13.2 mm.

Head.— Antenna with 48 segments, third antennal segment moderately slender (4.0 times as long as wide; fig. 596), fourth segment 1.3 times as long as third segment; frons coarsely obliquely rugose, but ventrally transversely so; three coronal teeth of head indistinct, hardly lobe-shaped, both posterior absent, only an almost straight transverse carina; area behind this carina regularly transversely costate-carinate and with distinct median groove; posteriorly vertex less coarsely transversely carinate and laterally coarsely obliquely rugose and with indistinct depression and sculpture remain far removed from occipital carina (fig 253); temples smooth; occipital carina strongly developed, lamelliform, evenly curved dorsally (fig. 250), carina ventrally strong and almost reaching hypostomal flange; hypostomal flange medium-sized and smooth.

Mesosoma.— Neck moderately concave and with wide semi-circular uplifted collar anteriorly (fig. 251), laterally with pair of very strong oblique costae enclosing smooth area with distinctly raised median carina (fig. 251); pronotal fold absent dorsally but laterally with strong costa connected to dorsal protuberance; dorsal protuberance with short median depression, and remainder of pronotum largely smooth ventrally and with rows of coarse punctures dorsally (fig. 597), posteriorly crenulate; mesopleuron remotely and very coarsely punctate, and only anteriorly with some rugae in front of them, densely short whitish setose below long and rather sparse setae; mesosternum laterally punctate, medially smooth; metapleuron rather elongate, with complete and strong oblique carina postero-ventrally, and elevated part coarsely reticulate-punctate, moderately convex, and densely whitish setose, both anterior pits rather large and deep; propodeum coarsely foveolate, with narrow smooth inter-spaces (fig. 256).

Wings.— Fore wing (fig. 257): vein 1-M 3.1 times as long as vein 1-SR and 1.2 times vein m-cu; first subdiscal cell 1.3 times wider than first discal cell (fig. 257); vein 2-SR 1.2 times as long as vein r; vein r ends 0.40 times length of pterostigma behind pterostigma.

Legs.— Hind coxa moderately slender, elongate spindle-shaped (fig. 598), sparsely irregularly transversely rugose, but dorso-laterally and ventrally largely smooth; hind femur with two large teeth, behind apical one with an undefined protuberance and in between both large teeth some small teeth (fig. 254); outer side of hind tibia with several coarse oblique carinae and with complete ventral carina (fig. 598); dorsally with wide triangular depression bordered at outer side by oblique crest and with small dorsal knob, inner side convex and with dense band of punctures; hind tibia below depression parallel-sided (fig. 598); hind basitarsus parallel-



Figs 596-599, *Pseudomegischus celebensis* gen. nov. & spec. nov., ♀, holotype. 596, head and pronotum, lateral aspect; 597, pronotum, dorsal aspect; 598, hind leg; 599, metapleuron.

sided, rather slender, its ventral length 5.2 times its width (fig. 255).

Metasoma.— First tergite moderately slender, 7.6 times as long as its maximum width, and densely transversely coarsely rugose basally and coarsely transversely striate, but apically narrowly smooth, parallel-sided, but apically slightly widened; second tergite smooth behind curved basal carina; pygidial area raised and coarsely punctate and with smooth subcylindrical process; length of ovipositor sheath 2.3 times fore wing.

Colour.— Black; head dark yellowish-brown dorsally and anteriorly, remainder paler (fig. 252); scapus and pedicellus yellowish-brown, remainder of antenna and most of palpi dark brown; streak behind eye and malar space pale yellow, not contrasting with remainder of temple and vertex (fig. 252); fore and middle tarsi and fore tibia largely dark brown, remainder of fore and middle legs blackish; hind leg blackish, but tarsus orange-brown; fore wing membrane evenly brownish, but apically paler than basally.

Distribution.— Indonesia (Sulawesi).

Pseudomegischus insidiator (Smith, 1863) comb. nov.
(figs 600-604)

Megischus insidiator Smith, 1863: 7, 1864: 141 (Mysol), 1873: 400; Dalla Torre, 1902: 9 (under *S. sulcifrons* as uncertain synonym); Elliott, 1922: 724 (discussion under *S. sulcifrons* as possible synonym) [examined].

M. insidicator [sic!]; Schletterer, 1889: 110 (under *Stephanus sulcifrons* as possible synonym).
Stephanus insidiator; Kieffer, 1908: 4.

Material.— Holotype, ♂ (OUM) “M. [= **Mysol**]” (round greyish Wallace label), “*Megischus insidiator* Smith”.

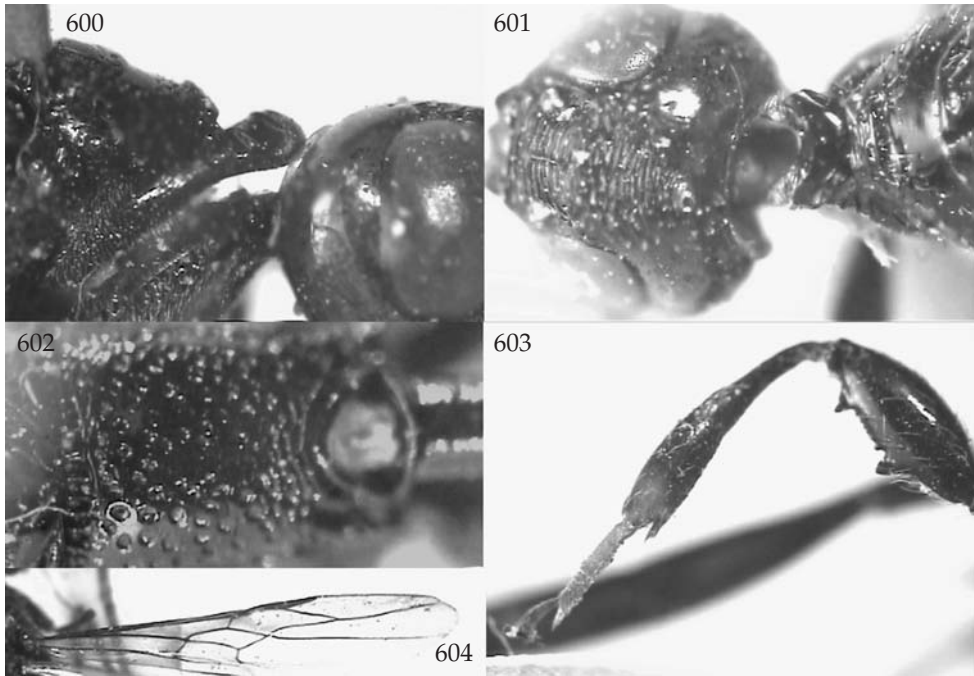
Lectotype, ♂, length of body 19.7 mm, and of fore wing 10.2 mm.

Head.— Antenna with 43 segments, third antennal segment moderately robust (2.6 times as long as wide), fourth segment 1.4 times as long as third segment; face densely curved rugose; three lobe-shaped coronal teeth of head large, both posterior ones obsolescent and part of transverse lamelliform carina, part of somewhat widened lamella; area behind this lamella regularly transversely costate and with median groove distinct, up to posterior of level of eyes; posteriorly vertex coarsely transversely and partly less regularly costate and without depression and sculpture remain far removed from occipital carina (fig. 601); temples smooth; occipital carina strongly developed, carina ventrally very strong and almost reaching hypostomal flange; hypostomal flange medium-sized and smooth.

Mesosoma.— Neck distinctly concave and with semi-circular uplifted collar anteriorly (fig. 601), laterally with a pair of strong oblique costae, enclosing a smooth area with only posteriorly with a slightly raised median carina; pronotal fold absent but laterally with pair of strong costae which are absent dorsally and not connected to the weak dorsal protuberance; dorsal protuberance with short costa medially, and remainder of pronotum largely smooth except some punctures and ventrally with some oblique short carinae, mesopleuron remotely and moderately coarsely punctate (interspaces larger than diameter of punctures), and only anteriorly with some short rugae in front of them, densely short whitish setose below long and rather sparse setae; mesosternum similar to mesopleuron; metapleuron rather elongate, with complete and strong oblique carina postero-ventrally, and elevated part narrow, coarsely punctate and with some rugae ventrally, weakly convex, and with dense short whitish setosity, both anterior pits rather large and deep; propodeum distinctly foveolate, with wide smooth interspaces (fig. 602).

Wings.— Fore wing (fig. 604): vein 1-M 3.7 times as long as vein 1-SR and 1.4 times vein m-cu; first subdiscal cell 1.4 times wider than first discal cell (fig. 604); vein 2-SR 1.2 times as long as vein r; vein r ends 0.25 times length of pterostigma behind pterostigma.

Legs.— Hind coxa rather slender, elongate spindle-shaped, sparsely irregularly transversely rugose, but dorsally partly smooth; hind femur with two large teeth, without additional triangular tooth and in between both teeth some small teeth (fig. 603); outer side of hind tibia with some distinct oblique striae medio-ventrally, with series of oblique striae medio-dorsally and with complete ventral carina; dorsally with vague triangular depression not bordered by oblique crest (this character may be sex-



Figs 600-604, *Pseudomegischus insidiator* (Smith), ♂, holotype. 600, head and pronotum, lateral aspect; 601, head and pronotum, dorsal aspect; 602, propodeum, dorsal aspect; 603, hind leg; 604, fore wing.

related, like the sculpture of the first tergite), inner side flattened; hind tibia below depression nearly parallel-sided (fig. 603); hind basitarsus parallel-sided, rather robust, its ventral length 3.5 times its width (fig. 603).

Metasoma.— First tergite moderately slender, 7.0 times as long as its maximum width, and nearly completely smooth, and nearly parallel-sided; second tergite smooth basally; pygidial depression and process absent (which is normal for males).

Colour.— Black or blackish-brown; head dark yellowish-brown; streak behind eye and malar space pale yellow, not contrasting with remainder of temple and vertex (fig. 600); fore and middle legs largely dark brown; hind leg blackish, but apex of hind tibia orange-brown and hind basitarsus largely brownish-yellow, as second-fourth segments, and contrasting with dark brown telotarsus; fore wing membrane pale brownish, slightly darker near middle of wing.

Distribution.— Indonesia (Mysol).

Pseudomegischus rugipleurae (Elliott, 1928) comb. nov.
(figs 605-611)

Parastephanellus rugipleurae Elliott, 1928: 444-445; Baltazar, 1966: 19 [examined].

Material.— Holotype, ♀ (BMNH), "Type", "B.M. Type 3.a.124", "B.M. Type *Parastephanellus rugipleurae* Elliott, 1928", "*P. rugipleurae* Elliott, Type (in Elliott's handwriting), Type".

Holotype, ♀, length of body 11.8 mm, and of fore wing 7.0 mm.

Head.— Antenna missing; frons densely rather transverse rugose; three lobe-shaped coronal teeth of head distinct, both posterior ones small, part of somewhat widened lamella; regularly transversely costate area behind this lamella comparatively short (fig. 609) and with shallow median groove; medially and posteriorly vertex coarsely transversely and mainly irregularly costate-rugose and without groove posteriorly and sculpture remain far removed from occipital carina (fig. 609); temples smooth; occipital carina strongly developed, carina ventrally strong and almost reaching hypostomal flange (fig. 607); hypostomal flange medium-sized and smooth.

