

## Descriptions of New Taxa and Distribution Records of the Family Bethyridae (Insecta, Hymenoptera). III. Subfamily Epyrinae

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**Synopsis** Forty-three species of bethylid wasps belonging to the subfamily Epyrinae are described as new to science from Asia and Africa: *Epyris superbus* sp. nov., *E. sarawakensis* sp. nov., *E. longicephalus* sp. nov., *E. thianus* sp. nov., *E. nepalensis* sp. nov., *E. malayanus* sp. nov., *E. camerounensis* sp. nov., *E. aequatorialis* sp. nov., *E. budda* sp. nov., *E. indra* sp. nov., *E. shakha* sp. nov., *E. maya* sp. nov., *E. sarawakensis* sp. nov., *E. sabahensis* sp. nov., *E. shiva* sp. nov., *E. leyteanus* sp. nov., *E. karnatakensis* sp. nov., *E. nantohensis* sp. nov., *E. meifengensis* sp. nov., *E. lienfuaensis* sp. nov., *E. miaoliensis* sp. nov., *E. nanshanchiensis* sp. nov., *E. liukueiensis* sp. nov., *E. hangunensis* sp. nov., *E. atayal* sp. nov., *Calyozina nepalensis* sp. nov., *C. thaiana* sp. nov., *Isobrachium kongohyasha* sp. nov., *Holepyris shamensis* sp. nov., *H. thailandensis* sp. nov., *H. seidakka* sp. nov., *H. aekoh* sp. nov., *H. aeki* sp. nov., *H. gundari* sp. nov., *H. gouzanze* sp. nov., *H. daiitoku* sp. nov., *Allobethylus khonkaensis* sp. nov., *Proplatanoxus elegans* gen. et sp. nov., *Platanoxus konishii* sp. nov., *P. thailandensis* sp. nov., *Cephalonomia elegantula* sp. nov., *C. chihpenensis* sp. nov., *C. thaiana* sp. nov.

A new genus, *Proplatanoxus*, is established based on the *Proplatanoxus elegans* sp. nov. from Thailand. *Trachyepyrus indicus* (Muesebeck, 1934) is recorded from Indonesia for the first time. *Holepyris sylvanidis* (Brethes, 1913) and *Cephalonomia tarsalis* (Ashmead, 1893) are added to the fauna of Thailand.

The genus *Calyozina* Enderlein is redefined, and four New World and one African species are removed to the genus *Epyris* Westwood. *Isobrachium luzonicum* Kieffer, 1922, from the Phillipines is also transferred to the genus *Epyris* Westwood.

### Introduction

In the course of my recent study of the world Bethyridae, I have found many undescribed species. In the present part, I describe 43 species in 9 genera belonging to the subfamily Epyrinae as new to science from Asia and Africa, together with distribution records,

and provide several taxonomic changes in Epyrinae.

Special terms used in this paper follow those in Terayama (1999). The following abbreviations are used in the descriptions: HL-head length; HW-head width; WF-width of frons; LM-length of mesosoma; LP-length of propodeum in dorsal view; LPD-length of propodeal disc in dorsal view; WPD-width of propodeal disc in dorsal view; FWL-forewing length; TL-total body length; EL-eye length; POL-distance between posterior ocelli; AOL-distance between posterior ocellus and anterior ocellus; OOL-distance from a posterior ocellus to nearest eye margin; WOT-distance across and including posterior ocelli; DAO-diameter of anterior ocellus. The following abbreviations of institutions are also used: BMNH-Natural History Museum, London, U. K.; CNC-Bio-systematics Research Centre, Ottawa, Canada; LIPI-Zoological Museum Indonesian Institute of Science, Bogor, Indonesia; MNHN-Museum National d'Histoire Naturelle, Paris, France; NIAES-Institute of Agro-Environmental Sciences, Tsukuba, Japan; NSMT-National Science Museum, Tokyo, Japan; PMA-Provincial Museum of Alberta, Canada; TARI-Taiwan Agricultural Research Institute, Taichung, Taiwan; ZMB-Zoologisches Museum an der Humboldt-Universität zu Berlin, Germany.

### Taxonomic accounts and distribution

#### Subfamily Epyrinae

#### 1. Genus *Epyris* Westwood

##### 1-1. *Superbus* species-group

*Epyris superbus* sp. nov. and *E. sarawakensis* sp. nov. are recorded from the Philippines and Taiwan, and Malaysia, respectively. Two new species are distinguished from the other congeners by the following combinations of characteristics: 1) antenna with 13 segments, each flagellum segment cylindrical; 2) 2nd antennal segment short, forming a small ring-joint; 3) paramere divided into two lobes, one is large and the other is small and thin; 4) cuspis very long and slender.

##### *Epyris superbus* sp. nov. (Figs. 1-6)

**Male (holotype).** HL 1.03 mm; HW 1.08 mm; WF 0.63 mm; LM 2.15 mm; LPD 0.55 mm; WPD 0.65 mm; FWL 3.2 mm; TL 4.9 mm.

Body black; antenna black, but weakly brownish; legs castaneous except for tarsi yellowish brown; wings subhyaline, slightly brownish.

Head slightly wider than long, with almost straight posterior margin in full face view; frons and vertex relatively sparsely punctate, with smooth and shining interspaces. Mandible

with 5 teeth; apical tooth acute and longest, others blunt and small. Median carina of clypeus forming an obtuse angle. First 5 segments of antenna in a ratio of 10 : 2 : 10 : 12.5 : 12 : 5 in length; scape short, 1.3 times as long as wide; 2nd segment 0.4 times as long as wide; 3rd segment 1.6 times as long as wide. Eye 0.50 mm in length, without hairs; WF 1.26 times EL. Ocelli forming an obtuse triangle; DAO 0.08 mm; OOL 1.17 times WOT.

Pronotal disc wide, 0.66 times as long as wide, moderately punctate, and with smooth and shining interspaces. Mesonotum smooth and shining, impunctate; notauli short and wide; scutellar pits circular, separated by 5.0 times their own diameter. Propodeal disc 0.85 times as long as wide, with 5 discal carinae, surface between the carinae strongly striate; sublateral areas with transverse rugulae.