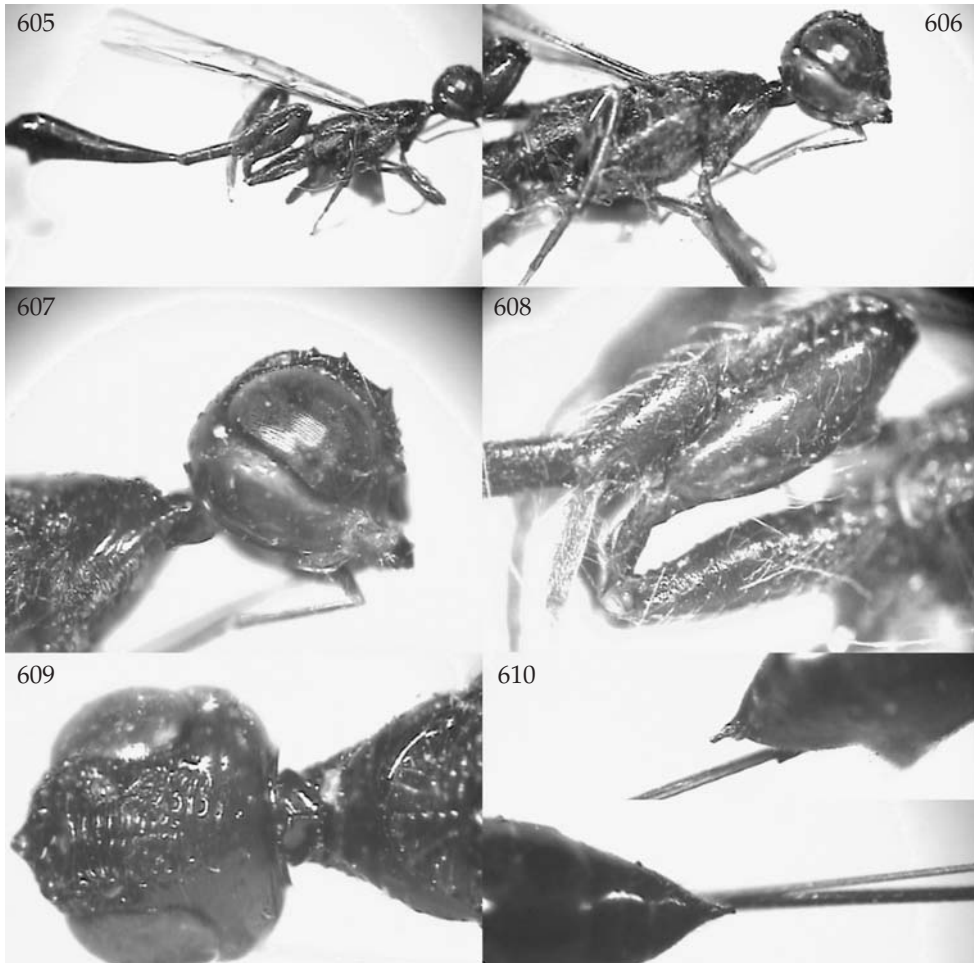
Mesosoma.— Neck weakly concave anteriorly and with semi-circular somewhat uplifted collar anteriorly (fig. 609), laterally with pair of strong oblique costae enclosing smooth area with complete and strong median carina (fig. 609); pronotal fold absent but laterally with pair of strong costae which are reduced dorsally and not clearly connected to dorsal protuberance; dorsal protuberance with short costa medially, and remainder of pronotum largely smooth except for some punctures, middle part not well differentiated from posterior part of pronotum; pronotum (except neck) nearly at level of mesoscutum; mesopleuron only anteriorly coarsely reticulate, and remainder almost smooth, with some superficial sculpture, densely comparatively long whitish setose below long setae; mesosternum largely smooth; metapleuron rather elongate, with complete and rather strong oblique carina postero-ventrally, and elevated medium-sized and shallow; propodeum coarsely foveolate, with indistinct smooth interspaces.

Wings.— Fore wing: vein 1-M 4.6 times as long as vein 1-SR and 1.4 times vein m-cu; first subdiscal cell 1.4 times wider than first discal cell; vein 2-SR 1.4 times as long as vein r; vein r ends near level of apex of pterostigma.

Legs.— Hind coxa slender, elongate spindle-shaped (fig. 608), distinctly and rather regularly transversely rugose; hind femur with two large teeth, behind apical one an elongate triangular medium-sized tooth and in between both large teeth some small teeth (fig. 608); outer side of hind tibia with some distinct oblique striae medio-ventrally, with fine oblique striae medio-dorsally and with complete ventral carina; dorsally with wide triangular depression bordered at outer side by oblique crest, inner side flattened medially; hind tibia below depression subparallel-sided (fig. 608); hind basitarsus parallel-sided, moderately slender, its ventral length 4.9 times its width (fig. 608).

Metasoma.— First tergite very slender, 10.0 times as long as its maximum width, and densely transversely coarsely striate, but apically narrowly smooth, parallel-sided; second tergite smooth basally; pygidial area raised and smooth medially, laterally punctate and with smooth subcylindrical process basally rugulose (figs 610, 611); length of ovipositor sheath 1.6 times fore wing.

Colour.— Dark chestnut-brown; hind coxa, mesoscutum, scutellum, pronotum dorsally, vertex anteriorly, stemmaticum, and coronal area (= posterior part of frons) blackish-brown; frons (except posteriorly) and face brownish-yellow; streak behind eye and malar space pale yellow, distinctly contrasting with remainder of temple and vertex (fig. 607); hind basitarsus largely light brown, contrasting with somewhat darker telotarsus and distinctly contrasting with hind tibia (fig. 608); fore wing membrane evenly pale brownish, almost subhyaline.



Figs 605-611, *Pseudomegischus rugipleuræ* (Elliott), ♀, holotype. 605, habitus, lateral aspect; 606, head and mesosoma, lateral aspect; 607, head and pronotum, lateral aspect; 608, hind leg; 609, head and pronotum, dorsal aspect; 610, pygidium, dorso-lateral aspect; 611, pygidium, dorsal aspect.

Distribution.— Philippines (Mindanao).

Note.— In BMNH a male from Mysol (with typical Wallace's "Mysol"-label and placed under *M. nigricans*) is close to *P. rugipleuræ* but has the apex of the hind tibia yellowish, vein 2-SR+M of fore wing shorter and the head not infusate dorsally.

Pseudomegischus sulcifrons (Schletterer, 1889) comb. nov.
(figs 259-266)

Stephanus sulcifrons Schletterer, 1889: 86, 110-112 [holotype (in Museum Hamburg) from Philippines (Mindanao) destroyed in the second world war (see Weidner, 1972)]; Brown, 1906: 694; Kieffer, 1908: 4, 1916: 403; Elliott, 1922: 716, 724, 1927a: 215; Dutt, 1926: 4; Dalla Torre, 1902: 9; Ashmead, 1905: 157.

Stephanus sulcicornis [sic!]; Enderlein, 1905: 475.

Megischus sulcifrons; Baltazar, 1966: 17.

Stephanus quadraticollis Elliott, 1927: 215 [examined]. **Syn. nov.**

Megischus quadraticollis; Baltazar, 1966: 17.

Stephanus elegans Elliott, 1927: 216; Baltazar, 1966: 17 (as synonym of *Megischus quadraticollis* (Elliott, 1927) [examined]). **Syn. nov.**

Material.— Lectotype of *Stephanus quadraticollis* here designated, ♀ (BMNH), “[Borneo, Sandakan], *S. quadraticollis* Elliott [in Elliott’s handwriting]”, “Brit. Mus. 1927-69”; paralectotypes: 5 ♂♂ + 1 ♀ (USNM) [rather bad condition], 1 ♂ (BMNH), “[Philippines:] Cuernos Mts, Negros, Baker”, “*S. quadraticollis* Elliott, type” (♂ in USNM), 1 type (USNM), Northwest Panay. Holotype of *Stephanus elegans*, ♀ (USNM), “[Philippines:] Island Sibuyan, Baker”, “*S. elegans* Elliott, type”.

Lectotype of *Stephanus quadraticollis*, ♀, length of body 19.9 mm, and of fore wing 11.5 mm.

Head.— Third antennal segment moderately slender (3.4 times as long as wide), fourth segment 1.3 times as long as third segment; frons densely curved rugose; three lobe-shaped coronal teeth of head distinct, both posterior ones small, part of somewhat widened lamella; area behind this lamella regularly transversely costate and with median groove distinct; posteriorly vertex coarsely transversely and slightly less regularly costate and without depression and sculpture remain far removed from occipital carina (fig. 262); temples smooth; occipital carina strongly developed (fig. 260), carina ventrally strong and almost reaching hypostomal flange; hypostomal flange medium-sized and smooth.

Mesosoma.— Neck weakly concave and with semi-circular uplifted collar anteriorly (fig. 260), laterally with pair of strong oblique costae enclosing smooth area with slightly raised median carina; pronotal fold absent but laterally with pair of strong costae which are reduced dorsally and connected to dorsal protuberance (figs 260, 262); dorsal protuberance with short costa medially, and remainder of pronotum largely smooth, side of pronotum largely smooth except for some large punctures; mesopleuron remotely and very coarsely punctate, and only anteriorly with some rugae in front of them, densely short whitish setose below long and rather sparse setae; mesosternum similar to mesopleuron; metapleuron rather elongate, with complete and strong oblique carina postero-ventrally, and elevated part coarsely reticulate-punctate, weakly convex, and densely whitish setose, both anterior pits rather small and shallow; propodeum coarsely foveolate, with indistinct smooth interspaces.

Wings.— Fore wing (fig. 261): vein 1-M 4.8 times as long as vein 1-SR and 1.4 times vein m-cu; first subdiscal cell 1.5 times wider than first discal cell (fig. 261); vein 2-SR 1.3 times as long as vein r; vein r ends 0.25 times length of pterostigma behind pterostigma.

Legs.— Hind coxa slender, elongate spindle-shaped (fig. 263), sparsely irregularly transversely rugose; hind femur with two large teeth, behind apical one a medium-sized triangular tooth and in between both large teeth some small teeth (fig. 265); outer side of hind tibia with some distinct oblique striae and with complete ventral carina; dorsally with wide triangular depression bordered at outer side by oblique crest (fig. 265), inner side flattened medially; hind tibia below depression parallel-sided (fig. 265); hind basitarsus parallel-sided, elongate, its ventral length 5.0 times its width (fig. 265).

Metasoma.— First tergite very slender, 11.3 times as long as its maximum width, and densely transversely coarsely striate, but apically narrowly smooth, parallel-sided; second tergite smooth basally; pygidial area raised and finely rugulose and with smooth subcylindrical process (fig. 264); length of ovipositor sheath 2.1 times fore wing.

Colour.— Black or blackish-brown; head dark yellowish-brown; streak behind eye and malar space pale yellow, weakly contrasting with remainder of temple and vertex (fig. 259); fore and middle legs largely dark brown; hind leg blackish, but hind basitarsus largely dark yellowish-brown, becoming paler apically, as second segment, contrasting with dark brown telotarsus; fore wing membrane rather pale brownish (fig. 261).

Distribution.— Borneo (Sabah); Philippines (Negros, Panay, Sibuyan, Luzon, Mindanao).

Subgenus *Callomegischus* nov.

(figs 612-617)

Type species: *Stephanus tibiator* Schletterer, 1889. The type species is probably the only valid species in the subgenus.

Etymology.— A combination of “callosus” (Latin for “with hard skin”) and the generic name *Megischus* Brullé, 1846, because it resembles this genus but is only distantly related to it (fig. 16) and has a callose pronotum (fig. 612). Gender: masculine.

Distribution.— Arabian Peninsula, and E. Africa (Tanzania).

Note.— The type series most likely is lost, few specimens are available and the species is therefore not redescribed in this paper. The type species is easy to recognize among Stephanidae because of the very strongly swollen hind femora with a series of more or less equal and comparatively small teeth (fig. 615).

Species excluded from the genus *Pseudomegischus*

Parastephanellus nigricauda (Sichel, 1866)

(figs 655-659)

Megischus nigricauda Sichel, 1866: 479 [examined].

Stephanus nigricaudatus; Schletterer, 1889: 106; Elliott, 1922: 722-723.

Parastephanellus nigricaudus; Baltazar, 1966: 18.

Megiseleus maculifrons Cameron, 1902: 32 (synonymized by Baltazar, 1966).

Parastephanellus monticola Elliott, 1926: 524 (synonymized by Baltazar, 1966).

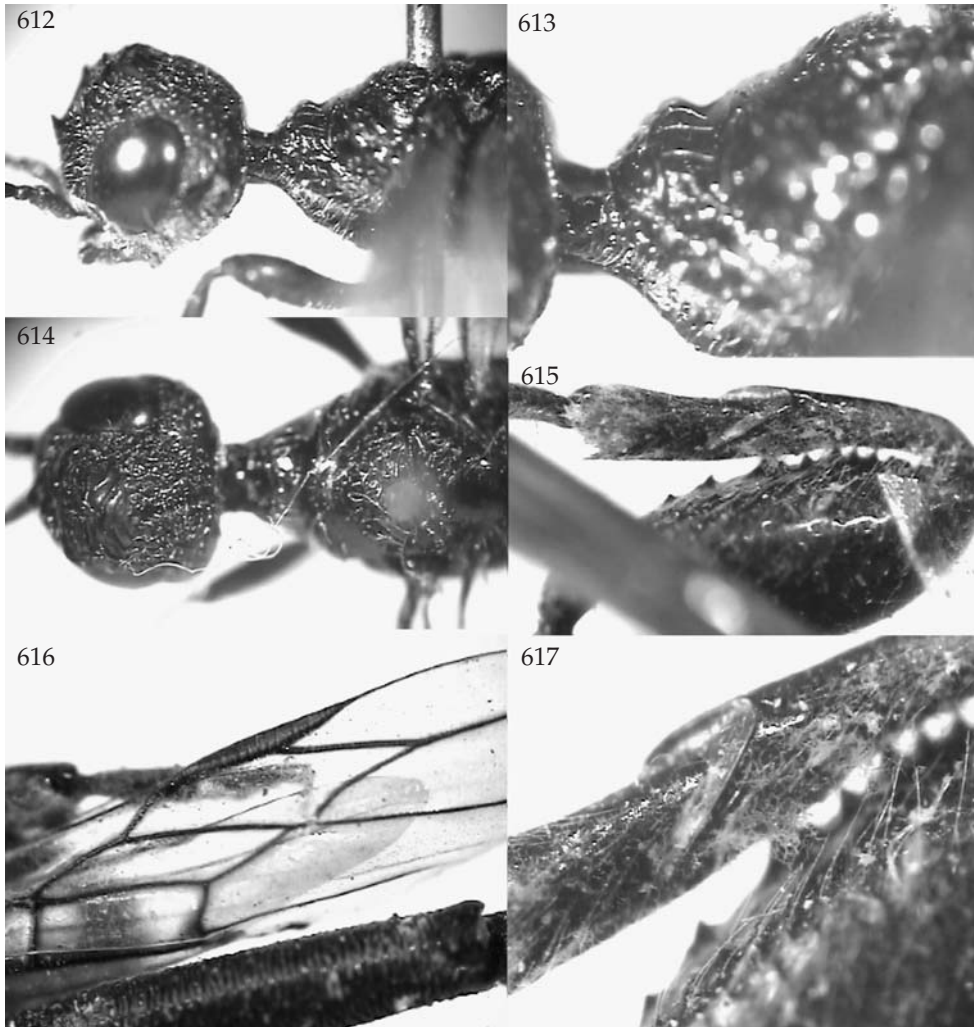
Parastephanellus montanus Elliott, 1928: 442 (synonymized by Baltazar, 1966).

Parastephanellus quadridens Elliott, 1928: 446 (synonymized by Baltazar, 1966).

Parastephanellus niger Elliott, 1928: 449 (synonymized by Baltazar, 1966).

Material.— Lectotype, ♀ (MNHN), “[Philippines], Luzon”, “*Stephanus albitarsis* 2 ♀, 3”, “*Meg. nigricauda* Sichel n. s., ♀, Manila”, “Lectotype *Megischus nigricauda* Sichel, Balt. ‘58”.

Notes.— The description resembles that of *P. rugipleurae* Elliott, 1928, but *M. nigricauda* belongs to the genus *Parastephanellus*, as was correctly stated by Baltazar (1966). The lectotype has the hind basitarsus straight (fig. 658), vein 1-SR of fore wing 0.9 times as long as vein 1-M; vein 1-SR+M of fore wing 0.9 times as long as vein m-cu (fig. 657); scutellar sulcus rather widely crenulate; frons densely reticu-



Figs 612-617, *Pseudomegischus tibiator* (Schletterer), ♀, Aden, but 615-617 from Tanzania. 612, head and pronotum, lateral aspect; 613, pronotum, lateral aspect; 614, head and pronotum, dorsal aspect; 615, hind femur and tibia, inner aspect; 616, part of fore wing; 617, detail of hind tibia, inner aspect.

late-rugose; first metasomal tergite widened subapically, hind femur with medium-sized triangular teeth (fig. 658), and only apical half of fourth-seventh antennal segments with large circular sensillae.

Genus *Stephanus* Jurine (in Panzer), 1801
(figs 267-287, 618-632)

Stephanus Jurine (in Panzer), 1801: 76, fig. 13. Type species (by monotypy): *Stephanus coronatus* Jurine (in Panzer), 1801 (= *Ichneumon serrator* Fabricius, 1798).

Diagnosis.— Length of fore wing 7-10 mm (of body of ♀ 12-17 mm but without ovipositor sheath of 20-22 mm; of ♂ 8-15 mm); temple near eye without yellowish streak; vertex and stemmaticum without median groove, irregularly transverse costate-rugose (figs 268, 620); occipital carina complete and dorsally normal or reduced, present ventrally, not lamelliform; postgenal bridge rather steeply declivous, without median carina (fig. 630); neck rather specialised, regularly and rather coarsely transversely costate-carinate and rather elongate, without strong converging carinae laterally, without median transverse crest in stead of pronotal fold and without large cavity below it (figs 270, 281, 621); pronotal fold distinct (fig. 267); posterior part of pronotum gradually merging into remainder of pronotum (fig. 267); metapleuron robust (fig. 618); vein 2-1A of fore wing distinctly pigmented and basally shortly sclerotised (fig. 626); veins 2-SR and 2-SR+M of fore wing straight (fig. 626); vein 2-SR+M of fore wing short (fig. 626); basal half of fore wing largely setose; fore wing with 4 closed cells (fig. 626, or 5 if almost closed first subdiscal cell is included); vein 2-CU1 of fore wing completely sclerotized (figs 626, 285); vein 1-SR of fore wing distinctly angulate with vein 1-M (fig. 626); vein 1-SR of fore wing differentiated because of presence of vein 1-SR+M (fig. 275); vein r of fore wing ends near level of apex of pterostigma (fig. 626); vein 1-M of fore wing weakly curved, 3.2-4.1 times as long as vein 1-SR (figs 275, 626); vein 2m-cu of fore wing sometimes present as pigmented line; first discal cell of fore wing does not reach level of middle of pterostigma (fig. 626); hind wing without trace of vein cu-a, but vein M+CU more or less pigmented (fig. 283); hind coxa without dorsal tooth (fig. 622); hind tarsus of ♀ 5-segmented (fig. 285), fourth segment elongate; hind tibia distinctly narrowed basally; inner side of hind tibia without transverse submedial depression, only with a short narrow groove below a small convexity (figs 277, 627); outer side of hind tibia with a few oblique striae ventrally (but often fine), and frequently with some rugulosity (fig. 627) and ventrally more or less carinate (fig. 627); hind femur with 3 large ventral teeth and no small teeth (figs 277, 284, 622); sternite of first tergite not differentiated from its tergite (fig. 282) and tergite 3-5 times as long as its apical width (figs 276, 283, 625) cylindrical, distinctly longer than second tergite (fig. 282); second tergite more or less petiolate and sculptured basally (fig. 625); ovipositor sheath completely black or dark brown (fig. 278); pygidial process absent (fig. 274).

Distribution.— Oriental, West Palaearctic.

Key to species of the genus *Stephanus* Jurine

1. Head largely blackish or dark brown and with ivory spot between base of mandible and eye, distinctly contrasting with temple (fig. 624); base of pterostigma with distinct white spot (fig. 626); hind femur distinctly finely granulate, matt (fig. 622); hind tibia of ♀ yellowish-brown (figs 622, 629); of ♂ more or less dark brown); outer side of hind tibia of ♀ without striae ventrally and ventrally without carina, only more or less angulate (fig. 627); femora narrowly white-tipped dorso-apically (♀ (fig. 622), more conspicuously so in ♂); Palaearctic (C & SW Europe) *S. serrator* (Fabricius, 1798)
- Head dark orange- or reddish-brown and with yellowish spot between base of mandible and eye, hardly contrasting with temple (figs 267, 280); base of pterostig

- ma with indistinct whitish spot (figs 275, 285); hind femur largely smooth, shiny (figs 273, 284; hind tibia of ♀ blackish (fig. 274); outer side of hind tibia of ♀ with fine striae ventrally and ventrally with carina; femora blackish dorso-apically (fig. 282); Oriental (Sunda area) 2
2. Hind basitarsus dark brown, and not contrasting with hind tibia (fig. 285); at least basal half of outer side of hind coxa finely irregularly rugose (figs 283, 618); hind leg more robust (figs 284, 286, 287); pronotum and first metasomal tergite rather coarsely sculptured (fig. 283); Borneo, Java *S. borneensis* (de Saussure, 1901)
- Hind basitarsus rather pale brown, and contrasting with dark hind tibia (fig. 272); outer side of hind coxa largely smooth (fig. 269); hind leg more slender (figs 272-274); pronotum and first tergite finely sculptured (figs 270, 271, 276); West Malaysia *S. soror* spec. nov.

Descriptions

Stephanus borneensis (de Saussure, 1901)
(figs 279-287, 618, 619)

Megischus borneensis de Saussure, 1901: 202 [not examined, series (♂ ♀) from Borneo could not be found in MNHN or MHNG].

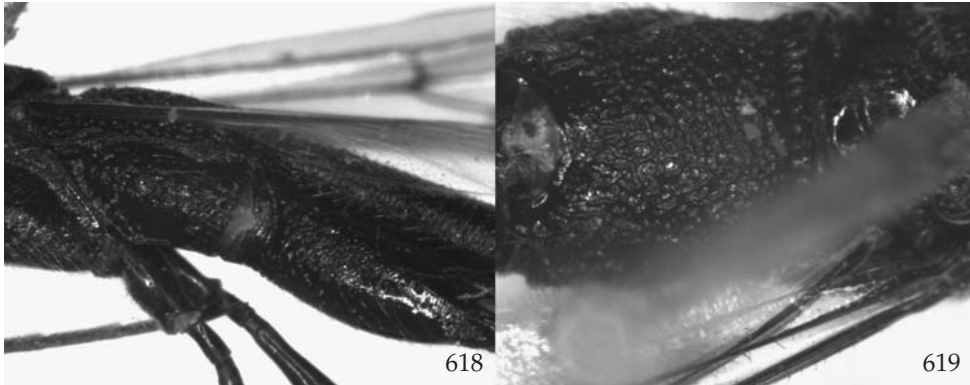
Stephanus borneensis; Elliott, 1922: 717, 735; Dutt, 1926: 2.

Material.— Redescribed ♀ (RMNH) (and only examined specimen), “[Indonesia], Java, G. [= Gunung (mountain)] Roesa, Djampang Wëtan, xi.1938, J. v. d. Vecht, Museum Leiden”, “*Megischus* sp., ♀, A.P. Aguiar det/1999”.

Redescribed ♀, length of body 13.0 mm, and of fore wing 9.8 mm.

Head.— Third antennal segment robust, wider than fourth segment and 0.8 times as long as fourth segment (fig. 280), antenna incomplete, with 23 segments remaining; frons transversely rugose (laterally obliquely so); three anterior coronal teeth of head lobe-shaped and large, between posterior ocelli a sublaterally distinctly widened and slightly sinuate lamella (interrupted medially) followed by three strong curved carinae; vertex irregularly and densely rugose, flat medio-dorsally, sculpture reaching occipital carina medially, but absent laterally (figs 279, 281); temple smooth and shiny except for some fine punctures and some rugulosity dorsally near eye (fig. 280); occipital carina dorsally linear or nearly so, strongly developed, carina ventrally as strong as dorso-laterally and almost reaching hypostomal carina and shortly parallel to it; postgenal bridge rather steeply declivous.