**Holotype.** Male, Luzon, San Gabriel, Philippine, 20. V. 1974, S. Ueda leg.

**Paratypes.** 6 males, same data as holotype; 2 males, Liukuei, Taiwan, 29. IV. 1971, N. Fukuhara leg.

**Type depository.** The holotype and some paratypes are deposited in NIAES, and other paratypes in NSMT.

**Remarks.** Male genitalia and subgenital plate of a paratype specimen are shown in Figs. 5 and 6, and Fig. 4, respectively.

***Epyris sarawakensis* sp. nov.**

**Male (holotype).** HL 0.88 mm; HW 0.90 mm; WF 0.50 mm; LM 1.75 mm; LPD 0.40 mm; WPD 0.68 mm; FWL 1.40 mm; TL 4.3 mm.

Body black; antenna blackish brown, underside somewhat reddish; legs testaceous excepting yellowish tarsi; forewing weakly clouded excepting apical and marginal portions hyaline.

Head as long as wide in full face view; frons and vertex largely smooth and shining, but with small shallow punctures sparsely. Mandible with 5 blunt teeth; apical tooth most developed. Median lobe of clypeus forming an obtuse angle. First 5 segments of antenna in a ratio of 8 : 2.5 : 7 : 9 : 9 in length; scape twice as long as wide; 2nd segment 0.7 times as long as wide; 3rd segment 1.8 times as long as wide. Eye 0.43 mm in length, hairless; WF 1.16 times EL. Ocelli forming an obtuse triangle; OOL 1.30 times WOT.

Pronotal disc broad, 0.69 times as long as wide; surface largely smooth and shining, but with small shallow punctures sparsely. Mesonotum smooth and shining, impunctate; scutellar pits round, separated by 3.2 times their own diameter. Propodeal disc wider than long, with 5 discal carinae, interspaces between the carinae strongly striate; sublateral area with oblique

rugulae.

**Holotype.** Male, Sarawak, Sematin, Malaysia, 23. II. 1987, Finnamore & Baxfield leg.

**Paratypes.** 15 males, same data as holotype; 4 males, same locality, 21-23. II. 1987, Finnamore and Baxfield leg.

**Type depository.** All the types are preserved in PMA.

#### 1-2. *Longicephalus* species-group

This species-group is separated from the others by the following combination of characteristics in the genus *Epyris*.

Female. 1) Head oval, vertex elongate; posterolateral corner not forming an angle in full face view; 2), mandible relatively long, with 4-5 teeth; 3) eye with relatively long erect hairs; 4) antenna with 13 segments; scape long, at least the same length of eye; funiculus widest at 5th or 6th segments; 5) notauli relatively broad; 6) scutellar pit rectangular, wider than long, separated by a thin lamellar wall; 7) propodeum wider than long with several discal carinae; 8) head and pronotum with small punctures densely, and with strongly microreticulate interspaces.

Male. The shape of head, mesosoma and propodeum as in female, except for antenna of which scape short and 4th segment broadest. Subgenital plate very small, with a basal stalk. Genitalia also very small; paramere lobe-shaped; cuspis biramose.

#### *Epyris longicephalus* sp. nov. (Figs. 14-16)

**Female (holotype).** HL 1.35 mm; HW 1.05 mm; WF 0.65 mm; LM 2.25 mm; LPD 0.55 mm; WPD 0.95 mm; FWL 3.6 mm; TL 5.7 mm.

Body black; antenna, legs, and tip of metasoma reddish brown; forewing subhyaline, tinged with a yellowish brown; subcosta and pterostigma brown, and other veins yellowish brown.

Head 1.42 times as long as wide in full face view. Anterior margin of clypeus forming an acute triangle. First 5 segments of antenna in a ratio of 21 : 7 : 7 : 7 : 5 in length; scape 3.0 times as long as wide; 2nd segment 1.4 times as long as wide; 3rd 1.2 times as long as wide; 4th and 5th segments each slightly wider than long. Eye 0.48 mm in length; the longest hair on eye ca. 0.07 mm. Ocelli relatively large, forming a compact triangle; DAO 0.06 mm.

Mesoscutum strongly microreticulate, but impunctate; notauli slightly diverging toward the front. Scutellar pit rectangular, 2.0 times as long as wide. Propodeal disc 0.58 times as long as wide, with 7 discal carinae; sublateral carina present; surface between carinae strongly

striate.

**Holotype.** Female, Peitoh, Taiwan, 20. V. 1929, K. Sato leg.

**Paratype.** 1 female, Suigen, Keikido, Korea, VI. 1930, K. Sato leg.

**Type depository.** NSMT.

***Epyris thaianus* sp. nov.**

**Female (holotype).** HL 1.25 mm; HW 1.05 mm; WF 0.75 mm; LA 2.40 mm; LPD 0.75 mm; WPD 1.00 mm; FWL 3.5 mm; TL 6.0 mm.

Head and mesosoma black; metasoma black excepting reddish brown tip; mandible reddish brown; antennal scape blackish brown; funiculus with dark brown upperside and reddish brown underside; legs dark brown; forewing subhyaline, tinged with a yellowish brown; veins yellowish brown.

Head 1.19 times as long as wide in full face view. Anterior margin of clypeus forming an acute triangle. Mandible with 5 teeth. First 5 segments of antenna in a ratio of 21 : 7 : 7 : 6 : 5 in length; scape 3.0 times as long as wide; 2nd segment 1.4 times as long as wide; 3rd as long as wide; 4th to 11th segments each distinctly wider than long. Eye 0.53 mm in length; the longest hair on eye ca. 0.08 mm in length. Ocelli forming an acute triangle.

Mesoscutum microreticulate, impunctate; notauli linear, diverging toward the front. Scutellar pits transversely long, ca. 2.4 times as long as wide. Propodeal disc 0.75 times as long as wide, with 5 discal carinae; 2 pairs of sublateral carinae present; surface between the carinae strongly striate.

**Variation.** The smallest individual with the following measurements: HL 0.85 mm; HW 0.70 mm; TL 3.8 mm.

**Holotype.** Female, Nakhon Ratchasima, Khao Yai National Park, 700-800 m, Thailand, 12-18. IV. 1990, E. Fuller leg.

**Paratypes.** 8 females, same data as holotype; 1 female, Bangkok 180 km N. E., Khao Yai N. P., 780 m, Thailand, 10-16. IV. 1990, B. V. Brown leg.; 1 female, Bangkok 180 km N. E., Khao Yai N. P., 800 m, Thailand, 10-16. IV. 1990, B. V. Brown leg.; 1 female, Khao Yai N. P., 780 m, Thailand, 16-24. IV. 1990, B. V. Brown leg.; 1 female, Chiang Mai, Thailand, 20-23. IV. 1989, G. T. Baker leg.