Mesosoma.— Neck moderately elongate and anteriorly subtruncate (fig. 281), lateral length of neck 0.8 times its maximum width, neck mainly smooth, except for three strong carinae laterally (fig. 280), postero-dorsally at lower level than medial part of pronotum resulting in a distinct cavity below pronotal fold (fig. 280), mainly smooth medially in front of pronotal fold; pronotal fold strongly developed, straight medially in dorsal view, with round depression behind it, without a medio-longitudinal carina; middle part of pronotum rather robust, with four rather strong transverse carinae, with distinct oblique lateral groove, middle part weakly differentiated from posterior part of pronotum (fig. 280); posterior part transversely rugulose anteriorly, medially



Figs 618-619, *Stephanus borneensis* (de Saussure), ♀, Indonesia (Java). 618, metapleuron and hind coxa, lateral aspect; 619, propodeum, dorsal aspect.

slightly depressed and narrowly smooth posteriorly, evenly short setose; pronotum laterally densely punctulate, anteriorly and posteriorly with some crenulae; mesoscutum densely coarsely rugose and with distinct median groove; propleuron mainly flat and punctulate, with a few distinct punctures; mesopleuron shiny, convex part with spaced transverse rugae, covered with short whitish and moderately dense setosity, and interspaces largely smooth but posteriorly densely rugulose; flat dorsal part finely rugose anteriorly and some striae postero-dorsally; mesosternum strongly shiny and smooth; medially metapleuron rather short and strongly convex, sparsely short whitish setose, and coarsely reticulate, antero-ventrally carinate and with both anterior depressions deep and dorsal one large; propodeum densely and irregularly coarsely rugose, without smooth interspaces (fig. 619).

Wings.— Fore wing (fig. 285): vein 1-M 3.4 times as long as vein 1-SR; wing basally and small area below pterostigma glabrous.

Legs.— Hind coxa rather robust, elliptical (fig. 282), largely finely irregularly rugose, but posterior lateral half largely smooth (fig. 618); hind femur rather robust (fig. 284), its length 3.9 times its maximum width, laterally hind femur finely coriaceous except narrowly basally (fig. 284), sparsely long setose, with few short setae apically; basal narrow part of hind tibia parallel-sided and 0.55 times as long as widened part (fig. 282), and with complete ventral carina, outer side of widened part of hind tibia coriaceous (fig. 282), convex, antero-dorsally with tubercle, ventrally with some oblique striae and a median carina, and slightly narrowed apically (fig. 285), inner side flattened, no bristly setae or distinct punctures, and with minute oblique depression below tubercle (fig. 287); hind basitarsus parallel-sided or nearly so, basally weakly curved, elongate, its ventral length 6.2 times its width (fig. 285).

Metasoma.— First tergite rather robust, 4.0 times as long as its maximum width, and completely irregularly and rather strongly transversely finely rugose, narrowly smooth apically, parallel-sided (fig. 283); second tergite distinctly rugose basally and remainder very superficially coriaceous, shiny; pygidial area moderately narrow and triangular, narrowly lamelliform posteriorly; length of ovipositor sheath 1.4 times fore wing.

Colour.— Black or blackish brown; head, scapus and pedicellus orange-brown; remainder of antenna, palpi, and legs dark brown (including tarsi, but coxae blackish); malar space ivory, contrasting with temple and vertex (fig. 280); fore wing membrane weakly infuscate, but band below base of pterostigma subhyaline (fig. 285); ovipositor sheath dark brown, without a subapical ivory band.

Distribution.— Indonesia (Borneo, Java).

Stephanus serrator (Fabricius, 1798)
(figs 620-632)

Ichneumon no. 193 Zschach, 1788: 60, fig. 193.

Ichneumon serrator Fabricius, 1798: 224 [examined].

Stephanus serrator; Elliott, 1922: 718-719 (for additional references); Blüthgen, 1953: 229-234; Pagliano, 1986: 13-14; Madl, 1991: 121, figs 6, 9; Völlger, 1994: 276.

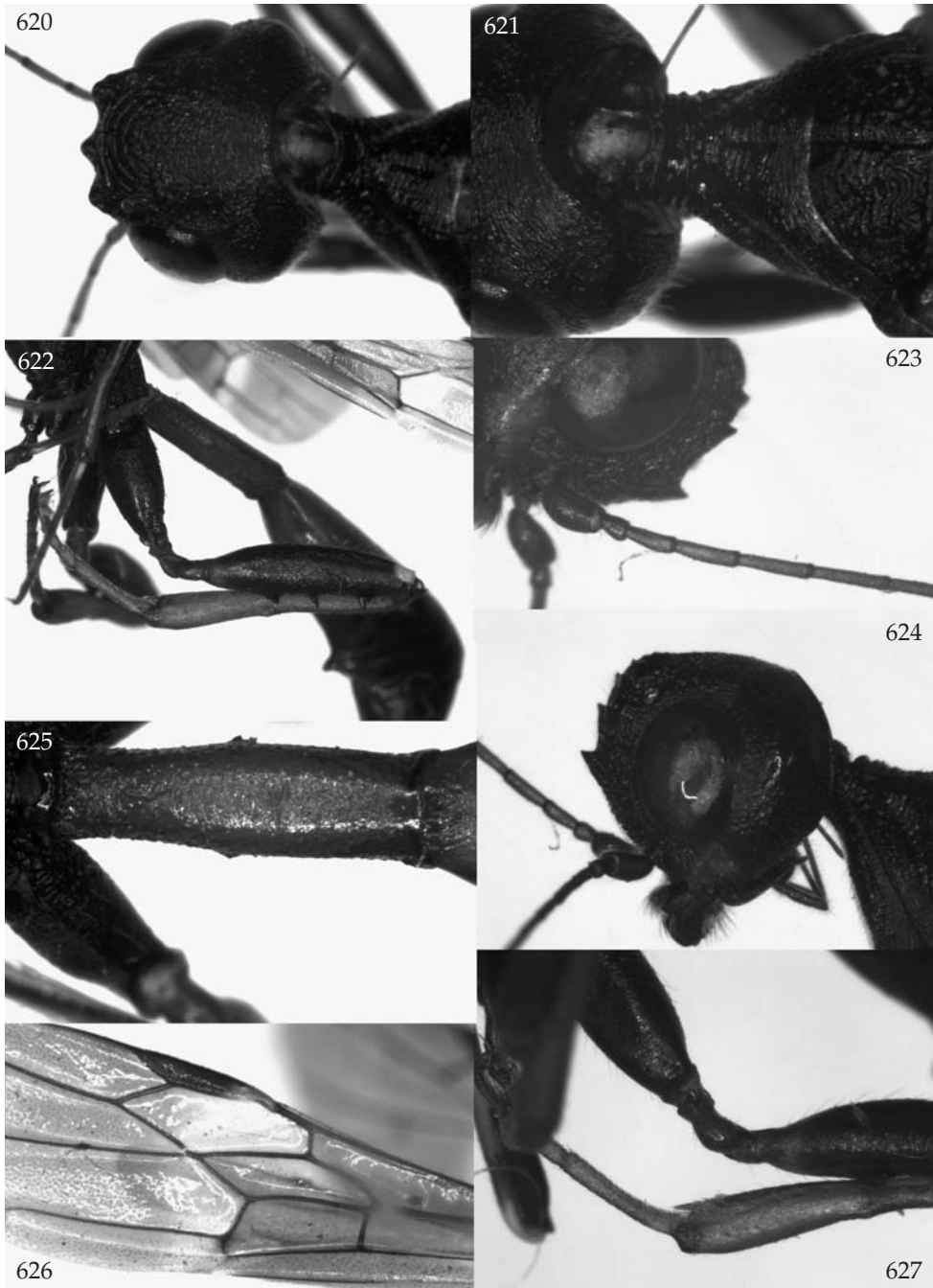
Stephanus coronatus Jurine (in Panzer), 1801: fig. 13.

Material.— Holotype, ♀ (ZMC), “*serrator/3*” (old handwritten label), “*Stephanus serrator* (F.)”. According to the original description from Halle (Saxony, Germany). Additional specimens examined from Netherlands, Hungary, and Switzerland.

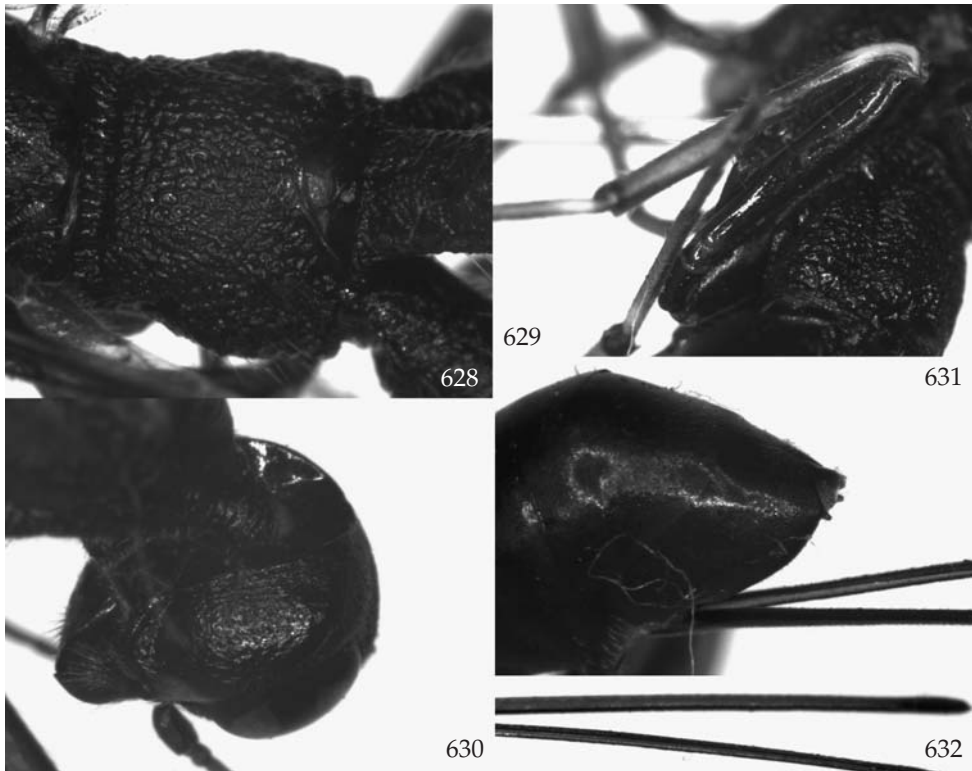
Holotype, ♀, length of body 16.5 mm, and of fore wing 10.4 mm.

Head.— Third antennal segment robust, 2.6 times as long as wide, and 0.8 times as long as fourth segment (fig. 623), antenna incomplete, with 13 segments remaining; three anterior lobe-shaped coronal teeth of head large, much stronger than both posterior ones; with four curved carinae behind lamelliform carina carrying both posterior lobes, medio-dorsally remainder of vertex rather coarsely transversely rugose, laterally curved to posterior ocelli and without depression, sculpture becoming finer posteriorly and reaching occipital carina (figs 620, 621); temples coriaceous, with several coarse punctures and rather matt (fig. 630); dorsally occipital carina evenly curved and weakly developed, carina ventrally hardly weaker than laterally and almost reaching hypostomal carina; postgenal bridge rather steep (fig. 630).

Mesosoma.— Neck robust and rather short, anteriorly rather concave (fig. 621), lateral length of neck 0.5 times its maximum width, neck postero-dorsally at lower level than medial part of pronotum, flat and smooth medially in front of pronotal fold, without a medio-longitudinal carina, and with three rather weak carinae laterally, with medium-sized cavity under pronotal fold (fig. 624, but absent in smaller specimens); pronotal fold rather strongly developed, partly as a double carina, and nearly straight in dorsal view; middle part of pronotum robust, without median carina directly behind pronotal fold, with few irregular weak transverse carinae, middle part hardly differentiated from posterior part of pronotum (in lateral view without distinct “step” between these parts; fig. 624); lateral oblique groove of pronotum distinct and rather wide, impression and ventral area below it rugose; posterior part evenly short setose, sparsely transversely rugulose (but narrowly smooth posteriorly), and medially weakly depressed; laterally pronotum sparsely rugose; mesoscutum densely coarsely rugose and with distinct median groove; propleuron nearly flat and coriaceous with a few distinct punctures; mesopleuron shiny, convex part with spaced oblique rugae, covered with short whitish and rather sparse setosity, and interspaces



Figs 620-627, *Stephanus serrator* (Fabricius), ♀, Netherlands (Gulpen). 620, head and pronotum, dorsal aspect; 621, pronotum, dorsal aspect; 622, hind leg; 623, base of antenna; 624, head and neck, lateral aspect; 625, first metasomal tergite, dorsal aspect; 626, part of fore wing; 627, part of hind leg, inner aspect.



Figs 628-632, *Stephanus serrator* (Fabricius), ♀, Netherlands (Gulpen). 628, propodeum, dorsal aspect; 629, middle leg; 630, head, latero-ventral aspect; 631, pygidium, lateral aspect; 632, apex of ovipositor sheath.

largely smooth but posteriorly densely rugulose; flat dorsal part finely rugose anteriorly and some striae postero-dorsally; mesosternum shiny and finely rugose; medially metapleuron rather short and strongly convex, without short whitish setosity, and coarsely reticulate, antero-ventrally weakly carinate and with both anterior depressions rather deep and dorsal one hardly larger than ventral one; propodeum densely and irregularly rather finely rugose, with no smooth interspaces (fig. 628).

Wings.— Fore wing (fig. 626): vein 1-M 3.1 times as long as vein 1-SR and weakly curved; wing basally and area below pterostigma without very short robust setae.

Legs.— Hind coxa rather robust, subelliptical (fig. 622), largely finely granulate, but anteriorly with some rugae; hind femur slender, its length 4.5 times its maximum width (fig. 622), laterally hind femur finely granulate, sparsely long setose, without short setae; basal narrow part of hind tibia parallel-sided and 0.50 times as long as widened part (fig. 622), and without ventral carina, outer side of widened part of hind tibia coriaceous, convex, antero-dorsally with tubercle, ventrally without distinct oblique striae and no median carina, and slightly narrowed apically (fig. 627), inner side flattened, no bristly setae or distinct punctures, and with minute oblique depression below tubercle (fig. 627); hind basitarsus parallel-sided or nearly so, basally

weakly curved, elongate, its ventral length 6.6 times its width (fig. 627).

Metasoma.— First tergite robust, 3.4 times as long as its maximum width, and completely irregularly and rather strongly transversely finely rugose (but part of tergite damaged by dermestids), parallel-sided (fig. 625); second tergite distinctly rugose basally and remainder smooth, shiny; pygidial area moderately narrow and triangular, narrowly lamelliform posteriorly; length of ovipositor 2.1 times fore wing (sheath missing).

Colour.— Black or dark brown; head orange-brown; malar space ivory, much paler than temple and vertex (fig. 624); fore wing membrane brownish, but basally and area below pterostigma subhyaline or nearly so; hind femur dorso-apically, fore and middle tibiae, and basitarsi basally with ivory patch, remainder (including base of hind femur and trochanter and trochantellus) yellowish-brown; tegulae and femora (except small dorsal ivory patch) dark brown; ovipositor sheath missing but in other specimens without a subapical ivory band.

Biology.— Polyphagous; attacks coleopterous hosts in both coniferous and angiospermous trees: varying from dead apple trees (Völlger, 1994) to fir (*Abies alba* Linnaeus: Pagliano, 1986).

Distribution.— Europe: material seen from Germany, Netherlands (new record; Gronsveld (BMNH), Epen (RMNH, CNC)), France, Hungary, Switzerland (BMNH), and Yugoslavia (Serbia).

Variation.— Males have darker legs, but bases of fore and middle tibiae, apices of femora and bases of middle and hind basitarsi are conspicuously white. The vein 1-M of fore wing is 3.1-4.1 times vein 1-SR (fig. 626).

Stephanus soror spec. nov.
(figs 267-278)

Material.— Holotype, ♀ (BMNH), "[W. Malaysia], Malaya, Penang, Batu Feringgi, Catchment Area, 8.v.1958, H.T. Pagden/on dead tree trunk", "30", "C.I.E. Coll. no.16217", "*Stephanus* sp., G.E.J. Nixon det. 1958", Pres. by Com. Inst. Ent. B.M. 1959-77". Paratype (BMNH), 1 ♀, same data, but "17.v.1958", "on dying tree trunk", "31", and "♀ *Megischus* sp., det. Narendran, Te 6.x.2000".

Holotype, ♀, length of body 12.2 mm, and of fore wing 8.2 mm.

Head.— Third antennal segment robust and half as long as fourth segment, antenna with 34 segments; frons transversely rugose; three anterior coronal teeth of head lobe-shaped and rather large, between posterior ocelli a sublaterally widened and slightly sinuate lamella followed by three strong curved carinae; vertex irregularly and densely rugose, flat medio-dorsally, sculpture reaching occipital carina medially, but absent laterally (fig. 268); temples smooth and shiny except for some fine punctures and some rugulosity near eye dorsally (fig. 267); occipital carina dorsally linear or nearly so, strongly developed, carina ventrally as strong as dorso-laterally and almost reaching hypostomal carina and shortly parallel to it; postgenal bridge steep.

Mesosoma.— Neck moderately elongate and anteriorly moderately concave (fig. 270), lateral length of neck 0.8 times its maximum width, neck finely transversely rugulose (fig. 270), but laterally with 3 rather weak carinae, postero-dorsally at lower level than medial part of pronotum resulting in a distinct cavity below pronotal fold (figs 267, 271), rugulose medially in front of pronotal fold; pronotal fold weakly developed, weakly concave in dorsal view, without a medio-longitudinal carina behind it;

middle part of pronotum rather robust, finely and densely transversely rugulose, with distinct oblique lateral groove, without strong transverse carinae, middle part weakly differentiated from posterior part of pronotum; posterior part rugulose anteriorly and smooth posteriorly, evenly short setose; pronotum laterally densely punctulate; mesoscutum sparsely rugose; propleuron mainly flat and punctulate, with a few distinct punctures; mesopleuron shiny, convex part with spaced transverse rugae, covered with short whitish and moderately dense setosity, and interspaces largely smooth; flat dorsal part punctulate, and dorsally striate; mesosternum strongly shiny and smooth; medially metapleuron rather short and strongly convex, sparsely short whitish setose, and coarsely reticulate, antero-ventrally smooth, and with both anterior depressions deep and dorsal one large; propodeum rather coarsely foveolate-rugose, with hardly or no distinct smooth interspaces (fig. 276).

Wings.— Fore wing (fig. 275): vein 1-M 3.4 times as long as vein 1-SR; wing basally and small area below pterostigma glabrous.

Legs.— Hind coxa rather robust, elliptical, largely smooth (fig. 269), but basal half dorsally with some coarse transverse rugae and finely transversely striate; hind femur slender (fig. 273), its length 4.1 times its maximum width, laterally hind femur finely coriaceous except basally, sparsely long setose, mainly glabrous, with few short setae apically; basal narrow part of hind tibia parallel-sided and 0.55 times as long as widened part, and with complete ventral carina, outer side of widened part of hind tibia coriaceous (fig. 274), convex, antero-dorsally with tubercle, ventrally with some oblique striae and a median carina, and slightly narrowed apically, inner side flattened, irregularly and sparsely punctate, without bristly setae, and with minute oblique depression below tubercle (fig. 277); hind basitarsus parallel-sided or nearly so, basally weakly curved, elongate, its ventral length 7.6 times its width (fig. 272).

Metasoma.— First tergite rather slender (fig. 276), 4.8 times as long as its maximum width, and basal 0.6 irregularly rugose and largely weakly so, remainder of tergite almost smooth, superficially spaced rugulose, narrowly smooth apically, parallel-sided (fig. 276); second tergite distinctly rugose basally and remainder very superficially coriaceous, shiny; pygidial area narrow and widely triangular, narrowly lamelliform posteriorly; length of ovipositor sheath 1.5 times fore wing.

Colour.— Black or blackish brown; head, scapus and pedicellus orange-brown; pronotum anteriorly, remainder of antenna and palpi dark brown; tarsi (except for dark brown telotarsi) yellowish-brown (fig. 272); malar space ivory (but largely secondarily blackish), contrasting with temple and vertex; fore wing membrane weakly infusate, but near base of pterostigma subhyaline; remainder of fore and middle legs (except coxae) rather dark brown; ovipositor sheath missing, in paratype evenly dark brown, without a subapical ivory band.

Distribution.— West Malaysia.

Variation.— Length of body 10.2-12.2 mm, of fore wing 7.5-8.2 mm; length of ovipositor sheath 1.51-1.57 times fore wing; vein 1-M 3.0-3.4 times as long as vein 1-SR; length of first tergite 4.8-5.2 times as long as wide apically.

Other genera of the subfamily Stephaninae

Genus *Afromegischus* nov.

(figs 288-293)

Type species: *Stephanus pachylomerus* Schletterer, 1889.

Etymology.— Combination of “Afrotropical” and the generic name *Megischus* Brullé, because it is superficially similar to the genus *Megischus* and restricted to the Afrotropical region. Gender: masculine.

Distribution.— Afrotropical. The type species is described from Gabon and reported by Benoit (1984) from Liberia, Ivory Coast and Zaire. I have examined specimens from Ivory Coast and Nigeria (BMNH).

Notes.— As indicated in the key to genera, this genus can be recognized by having vein M+CU of hind wing at least partly sclerotised; vein 1-SR of the fore wing weakly curved (fig. 291); apical half of the hind tibia hardly inflated (figs 292, 293); the neck differentiated from the middle part of pronotum and posteriorly proceeding under the middle part of pronotum, resulting in a large cavity (figs 288, 289) and the pronotum with a submedial transverse protuberance (fig. 289).

Genus *Foenatopus* Smith, 1860

(figs 2, 633-640)

Foenatopus Smith, 1860: 58. Type species (by monotypy): *Stephanus indicus* Westwood, 1841.

Diastephanus Enderlein, 1905: 473. Type species: *Stephanus flavomaculatus* Enderlein, 1901 (synonymized by Benoit, 1956).

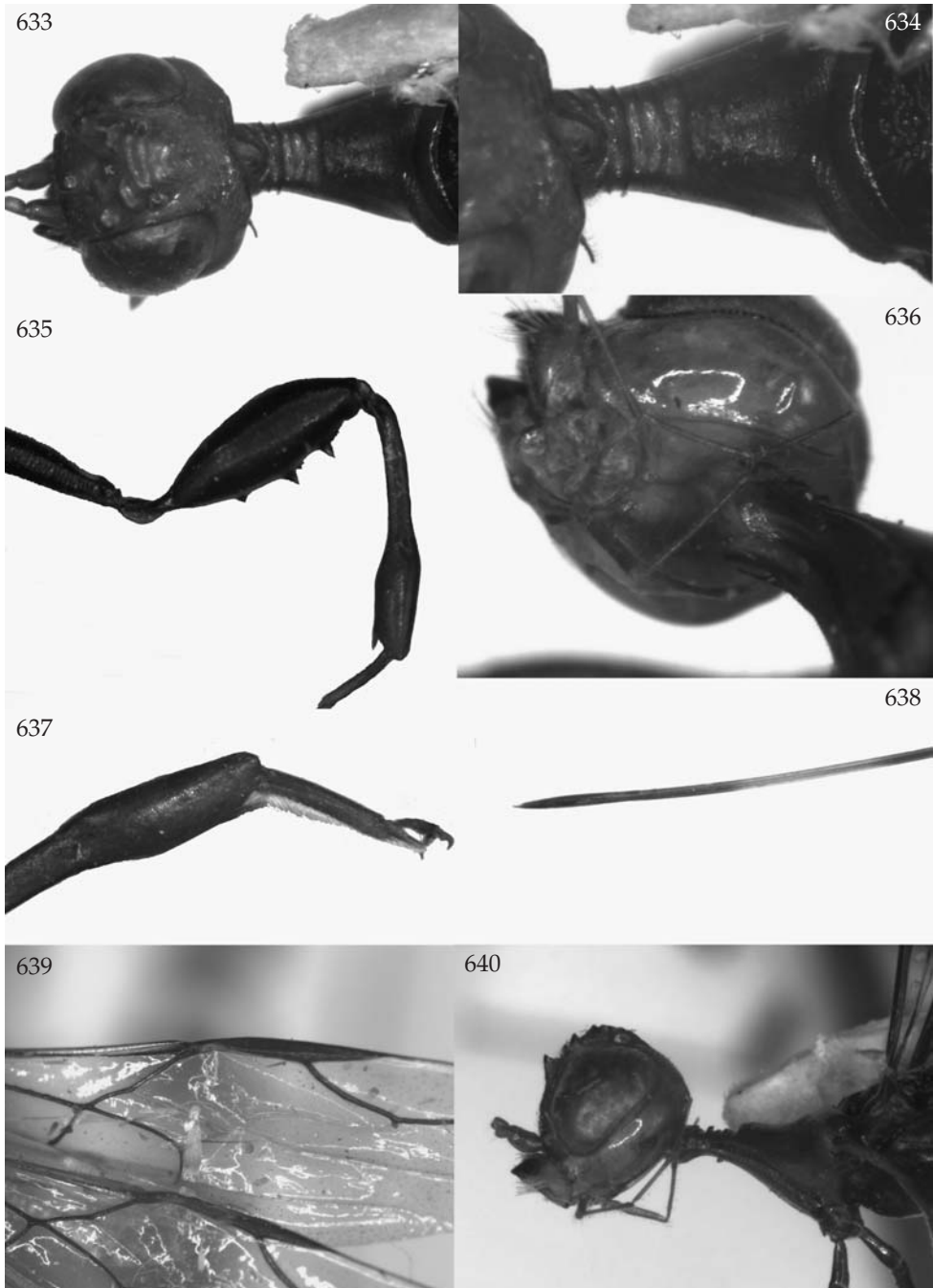
Diastephanellus; Basibuyuk & Quicke, 1999: 59 (lapsus calami).