**Type depository.** All the types are preserved in PMA.

***Epyris nepalensis* sp. nov.**

**Female (holotype).** HL 0.78 mm; HW 0.72 mm; WF 0.44 mm; LM 1.49 mm; LPD

0.51 mm; WPD 0.61 mm; FWL 2.3 mm; TL 3.9 mm.

Head and mesosoma black; metasoma blackish brown; mandible reddish brown; antenna reddish brown to dark brown; legs yellowish brown; wings hyaline; subcosta, pterostigma, and radial veins brown; other veins yellowish brown.

Head 1.08 times as long as wide in full face view. Mandible with 5 teeth. Anterior margin of clypeus broadly rounded. First 5 segments of antenna in a ratio of 14 : 5 : 4 : 4 : 4 in length; scape 2.8 times as long as wide; 2nd segment slightly longer than wide; 3rd to 5th segments each almost as long as wide. Eye 0.35 mm in length; the longest hair on eye ca. 0.04 mm. Front angle of ocellar triangle almost a right angle.

Mesoscutum strongly microreticulate, with shallow punctures; notauli linear, diverging toward the front.

Propodeal disc 0.84 times as long as wide, with 5 discal carina; sublateral carina absent; sublateral and lateral areas with strong transverse rugae.

**Holotype.** Female, Kakani forest, 2070 m, Nepal, 1-15. IX. 1984, G. Allen leg.

**Type depository.** CNC.

***Epyris malayanus* sp. nov.**

**Male (holotype).** HL 1.40 mm; HW 1.25 mm; WF 0.70 mm; LM 2.60 mm; LPD 0.65 mm; WPD 1.20 mm; FWL 3.8 mm; TL 5.9 mm.

Body black; mandible reddish brown; antennal scape reddish brown, funiculus dark brown; legs dark brown except for brownish tarsi; forewing subhyaline, tinged with a yellowish brown; costa, subcost, pterostigma, and radial veins dark brown; other veins yellowish brown.

Head 1.13 times as long as wide in full face view. Anterior margin of clypeus broadly rounded. First 5 segments of antenna in a ratio of 10 : 4.5 : 7 : 7.5 : 7 in length; scape 2.2 times as long as wide; 2nd segment 1.2 times as long as wide; 3rd 1.8 times as long as wide; 4th broadest, 1.8 times as long as wide; 5th segment 1.8 times as long as wide. Eye 0.40 mm in length; the longest hair on eye ca. 0.04 mm. Front angle of ocellar triangle obtuse.

Pronotum microreticulate, with shallow punctures sparsely; anterolateral corner of disc forming an angle in dorsal view. Mesonotum weakly microreticulate, with shallow punctures sparsely; notauli large, diverging toward the front; parapsidal furrow strong. Propodeal disc 0.54 times as long as wide, with 5 discal carinae; sublateral area strongly reticulate.

Metasoma smooth and shining; subgenital plate 0.48 mm in length including median basal stalk.

**Holotype.** Female, Long lama, Sarawak, Malaysia, 12-13. II. 1987, A. T. Finnamore and

C. Baxfield leg.

**Type depository.** PMA.

**1-3. *Staphylinoides* species-group**

The following genera which contain pectinated ramose antennal species were synonymized with the genus *Epyris* by Krombein (1992); *Calyzoa* Westwood in Hope, 1837; *Paracalyzoa* Cameron, 1909; *Calyzella* Enderlein, 1920; *Pseudocalyzoa* Turner, 1915. Those pectinated ramose antennal species in male are thought to be form two species-group, *staphylinoides* and *subramosa*-groups (Krombein, 1992).

The *staphylinoides* species-group is separated from the others by the following combination of characteristics in the genus *Epyris*.

Male: 1) second and 3rd antennal segments small, especially 3rd segment being reduced to a small ring-joint; 2) 4th to 12th antennal segments each pectinated; terminal segment flat and blade shaped; 3) eye without hairs; 4) pronotum with smooth contours; 5) scutellar pit large, more or less round, and well separated each other; 6) propodeum with several discal carinae; 7) paramere of genitalia very long and slender; 8) cuspis of genitalia biramous, very large and slender.

Female: 1) antenna with 13 segments, each segment simple and cylindrical; 2) lower margin of mandible with a large and blunt subapical tooth; 3) pronotum with smooth contours; 4) scutellar pits well-separated, the pits connected anteriorly by a narrow impressed line; 5) middle tibia with 2-3 rows of short spines.

***Epyris staphylinoides* (Westwood in Hope, 1837)** (Figs. 17-24, 25-31)

*Calyzoa staphylinoides* Westwood in Hope, 1837. *Epyris staphylinoides*: Krombein, 1992. *Calyzoa ashmeadi* Enderlein, 1901, [Synonymy by Krombein, 1992]. *Calyzoa ramosa* Meunier, 1906, [Synonymy by Krombein, 1992.]

**Distribution.** Cameroun, Kenya.

**Remarks.** The lectotype of *Calyzoa ashmeadi* Enderlein, 1901, is shown in Figs. 17-24 and its possible female as in Figs. 25-31.

Three syntype are known in *C. ashmeadi* consist of a male and two females. Later, Krombein (1992) designated the male as the lectotype and synonymized with *Epyris staphylinoides*. One female bears a red label "Type, ♀" and lacking a metasoma. The other male bears no type label. After morphological comparison between the females, I concluded that those are separate species each other, and the former is supposed that a male of *C. ashmeadi* and the latter is a new species, which are described and illustrated herein.

***Epyris camerounensis* sp. nov.** (Figs. 32-37)

**Female (Holotype).** HL 2.05 mm; HW 2.35 mm; LPD 1.10 mm; WPD 2.70 mm; FWL 6.1 mm; TL 11.0 mm.

Head 0.87 times as long as wide with almost straight posterior margin in full face view; frons and vertex densely punctate. Mandible with 5 tooth at masticatory margin; subapical tooth of lower margin triangular with a blunt apical projection. First 5 segments of antenna in a ratio of about 17 : 4.5 : 3.5 : 5.5 : 5.5 in length; scape 2.1 times as long as wide; 2nd segment 0.67 times as long as wide; 3rd 0.5 times as long as wide; 4th segment 1.2 times as long as wide. Eye 0.95 mm in length. PAO 0.10 mm; DOW : WOT = 9.5 : 7; OOL 1.6 times WOT.