Neostephanus Kieffer, 1904b: 4. Type species (by monotypy): *Neostephanus alluaudi* Kieffer, 1904 [neotype examined].

Distribution.— Almost cosmopolitan, but mainly in the tropical and subtropical areas of the Afrotropical and Indo-Australian regions (excluding Australia).

Notes.— The group is in urgent need of revision; only the Australian species has been revised. The genus as treated here is very variable and after revision it may have to be divided in some genera or subgenera. Therefore, the genus *Neostephanus* Kieffer is provisionally included in the genus. The neotype of its type species (*F. alluaudi*; figs 633-640; MNHN) from Madagascar has a long narrowed part of the hind tibia (fig. 635), three femoral teeth (fig. 635), vein CU1 of the fore wing largely sclerotized (fig. 639) and no pronotal cavity.

The ovipositor sheath usually has a subapical white band, but the white band may be absent, e.g., in Australian species. The holotype (♀, OUM) of *F. ruficeps* Smith, 1861 (according to Elliott (1922) a synonym of *F. indicus* Westwood, 1841, but the type of *F. indicus* could not be found) from Sulawesi (“Mak.”) has the basal half of vein 2-CU1 of the fore wing present. The mesoscutum is comparatively small; the scutellar sulcus is comparatively long; vein r of fore wing usually ending far distad of level of apex of pterostigma (fig. 639), but sometimes near apex of pterostigma; and no spiny setae on vein M+CU1 of fore wing in some Neotropical species. The spiny setae on vein M+CU1 of the fore wing may be reduced and the oblique striae of the hind tibia may



Figs 633-640, *Foenatopus alluaudi* (Kieffer), ♀, neotype. 633, head and pronotum, dorsal aspect; 634, pronotum, dorsal aspect; 635, hind leg; 636, head, latero-ventral aspect; 637, hind tarsus; 638, apex of ovipositor sheath; 639, part of fore wing; 640, head and pronotum, lateral aspect.

be absent or less developed and the ventral carina may be absent. The three teeth of the hind femur may be ivory, e.g., in *F. butuanus* (Elliott, 1928). Rarely the ivory band of the ovipositor sheath and the streak on the temple are absent, e.g., in *F. punctatus* Elliott, 1919.

Genus *Hemistephanus* Enderlein, 1906

(figs 11, 13)

Hemistephanus Enderlein, 1906: 291. Type species (by original designation): *Stephanus macrurus* Schletterer, 1889.

Distribution.— All species occur in South America, with a few species penetrating in Central America (Aguiar, 1998).

Note.— The only completely revised genus of the family Stephanidae up to this paper. Aguiar (1998) published in Portuguese a revision of the 21 recognized species.

Genus *Madegafoenus* Benoit, 1951

(figs 294, 295, 641-654)

Madegafoenus Benoit, 1951: 269, 278. Type species (by original designation): *Madegafoenus seyrigi* Benoit, 1951.

Note.— Benoit (1951) added a key to the three included species from Madagascar. The type species has the venation of the fore wing reduced (fig. 646), but in the other species known (including an undescribed species from Madagascar (BMNH) illustrated in this paper) the venation is complete (fig. 653).

Genus *Parastephanellus* Enderlein, 1906

(figs 1, 655-659)

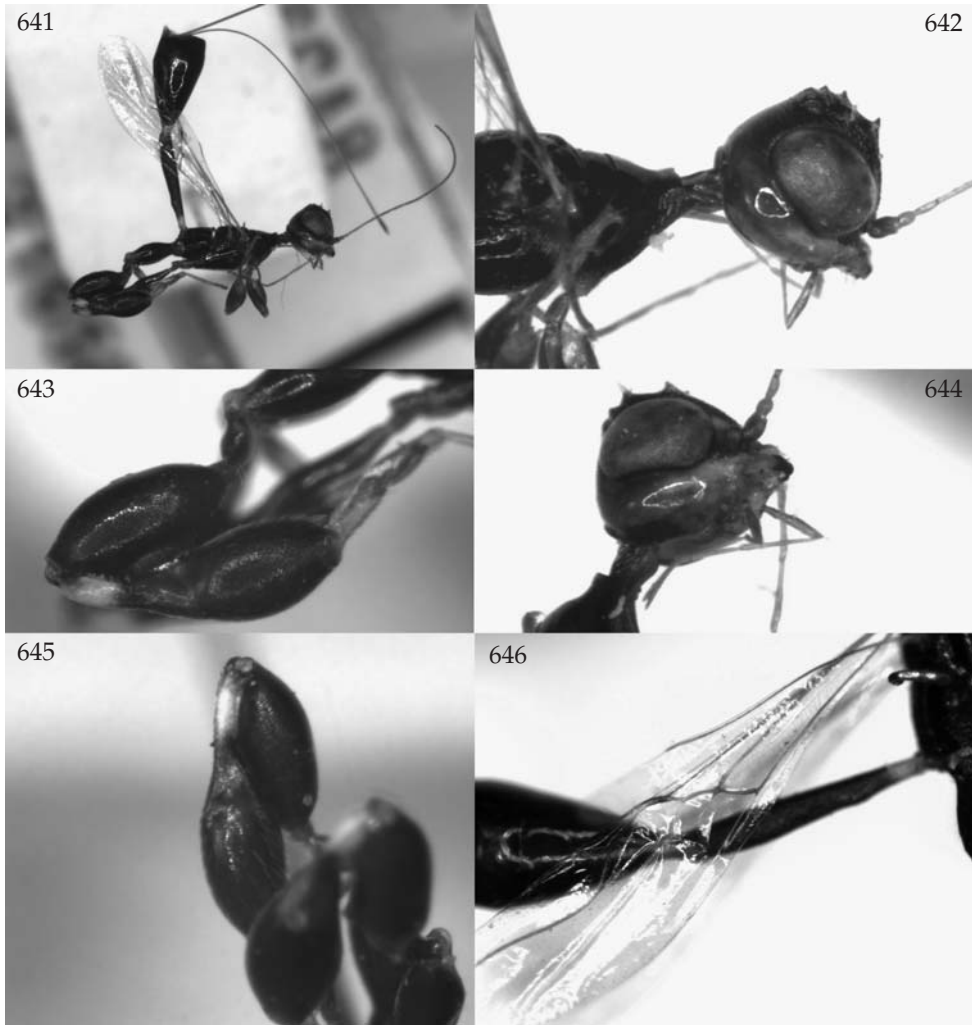
Parastephanus Enderlein, 1905: 474 (not Haeckel, 1881). Type species (by original designation): *Stephanus pygmaeus* Enderlein, 1901.

Parastephanellus Enderlein, 1906: 301. Type species (by original designation): *Stephanus pygmaeus* Enderlein, 1901.

Notes.— The Oriental, Wallacean and Papuan species urgently need revision, recently, only the Australian species of this genus has been revised (Aguiar, 2001).

Diastephanus curticolis Elliott, 1927, belongs to the genus *Parastephanellus* and becomes a homonym there of *P. curticolis* Elliott, 1926. Because of the taxonomical uncertainties in this genus and because of the very poor condition of the holotype of *D. curticolis* I refrain from renaming the species.

Homogeneous genus, but vein 1-SR of fore wing may be subcontinuous with vein 1-M (fig. 1), or distinctly angled (e.g., *P. spoliator* (Smith, 1863) **comb. nov.** from Waigeo; fig. 660). Vein m-cu of fore wing 0.8 times vein 1-M or more and first metasomal tergite usually 7-11 times as long as its apical width.



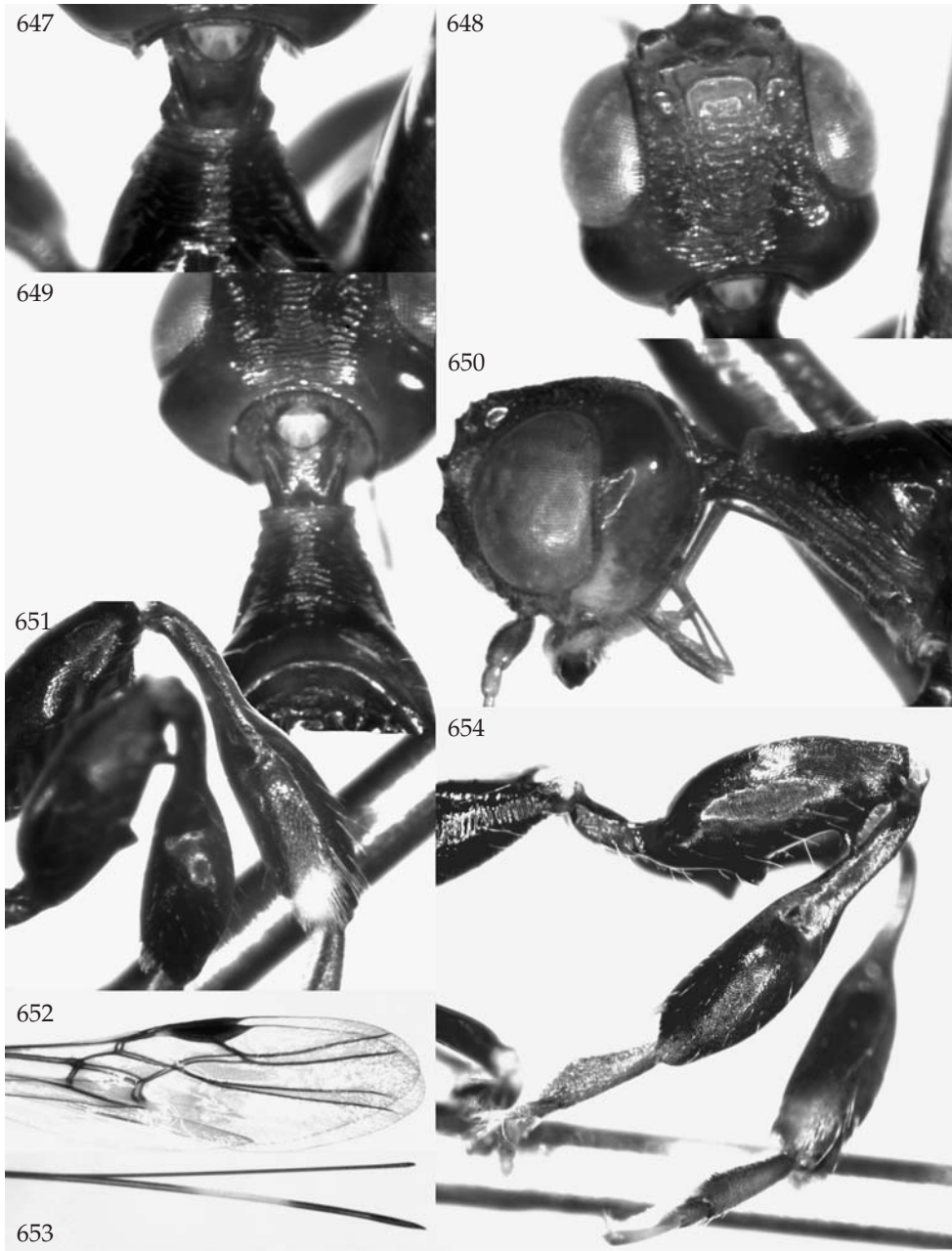
Figs 641-646, *Madegafoenus seyrigi* Benoit, ♀, holotype. 641, habitus, lateral aspect; 642, head and pronotum, lateral aspect; 643, hind leg; 644, head, ventro-lateral aspect; 645, hind tibia; 646, wings.