Pronotum densely punctate; disc 0.55 times as long as wide in dorsal view. Mesonotum densely punctate. Propodeal disc 0.56 times as long as wide, with parallel sides and straight posterior margin in dorsal view; 5 discal carinae present.

Forewing with a very short post marginal vein.

**Holotype.** Female, N. Kamerun, Johann-Albrechtschohe, L. Conradt, S6.

**Type depository.** ZMB.

**Remarks.** It is separated from *E. staphylinoides* by the wide head (slightly longer than wide in *staphylinoides*), the 5-toothed mandibles (4-toothed in *staphylinoides*), the triangled subapical tooth of lower margin of mandibles (lobe-shaped in *staphylinoides*), and the densely punctated pro- and mesonota (moderately punctated in *staphylinoides*).

***Epyris puduma* Krombein, 1992**

*Epyris puduma* Krombein, 1992.

**Distribution.** Sri Lanka.

***Epyris hirtipennis* (Cameron, 1909)** (Figs. 31-43)

*Paracalyzoa hirtipennis* Cameron, 1909, [Synonymized with *Calyzina flavipennis* by Turner, 1915]. *Epyris hirtipennis*: Krombein, 1992. *Calyzina flavipennis* Turner, 1914, [Synonymy by Turner, 1915]. *Calyzoa nigra* Kieffer, 1922, [Synonymy by Krombein, 1992]. *Parepyris bryanti* Turner, 1928, [Synonymy by Krombein, 1992.]

**Remarks.** The type specimen of *Paracalyzoa hirtipennis* Cameron, 1909, is shown in Figs. 31-43.

**Distribution.** Borneo (Kuching, Sarawak), the Philippines (Palawan).



***Epyris sumatranus* (Enderlein, 1917)**

*Calyzoa sumatrana* Enderlein, 1917. *Epyris sumatrana* [sic.] (Enderlein) [Combined by Krombein, 1992.]

**Distribution.** Sumatra.

***Epyris sumatrensis* Krombein, 1992**

*Calyozella flavipennis* Enderlein, 1920, [Preoccupied in *Epyris flavipennis* (Turner, 1914)]. *Epyris sumatrensis* Krombein, 1992, [New name for *E. flavipennis*.]

**Distribution.** Sumatra.

***Epyris apicalis* Walker in Smith, 1876** (Figs. 55-59)

*Epyris apicalis* Walker in Smith, 1876.

**Remarks.** The holotype of *Epyris apicalis* Walker in Smith, 1876, is examined and illustrated (type in BMNH). It is concluded that this species is a member of this species-group.

**Distribution.** Japan.

***Epyris sautei* (Enderlein, 1920)** (Figs. 51-54, 60-64)

*Calyozella sautei* Enderlein, 1920. *Epyris sautei*: Krombein, 1992. *Calyozella* sp., Terayama, 1990.

**Remarks.** The mating pair was examined from Japan, and it is represented the male of *Epyris apicalis* (Terayama, in prep.).

**Distribution.** Taiwan, Japan.

***Epyris rufiventris* (Kieffer, 1907)**

*Calyzoa rufiventris* Kieffer, 1907. *Epyris rufiventris* (Kieffer) [Combined by Krombein, 1992.]

**Distribution.** Australia.

***Epyris aequatorialis* sp. nov.** (Figs. 68-77)

**Male (holotype).** HL 1.45 mm; HW 1.53 mm; WF 0.95 mm; LM 2.60 mm; LPD 0.75 mm; WPD 1.18 mm; FWL 4.7 mm; TL ca. 6.0 mm.

Body black; mandible blackish brown; antenna blackish brown to brown; legs blackish brown.

Head wider than long, with gently convex posterior margin in full face view; frons with shallow punctures; interspaces microreticulate; vertex sparsely punctate. Mandible with 3 teeth; apical tooth acute and most developed. Median lobe of clypeus narrow, forming an acute angle.

Antenna pectinate; first 5 segments in a ratio of about 16 : 2 : 2 : 7 : 7 in length. Eye 0.80 mm in length; WF 1.19 times EL. Ocelli forming a compact triangle; OOL 1.31 times WOT.

Pronotal disc with shallow punctures and microreticulate interspaces. Mesonotum microreticulate; scutellar pit round, 0.09 mm in diameter. Propodeum 0.64 times as long as wide, with 5 discal carinae; basal triangular area with strong transverse rugae; sublateral area with transverse rugulae.

First and 2nd metasomal terga smooth and shining; 3rd to 7th weakly microreticulate and subopaque. Subgenital plate as shown in Fig. 77; genitalia as in Figs. 75 (lateral view) and 76 (ventral view).

**Holotype.** Male, Prazer's Hill, Pahang, Malaya, 27. X.-3. XI. 1977, B. Bendell leg.

**Type depository.** PMA.

***Epyris budda* sp. nov.** (Figs. 78-82)

**Male (holotype).** HL 1.13 mm; HW 1.05 mm; WF 0.70 mm; LM 2.10 mm; LPD 0.63 mm; WPD 0.88 mm; FWL 3.2 mm; TL 5.3 mm.

Body black; mandible yellowish brown except for dark brown masticatory margin; 1st to 3rd segments of antenna castaneous; 4th to terminal segments yellowish brown; fore coxa and femora castaneous; fore tibia and tarsus yellow; middle leg brown; hind coxa and femora castaneous; hind tibia yellow to yellowish brown; hind tarsus yellow.

Head 1.08 times as long as wide, with relatively strongly convex posterior margin in full face view; frons subopaque with moderately punctate; vertex sparsely punctate. Mandible with 3 teeth; apical tooth most developed. Median lobe of clypeus forming a right angle at middle. Antenna pectinate as in Figs. 79, 81 and 82; first 5 segments in a ratio of about 14 : 2 : 1 : 5 : 5 in length. Eye 0.55 mm in length; WF 1.27 times EL. Front angle of ocellar triangle obtuse; OOL 1.27 times WOT.

Pronotal disc with shallow but large punctures; interspaces microreticulate. Mesonotum with scattered punctures, and with microreticulate interspaces; scutellar pit large, 0.10 mm in diameter. Propodeal disc 0.72 times as long as wide, with 5 discal carinae; basal triangular area with strong transverse rugae; sublateral area with transverse rugae.

First and 2nd metasomal terga smooth and shining; 3rd to terminal terga weakly microreticulate and subopaque.

**Holotype.** Male, 70 km S. W., Chiang Mai, Doi Inthanon, N. P., Vachiratharn Falls, 800 m, Thailand, 28. IV. 1990, B. V. Brown leg.

**Paratypes.** 2 males, same locality as holotype, 7-11. V. 1990, B. V. Brown leg.; 1 male,

Khao Yai, N. P., 780 m, Thailand, 16-24. IV. 1990, B. V. Brown leg.

**Type depository.** The types are deposited in PMA.

***Epyris indra* sp. nov.** (Fig. 83)

**Female (holotype).** HL 1.28 mm; HW 1.25 mm; WF 0.85 mm; LM 2.63 mm; LPD 0.84 mm; WPD 1.03 mm; FWL 3.9 mm; TL 6.8 mm.

Body black; mandible castaneous; antennal scape castaneous; funiculus brown; legs castaneous except for brownish fore tibia and fore tarsus.

Head as long as wide, with weakly convex posterior margin in full face view; frons and vertex subopaque, with scattered small punctures and weakly microreticulate interspaces. Mandible with 5 teeth; basal two small and blunt; subapical tooth of lower margin forming an obtuse triangle. Median lobe of clypeus forming compact obtuse triangle. First 5 segments of antenna in a ratio of 20 : 4 : 3 : 7 : 7 in length. Eye 0.50 mm in length; WF 1.70 times EL. Ocelli forming an acute triangle; POL : AOL = 1 : 2; OOL 2.44 times WOT.

Pronotal disc moderately punctate, with microreticulate interspaces; mesonotum microreticulate, with scattered shallow punctures only. Propodeal disc 0.82 times as long as wide, with 5 straight discal carinae; median and submedian areas transversely rugulae; sublateral area relatively weakly microreticulate.

**Variation.** Specimens examined vary in head length 0.98 mm to 1.28 mm, and in head width from 0.95 mm to 1.25 mm.

**Holotype.** Female, Nakhon Ratchasima, Khao Yai National Park, 700-800 m, Thailand, 18-24. IV. 1990, E. Fuller leg.

**Paratypes.** 2 females, same data as holotype; 1 female, Doi Inthanon Nat. Park, 70 km S.W., Chiang Mai, 1260 m, Thailand, 31. I-7. II. 1989, T. W. Thormin leg.; 1 female, 70 km S. W., Chiang Mai, Doi Inthanon N. P., 800 m, Thailand, 7-11. V. 1990, B. V. Brown leg.

**Type depository.** All the types are deposited in PMA.

***Epyris shakha* sp. nov.** (Fig. 84)

**Female (holotype).** HL 1.05 mm; HW 1.20 mm; WF 0.85 mm; LM 2.60 mm; LPD 0.68 mm; WPD 0.93 mm; FWL 3.4 mm; TL 6.6 mm.

Head and mesosoma black; 1st to anterior half of 5th metasomal terga black; posterior half of 5th metasomal tergite and 6th metasomal segment reddish brown; mandible yellowish brown; antenna with dark brown upperside and light brown underside; legs dark brown excepting brownish tarsi.

Head wider than long, with straight posterior margin in full face view; frons and vertex largely subopaque, with scattered shallow punctures; interspaces weakly microreticulate. Mandible with a strong apical tooth and 4 small and blunt teeth; outer margin with a broadly rounded subapical tooth. Anterior margin of median lobe of clypeus broadly rounded. First 5 segments of antenna with a ratio of 18 : 4 : 4 : 1.5 : 6 in length. Eye 0.50 mm in length; WF 1.70 times EL. Ocelli forming an obtuse triangle; POL : AOL = 7 : 4; OOL 1.73 times WOT.

Pronotal disc weakly microreticulate, with scattered shallow punctures. Mesonotal disc subopaque, weakly microreticulate, and impunctate. Propodeal disc 0.73 times as long as wide, with 5 discal carinae; median and submedian areas with transverse rugae; sublateral area microreticulate with rugosity.

**Holotype.** Female, Doi Inthanon Nat. Park, 70 km S. W., Chiang Mai, 1260 m, Thailand, 31. I.-7. II. 1989, T. W. Thormin leg.

**Paratype.** 1 female, same data as holotype.

**Type depository.** PMA.

***Epyris maya* sp. nov.** (Fig. 85)

**Female (holotype).** HL 1.75 mm; HW 2.10 mm; WF 1.45 mm; LM 3.75 mm; LPD 1.10 mm; WPD 1.65 mm; FWL 5.8 mm; TL 10.0 mm.

Body black; apical half of mandible black; basal half reddish brown; antennal scape black excepting reddish basal portion; funiculus blackish brown, undersides from 6th to terminal segments light brown; fore coxa and trochanter blackish brown; fore femora and tibia black; fore tarsus brown; middle and hind legs blackish brown excepting brownish tarsi; wings subhyaline, tinged with a yellowish brown.

Head wider than long, with almost straight, but very weakly concave posterior margin in full face view; frons and vertex rather subopaque with large punctures; interspaces smooth. Mandible not dissected; however, large apical and preapical teeth and 2 small blunt teeth are visible; outer margin with a broad subtriangular subapical tooth. Median lobe of clypeus small, broadly rounded. First 5 segments of antenna in a ratio of 34 : 8 : 7 : 10 : 9 in length. Eye 0.85 mm in length; WF 1.71 times EL. Ocelli forming a compact triangle; OOL 2.0 times WOT.

Pronotal disc punctate, with weakly microreticulate interspaces. Mesonotal disc smooth and subopaque, with scattered shallow punctures. Propodeal disc 0.67 times as long as wide, with 5 discal carinae, surfaces between the carinae weakly striate; median and submedian areas depressed; sublateral area with transverse rugulae.

First and 2nd metasomal terga smooth and shining; 3rd to 6th terga with many small punctures.