Genus *Profoenatopus* nov.
(figs 296-304, 662-664)

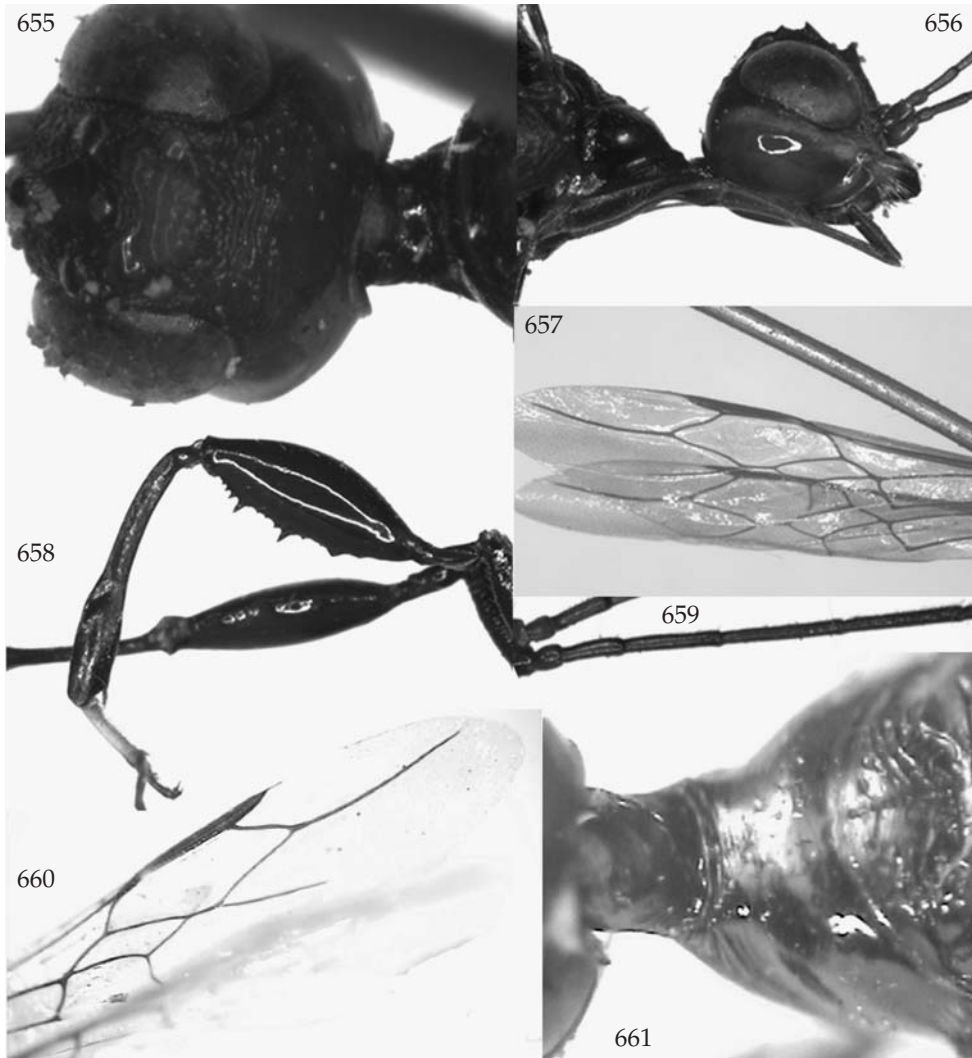
Type species: *Stephanus elliotti* Ceballos, 1926.

Etymology.— From “pro” (Latin for “before”) and the generic name *Foenatopus* Smith. Considered to be related to *Foenatopus*, but to be an older branch of the lineage. Gender: masculine.

Distribution.— Afrotropical. The type species is only known from Madagascar and differs from both species on the African continent. The continental species are



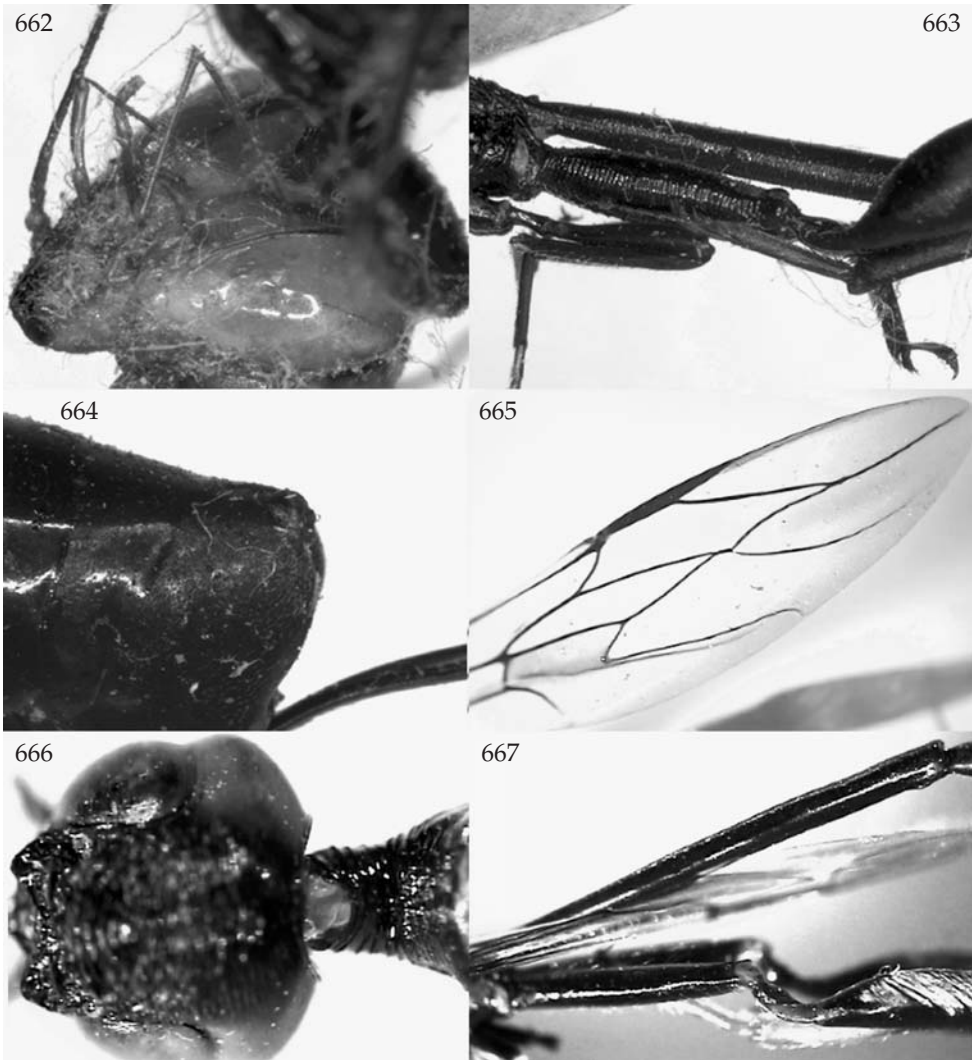
Figs 647-654, *Madegafoenus* spec., ♀, Madagascar (BMNH). 647, neck, antero-dorsal aspect; 648, dorsal aspect; 649, head and pronotum, dorsal aspect; 650, head and pronotum, lateral aspect; 651, hind tibia; 652, fore wing; 653, apex of ovipositor sheath; 654, hind leg.



Figs 655-659, *Parastephanellus nigricauda* (Sichel), ♀, lectotype; figs 660-661, *P. impunctatus* Elliott, ♀, holotype. 655, head and pronotum, dorsal aspect; 656, head and pronotum, lateral aspect; 657, 660, fore wing; 658, hind leg; 659, basal antennal segments; 661, neck, dorsal aspect.

included in a new subgenus (*Comnatopus* subgen. nov.; type species: *Stephanus comma* Morley, 1917) and both groups can be separated with the key below.

Notes.— As indicated in the key to genera, the neck is differentiated, anteriorly emarginate and flange-like upcurved (figs 299, 666); the pronotum has a rather weak pronotal fold (fig. 666); vein 1-SR of fore wing is comparatively long and weakly curved (figs 303, 665); basally vein 2-1A of the fore wing curved posteriad, shortly sclerotised and distinctly pigmented (fig. 665); the vertex with a weak median groove; length of fore wing more than 10 mm; inner side of the narrowed part of the



Figs 662-664, *Profoenatopus elliotti* (Ceballos), ♀, holotype; figs 665-667, *P. comma* (Morley), ♀, Uganda. 662, head, latero-ventral aspect; 663, 667, hind coxa and first metasomal tergite; 664, pygidium, lateral aspect; 665, part of fore wing; 666, head and pronotum, dorsal aspect.

hind tibia granulate; hind tibia slightly inflated apically (fig. 298); and without spiny setae near apex of vein M+CU1 of fore wing.

Key to subgenera of the genus *Profoenatopus*

1. Vein 3-CU1 of fore wing vertical (fig. 303); veins 2-SR and 1-SR+M of fore wing not sclerotised and only pigmented (fig. 303); vein 1-SR of fore wing longer than vein 1-M (fig. 303); hind femur strongly inflated (fig. 298); mesopleuron conspic-

uously setose dorsally; ovipositor sheath with ivory subapical band (fig. 302)
 subgenus *Profoenatopus* nov.

Notes.— The subgenus is only known from Madagascar and the type species is the only described species. A second species is described below.

- Vein 3-CU1 of fore wing strongly reclivous (fig. 665); veins 2-SR and 1-SR+M of fore wing sclerotised (fig. 665); vein 1-SR of fore wing shorter than vein 1-M (fig. 665); hind femur not inflated (fig. 667); mesopleuron normally setose dorsally; ovipositor sheath without ivory subapical band subgenus *Comnatopus* nov.
 Note.— On the African continent occur at least two species: the type species *Stephanus comma* Morley, 1917, from Ghana, and a species from Kenya (BMNH). The last species has a deeper depression in the pronotum, anteriorly the pronotum is more concave and posteriorly the pronotum is largely yellowish. It has the depression of the hind tibia about reversed V-shaped. The name of the subgenus is a combination of the name of the type species ("*comma*") and the generic name *Foenatopus* Smith. Gender: masculine.