**Holotype.** Female, Nakhon Ratchasima, Khao Yai National Park, 700-800 m, 11-18. IV. 1990, E. Fuller leg.

**Paratypes.** 15 females, same data as holotype; 8 females, 70 km S. W., Chiang Mai, Doi Inthanon, N. P., 800 m, 28. VI. 1990, B. V. Brown leg.; 2 females, 180 km N. E., Bangkok, Khao Yai N. P., 780 m, 11-18. IV. 1990, B. V. Brown leg.; 3 females, same locality, 18-24. IV. 1990, B. V. Brown leg.; 1 female, same locality, 10-16. IV. 1990, B. V. Brown leg.; 1 female, same locality, 16-20. IV. 1990, B. V. Brown leg.

**Type depository.** All the types are deposited in PMA.

***Epyris sarawakensis* sp nov.** (Fig. 86)

**Female (holotype).** HL 1.85 mm; HW 1.65 mm; WF 1.05 mm; LM 3.25 mm; LPD 1.10 mm; WPD 1.20 mm; FWL 5.0 mm; TL 8.4 mm.

Body black; mandible reddish brown; antenna blackish brown; coxae and femora blackish brown; tibiae and tarsi reddish brown; forewing subhyaline, tinged with a yellow; wing veins and pterostigma yellowish brown.

Head rectangular, 1.12 times as long as wide, with straight posterior margin in full face view; posterolateral corner forming a dull angle; frons and vertex sparsely punctate, with shagreened interspaces; punctures ca. 0.03-0.04 mm in diameters. Mandible with 5 longitudinal rugae; masticately margin with 4 acute teeth; subapical tooth of lower margin forming an obtuse triangle. Median clypeal lobe small, with a dully angulate tip. Antenna short, not reaching posterior margin of head; first 5 segments in a ratio of 10 : 2.5 : 2 : 3 : 3 in length; pedicel 1.3 times as long as wide, 3rd segment 0.7 times as long as wide, 4th 0.8 times as long as wide; 3rd to 12th segments each wider than long; anterodorsal margin of 4th to 9th segments each forming an acute angle; terminal segment slightly longer than wide. Eye 0.90 mm in length, without hairs; WF 1.2 times EL. Ocelli forming an acute triangle and positioned at well separated from posterior margin of head; POL : AOL = 6 : 7 ; OOL 2.0 times WOT.

Pronotum relatively long; disc 1.2 times as long as wide, sparsely punctate, with shagreened interspaces. Mesoscutum shagreened. Scutellum shagreened and scattered with punctures; scutellar pit oval, separated by 1.5 times their own diameter. Propodeum 0.92 times as long as wide, with parallel sides and straight posterior margin in dorsal view; 5 straight discal carinae present; median and outer carinae reaching transverse carina; inner pairs of carinae almost reaching transverse carina; lateral area smooth and shining.

Post marginal vein of forewing very short.

Metasoma long, smooth and shining, and 2.00 mm in maximum dorsal width; 2nd tergite 0.68 times as long as wide, 3rd tergite 0.65 times as long as wide in dorsal view.

**Holotype.** Female, lambir, Miri, Sarawak, E. Malaysia, 10. XII. 1993, Sk. Yamane leg.

**Paratypes.** LIPI.

***Epyris sabahensis* sp. nov.** (Figs. 87, 88)

**Female (holotype).** HL 1.03 mm; HW 1.03 mm; WF 0.80 mm; LM 1.88 mm; LPD 0.63 mm; WPD 0.85 mm; FWL 3.8 mm; TL 5.1 mm.

Body black; mandible, antenna and legs brown; wings subhyaline, tinged with a pale yellowish brown; veins and pterostigma yellowish brown.

Head as long as wide, with straight posterior margin in full face view; posterolateral margin forming an angle; frons and vertex largely smooth, and scattered with shallow small punctures. Mandible with 6 teeth; apical tooth most produced and basal 3 teeth small. Median projection of clypeus small, forming broad U-shaped. First 5 segments of antenna in a ratio of 19 : 5 : 4 : 6 : 6 in length; scape 2.4 times as long as wide; 2nd segment slightly longer than wide; 3rd 1.4 times as long as wide; 4th segment as long as wide. Eye 0.43 mm in length, hairless; WF 1.9 times EL. Ocelli forming a right triangle; OOL 2.9 times WOT.

Pronotum moderately punctate, and with microreticulate interspaces. Mesonotum moderately punctate, and with microreticulate interspaces; scutellar pits round, ca. 0.10 mm in diameter, and separated by 1.6 times their own diameter. Propodeal disc 0.73 times as long as wide, with 5 discal carinae; interspaces between carinae with transverse rugae; sublateral area with transverse striae.

Metasoma smooth and shining.

**Holotype.** Female, Crocker Rge. 1000 m alt., Sabah, Borneo, 5. IX. 1988, A. Smetana leg.

**Type depository.** PMA.

**1-4. *Dodecatomus* species-group**

Deagnosis of this species-group is as follows.

Male: 1) 2nd and 3rd antennal segments each short, especially 3rd segment reduced to a narrow ring-joint; 2) 4th to terminal segments of antenna simple and cylindrical; 3) eye without hairs; 4) scutellar pits more or less round, well separated; 5) paramere of genitalia extremely long and slender; 6) cuspis long and slender, biramose.

This species-group resembles to the *stapylinoides* species-group, but it is separated

from the latter by the unpectinate antenna (character 2) in male, and the absence of subapical tooth on lower margin of mandible and the absence of 2-3 rows of short spines on middle tibia in female.

***Epyris shiva* sp. nov.** (Figs. 7, 8)

**Male (holotype).** HL 1.50 mm; HW 1.40 mm; WF 0.78 mm; LM 2.80 mm; LPD 0.90 mm; WPD 1.35 mm; FWL 4.1 mm; TL 6.8 mm.

Body black; mandible and antenna reddish brown; legs reddish brown excepting brownish fore tibiae.

Head round, slightly longer than wide, with weakly convex posterior margin in full face view; frons and vertex with small punctures moderately and smooth and shining interspaces. Mandible with an apical tooth only. Median lobe of clypeus relatively broad, forming an obtuse angle. First 5 segments of antenna in a ratio of about 13 : 3 : 1.5 : 11 : 10 in length; scape short, 1.8 times as long as wide; 2nd segment 0.6 times as long as wide; 3rd segment forming a small ring-joint; 4th segment 1.8 times as long as wide. Eye 0.70 mm in length; WF 1.1 times EL. Ocelli forming an obtuse triangle; POL : AOL = 7 : 3; OOL 1.43 times WOT.

Pronotal disc with small punctures moderately; interspaces smooth and shining. Punctures of mesoscutum coarser than that on pronotum; scutellum smooth and impunctate in most part. Propodeal disc 0.67 times as long as wide, with straight posterior margin; 5 discal carinae present; surface between the carinae striate.

Second metasomal tergum smooth and shining, with shallow small punctures sparsely; 3rd to 6th segments moderately punctate, with weakly microreticulate interspaces.

**Holotype.** Male, Nakhon Ratchasima, Khao Yai National Park, 700-800 m, Thailand, 18-24. IV. 1990, E. Fuller leg.

**Paratypes.** 11 males, same data as holotype; 2 males, same locality, 11-18. IV. 1990, E. Fuller leg.; 3 males, same locality, 12-18. IV. 1990, E. Fuller leg.; 1 male, Chiang Mai, Doi Inthanon National Park 1300 m, 7-12. V. 1990, E. Fuller leg.; 7 males, 70 km S. W. Chiang Mai, Doi Inthanon N. P., Vachiratharn Falls, 800 m, Thailand, 28. IV.-7. V. 1990, B. V. Brown leg.; 1 male, same locality, 7-11. V. 1990, B. V. Brown leg.; 2 males, 180 km N. E. Bangkok, Khao Yai N. P., 780 m, Thailand, 11-16. IV. 1990, B. V. Brown leg.; 1 male, same locality, 10-16. IV. 1990, B. V. Brown leg.; 1 male, same locality, 16-20. IV. 1990, B. V. Brown leg.; 2 males, same locality, 16-24. IV. 1990, B. V. Brown leg.

**Type depository.** All the types are deposited in PMA.

***Epyris leyteanus* sp. nov.** (Figs. 9-13)

**Male (holotype).** HL 1.10 mm; HW 1.00 mm; WF 0.58 mm; LM 1.90 mm; LPD 0.73 mm; WPD 0.75 mm; FWL 3.3 mm; TL 5.4 mm.

Body black; mandible dark brown; antennal scape dark brown; funicular segments brown; coxae and femora blackish brown; trochanters and tibiae dark brown to brown; tarsi yellow.

Head round, slightly longer than wide; frons and vertex smooth and shining with scattered shallow punctures sparsely. Mandible with an apical tooth alone. Median lobe of clypeus forming a right angle. Antenna as in Fig. 12; first 5 segments in a ratio of 10 : 3 : 1 : 13 : 10 in length. Eye 0.53 mm in length; WF 1.09 times EL. Front angle of ocellar triangle obtuse; POL : AOL = 3 : 2; OOL 1.45 times WOT.

Dorsa of pronotum and mesonotum weakly microreticulate; scutellar pits circular which are ca. 0.08 mm in diameter, separated by 1.0 times their own diameter.

Propodeal disc almost as long as wide, with 3 discal carinae; surface between carinae striate; sublateral area with transverse rugae; posterolateral corner forming a blunt short teeth.

First and 2nd metasomal tergite smooth and shining; 3rd to 6th segments very weakly microreticulate.

**Holotype.** Male, Leyte, Baybay, Phillippines, 6. II. 1983, C. K. Starr and M. Tumilap leg.

**Paratype.** 1 male, same data as holotype.

**Type depository.** PMA.

***Epyris karnatakensis* sp. nov.**

**Female (holotype).** HL 1.10 mm; HW 1.04 mm; WF 0.58 mm; LP 2.00 mm; LPD 0.60 mm; WPD 0.80 mm; FWL 3.6 mm; TL 5.5 mm.

Body black; mandible, antenna, and fore and middle legs yellowish brown; hind coxa, trochanter, femor medium to dark brown; hind tibia and tarsus yellowish brown.

Head as long as wide, with weakly convex posterior margin in full face view; anterior 1/4 of head weakly microreticulate; posterior 3/4 largely smooth with scattered shallow small punctures. Mandible slender, with an acute apical tooth only. Median lobe of clypeus rather broad, forming an obtuse angle. First 5 segments of antenna in a ratio of about 10 : 3 : 1 : 10 : 10 in length; scape short, as long as 4th segment; 2nd segment 0.6 times as long as wide; 3rd segment forming a small ring-joint. Eye 0.50 mm in length; WF 1.16 times EL. Front angle of ocellar triangle about a right angle; OOL 1.6 times WOT.

Pronotal disc flat, 0.66 times as long as wide, smooth and subopaque. Mesonotum



smooth with small shallow punctures sparsely; scutellar pits round, separated by twice their own diameter. Propodeal disc wider than long, 0.75 times as long as wide, with 5 discal carinae; surface between carinae weakly striate; sublateral area with weak transverse rugulae.

First and 2nd metasomal terga smooth and shining; 3rd to 5th with shallow punctures moderately, and with microreticulate interspaces.

**Holotype.** Female, Karnataka, 12 km sw. Yellapur, India, 7. VII-14. VIII. 1984, B. Gill leg.

**Type depository.** PMA.

#### 1-5. *Nantohensis* species-group

This species-group is separated from the other Asian congeners by the remarkably long body shape, and the convex posterior margin of metasomal sternites 4-6.

#### *Epyris nantohensis* sp. nov. (Figs. 89-93)

**Female (holotype).** HL 1.10 mm; HW 0.88 mm; WF 0.63 mm; LM 2.40 mm; LPD 0.73 mm; WPD 0.78 mm; FWL 3.8 mm; TL 7.5 mm.

Body black; mandible reddish brown; anterior 2/3 of antennal scape dark brown, and the rest reddish brown; funicular segments yellowish brown, somewhat reddish; coxae, trochanters dark brown; fore and middle femora dark brown except posterior portion reddish brown; hind femor dark brown except for reddish to yellowish brown tip and base; tibiae reddish brown; tarsi yellow.