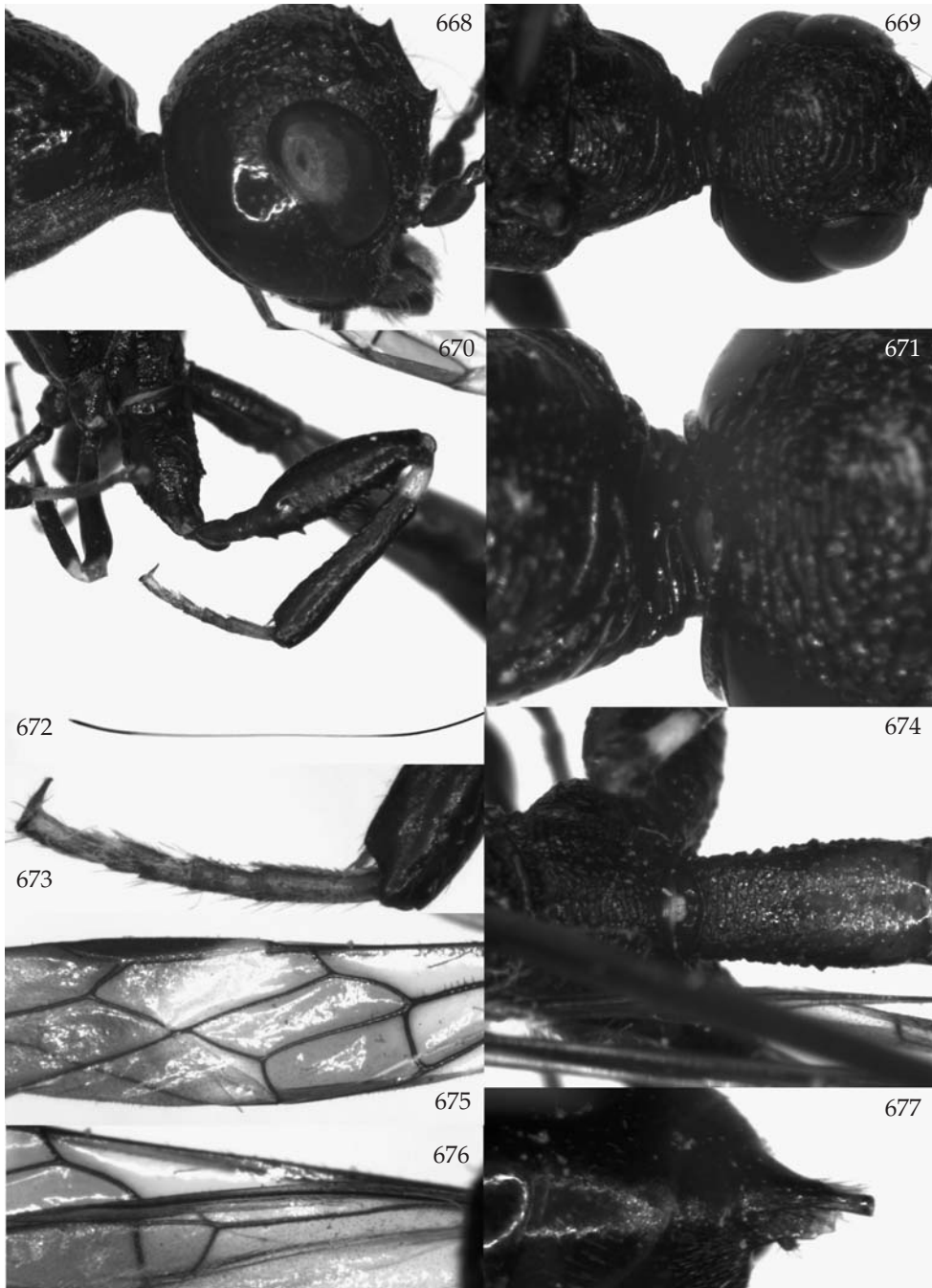
Profoenatopus (*P.*) *paulyi* gen. nov. & spec. nov.
 (figs 678-683)

Material.— Holotype, ♀ (RMNH), "Madagascar: TAM, Foulpointe, ix.1995, forêt, A. Pauly".

Holotype, ♀, length of body 19.3 mm, and of fore wing 10.8 mm.

Head.— Antenna with 39 segments; length of third antennal segment 3.2 times its maximum width, and fourth segment 1.5 times as long third segment (fig. 679); frons coarsely V-shaped undulate rugose, but ventrally transversely rugose; three anterior coronal teeth large, both posterior ones medium-sized, separated; between posterior ocelli five strong regularly curved carinae, bordered anteriorly and laterally by a strong carina and elevated above level of ocelli; vertex medially densely and regularly transversely striate and shallowly longitudinally impressed, striae laterally oblique and diverging, striae near lamelliform occipital carina finer and transverse; temples strongly angulate laterally, smooth and shiny, except for some striae ventrally; occipital carina reaching hypostomal carina; postgenal bridge convex and gradually declivous behind lamelliform hypostomal carina; hypostomal flange small and striate.

Mesosoma.— Neck rather robust and anteriorly deeply emarginate (fig. 683), with strong upcurved lamella, smooth medially and confluent with large concavity under pronotal fold, with two pair of strong and interrupted carinae, strongly converging to pronotal fold (fig. 683), neck postero-dorsally at much lower level than middle part of pronotum (fig. 682); pronotal fold strong laterally, weakly developed dorsally and triangularly protruding (fig. 683); middle part of pronotum dorsally smooth except for rugulosity antero-medially, antero-laterally distinctly carinate (fig. 682); middle part well differentiated from posterior part of pronotum; posterior part of pronotum without short setosity and posteriorly with some coarse punctures and finely transversely striate, postero-laterally distinctly protuberant (fig. 683) and with carinae; convex part of mesopleuron coriaceous, with some very coarse punctures, with interspaces larger than width of punctures, without short dense setosity except a medio-dorsal patch; mesosternum largely smooth (somewhat superficially coriaceous) and without short setosity; convex part of metapleuron coarsely reticulate medially, robust and glabrous, both anterior depressions minute; propodeum coarsely and densely foveo-



Figs 668-677, *Schlettererius cinctipes* (Ashmead), ♀, U.S.A. (California). 668, head and pronotum, lateral aspect; 669, head and pronotum, dorsal aspect; 670, hind leg; 671, pronotum, dorsal aspect; 672, apex of ovipositor sheath; 673, hind tarsus; 674, first metasomal tergite, dorsal aspect; 675, part of fore wing; 676, part of hind wing; 677, pygidium, dorsal aspect.

late, with medium-sized to large coriaceous interspaces.

Wings.— Fore wing (fig. 678): vein cu-a antefurcal; vein 1-SR 1.1 times as long as vein 1-M, vein 1-M as long as vein m-cu; vein 2-SR strongly sinuate, unsclerotized, 1.3 times as long as vein r; vein r ends 0.4 times length of pterostigma behind level of apex of pterostigma and vein 1-SR 0.5 times as long as parastigmal vein; veins r and SR1 widened; vein 2-1A of fore wing largely absent. Vein SR of hind wing short and only pigmented.

Legs.— Hind coxa cylindrical, medio-dorsally partly smooth, remainder transversely carinate, basally rugose; outer side of hind femur coriaceous and without short setosity, hind femur with two large and two medium-sized teeth (fig. 680); hind tibia hardly narrowed basally, inner and outer side coriaceous and glabrous except for densely bristly setose area at inner side below oblique depression (fig. 680); hind basitarsus parallel-sided, robust (fig. 680), its ventral length 5.0 times its width.

Metasoma.— First tergite 13.8 times as long as its maximum width (and its apical width), longer than remainder of metasoma, densely regularly and finely transversely striate but basally rugose and apically narrowly smooth; basally second tergite rugulose, petiolate; remainder of second tergite and following tergites smooth and shiny; pygidial area narrowly triangular, largely glabrous and smooth, shiny, somewhat upcurved posteriorly; length of ovipositor sheath 1.7 times fore wing (and 0.9 times as long as body), its ivory part 1.6 times as long as its dark apical part.

Colour.— Black or blackish; head (but temple faintly pale yellowish near eye), basal half of antenna and pronotum yellowish-brown; fore femur and tibia and all tarsi, tegulae, mesoscutum dark reddish-brown; veins and pterostigma dark brown; wing membrane weakly infusate.

Distribution.— Madagascar.

Etymology.— It is a pleasure to name this species after its collector, the Hymenopterist Dr Alain Pauly (Gembloux).

Notes.— The new species is very similar to *P. elliotti*, but *P. elliotti* has the middle part of the pronotum with several strong transverse carinae dorsally (figs 296, 297, 299); vein cu-a of fore wing postfurcal (fig. 303); basal half of vein 2-1A of fore wing present (fig. 303); veins r and SR1 of fore wing slender (fig. 303); vein 1-SR of fore wing more curved (fig. 303); third antennal segment slender (fig. 304); ovipositor sheath 2.3 times fore wing and 1.5 times body; vein 1-SR of fore wing about 1.5 times vein 1-M (fig. 303); and ivory part of ovipositor sheath 0.7 times as long as its dark apical part.

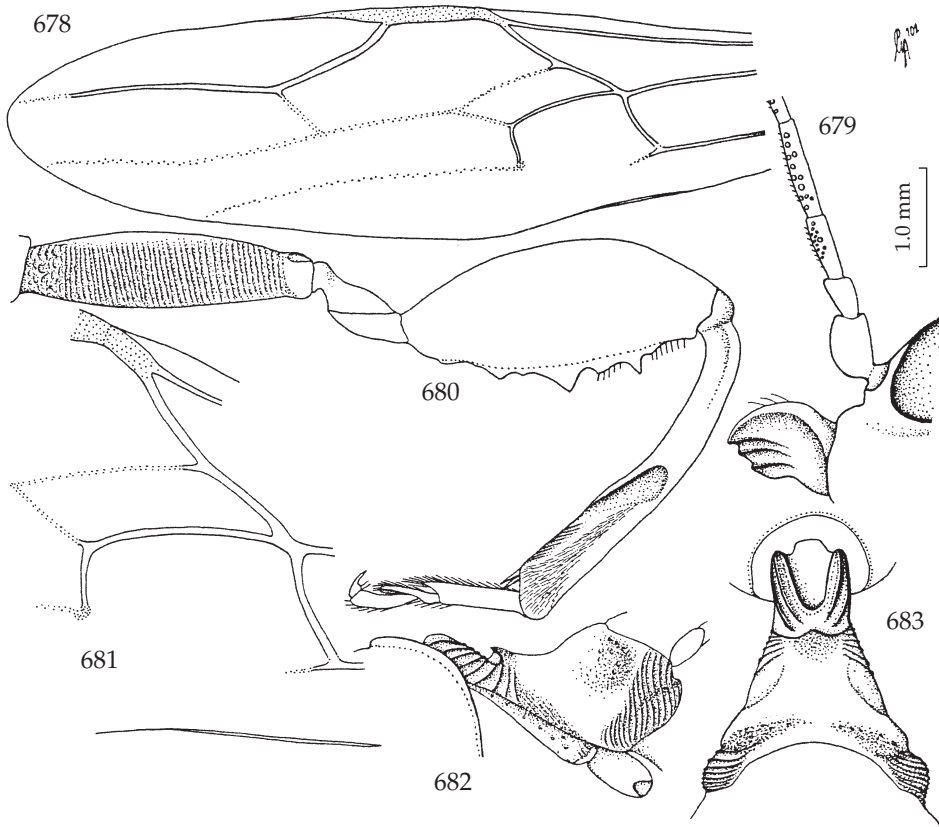
Subfamily Schlettereriinae Belokobylskij, 1995

Genus *Schlettererius* Ashmead, 1900

(figs 668-677)

Schlettererius Ashmead, 1900: 150. Type species (by original designation): *Stephanus cinctipes* Cresson, 1880.

Notes.— Two species are known: the Nearctic *S. cinctipes* (Cresson, 1880) and the



Figs 678-683, *Profoenatopus paulyi* gen. nov. & spec. nov., ♀, holotype. 678, fore wing; 679, base of antenna; 680, hind leg, inner aspect; 681, detail of veins 1-SR, 1-M and cu-a of fore wing; 682, pronotum, lateral aspect; 683, pronotum, dorsal aspect. 678, 680, 682, 683: 1.0 × scale-line; 679, 681: 2.0 ×.

East Palaearctic *S. determinatoris* Madl, 1991, from Korea. The latter has the first subdiscal cell more robust, about 2.5 times its width and second and third metasomal tergites dark brown (about 3 times (fig. 675) and orange-brown, respectively, in *S. cinctipes*). *S. cinctipes* (Cresson) has been successfully introduced in Tasmania and SE Australia (fig. 30 in Aguiar, 2001).

In this genus the metapleuron (fig. 670) and the first metasomal tergite (fig. 674) are robust; the hind femur has two large and several smaller teeth ventrally (fig. 670); and the ovipositor sheath has a wide conspicuous subapical white band (fig. 672). As the corona of the head (fig. 668), the white subapical band of the ovipositor sheath and the pygidial process (fig. 677) are present in the Schlettereriinae, the most basal extant group of the Stephanidae, these characters seem to be old features of the Stephanidae.

Schlettererius rufipes (Say, 1824) belongs to the Braconidae according to Townes (1949); probably it belongs to the subfamily Doryctinae. It has the ovipositor sheath as long as the metasoma and the legs largely reddish.

Uncertain generic position

Stephanus seyrigi Benoit, 1951

Stephanus seyrigi Benoit, 1951: 270-272, figs 1, 2.

The rather sketchy figures of *S. seyrigi* indicate that the venation is aberrant (because veins 2-SR and SR1 of the fore wing are short), the hind coxa is spindle-shaped and the narrowed part of the hind tibia is comparatively short. Unfortunately, the number of segments of the hind tarsus and the length of the fore wing or body are not mentioned. Assuming that the female has 3-segmented hind tarsi then it may fit best near *Madegafoenus* Benoit because of the described derived neck structure, but the hind femur is comparatively slender and the venation differs from all known species.

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