Head rectangular, with straight posterior margin and subparallel sides in full face view; frons, vertex and occiput with coarse longitudinal punctures densely; anterior 1/3 of interspaces microreticulate and posterior 2/3 smooth. Mandible with an acute apical tooth only. Median lobe of clypeus narrowly rounded. Antenna short, not reaching the posteriormost of pronotum; scape 2.4 times as long as wide; 2nd segment slightly longer than wide; 3rd 0.75 times as long as wide; 4th as long as wide; first 5 segments in a ratio of 7 : 4.5 : 3 : 5 : 5 in length. Eye flat, 0.38 mm in length, with long erect hairs which are ca. 0.06-0.08 mm in length; WF 1.7 times EL. Ocelli small, forming an acute triangle; OOL 2.1 times WOT.

Pronotal disc 0.90 times as long as wide, with dense longitudinal punctures; interspaces microreticulate. Mesonotum microreticulate and impunctate; notauli thin, but complete; scutellar pits oblique, connected anteriorly by a narrow impressed line. Propodeal disc slightly longer than wide, broadest at posterior most, with straight posterior margin and subparallel lateral margins; median carina straight, reaching the transverse carina; median area reticulate; lateral area microreticulate, with transverse rugulae.

Legs short and stout. First tarsal segment of fore leg with 3 stout spines at anterior to mid portion of outside, and 4 spines at apices (Fig. 91); 2nd and 3rd segments with 3 and 2 apical spines, respectively. Middle tibia spinose as in Fig. 92.

Metasoma smooth; posterior 2/3 of 2nd metasomal tergite and 1/3 of 3rd tergite with shallow small punctures sparsely; 4th to 6th terga with small shallow punctures moderately; in dorsal view, 2nd metasomal tergite 1.4 times as wide as long; 3rd 1.5 times as wide as long; maximum width of 3rd tergite 1.14 times maximum width of 2nd tergite; posterior margin of 4th to 6th sternites convex as in Fig. 93.

**Holotype.** Female, Shanlinshi, Nantou Hsien, Taiwan, 16. V. 1990, L. Le Sage leg.

**Type depository.** PMA.

**Remarks.** The specimen was collected by sweeping at primary forest.

#### 1-6. Taiwanese and Korean species

The following species are needed for the more detailed comparative studies for define the species-groups in the future.

#### *Epyris atayal* sp. nov. (Figs. 94-96)

**Male (holotype).** HL 0.78 mm; HW 0.83 mm; WF 0.55 mm; LM 1.38 mm; LPD 0.38 mm; WPD 0.55 mm; FWL 2.4 mm; TL 3.2 mm.

Body black; antennal scape dark brown, pedicel and funicles brown; mandible and legs brown.

Head wider than long, with straight posterior margin in full face view; frons and vertex with small shallow punctures densely; interspaces weakly microreticulate. Mandible with a single tooth. Clypeus with an acute triangular median projection and slightly convex lateral margins. First 5 segments of antenna in a ratio of 6 : 5 : 6 : 8 : 8.5 in length; scape 1.3 times as long as wide; 2nd segment 1.3 times as long as wide; 3rd 1.5 times as long as wide; 4th segment 1.6 times as long as wide. Eye 0.38 mm in length, without hairs; WF 1.47 times EL. Ocelli forming an obtuse triangle; POL : AOL = 10 : 7; OOL 1.1 times WOT.

Propotum with small punctures densely, and weakly microreticulate interspaces; disc trapezoidal, 0.46 times as long as maximum width. Mesonotum densely punctate, and with weakly microreticulate interspaces; scutellar pits oval, ca. 0.08 mm in maximum diameter, separated by twice their own diameter. Peropodeum wide, 0.68 times as long as wide, with a median and a pair of submedian carinae; median area reticulate; submedian area microreticulate.

Metasoma smooth and shining.

Post marginal vein of forewing 0.8 times of the length of pterostigma.

**Holotype.** Male, Wushe, 1150 m alt., Nantou Hsien, Taiwan, 23. III. 1983, H. Townes & M. Townes leg.

**Type depository.** PMA.

***Epyris meifengensis* sp. nov.** (Figs. 97, 98)

**Female (holotype).** HL 0.85 mm; HW 0.78 mm; WF 0.51 mm; LM 1.63 mm; LPD 0.33 mm; WPD 0.40 mm; FWL 2.8 mm; TL 3.5 mm.

Body black; mandible reddish brown; antenna reddish brown, apical 5 segments darker; coxae and femora dark brown; trochanters, tibiae, and tarsi reddish brown.

Head 1.09 times as long as wide, with slightly convex posterior margin in full face view; frons and vertex shining, very weakly shagreened. Mandible with 3 teeth. Median projection of clypeus forming an obtuse triangle. First 5 segments of antenna of 12 : 5 : 4 : 5 : 5 in length. Eye with erect hairs, 0.40 mm in length; WF 1.27 times EL. Ocelli forming an obtuse triangle; POL : AOL = 4 : 3; OOL 1.8 times WOT.

Pro- and mesonota weakly shagreened; scutellar pits relatively large and circular, separated by 1.5 times their own diameter. Pronotum short, 0.83 times as long as wide, with median carina; basal triangular area tericulate; sublateral area shagreened.

Post marginal vein of forewing very short.

**Holotype.** Female, Meifeng-Subgkang, Nantou Hsien, Taiwan, 4. V. 1978, A. Shinohara leg.

**Type depository.** NSMT.

***Epyris lienfuaensis* sp. nov.** (Figs. 99-101)

**Female (holotype).** HL 1.05 mm; HW 0.88 mm; WF 0.63 mm; LM 1.88 mm; LPD 0.60 mm; WPD 0.60 mm; FWL 3.3 mm; TL 5.0 mm.

Body black; mandible, antenna, and legs brown; wings hyaline; wing veins and pterostigma yellowish brown.

Head longer than wide, 1.19 times as long as wide, with weakly convex posterior margin in full face view; posterolateral corner forming an angle; frons and vertex punctate and smooth interspaces; punctures separated by 1-2 times their own diameter. Mandible with 4 teeth. Anterior margin of clypeus broad U-shaped, without median angle. First 5 segments of antenna in a ratio of 16 : 5 : 5.5 : 5 : 5 in length. Eye hairless, 0.38 mm in length; WF 1.7 times EL. Ocelli forming an acute triangle; POL : AOL = 3 : 4; OOL 2.8 times WOT.

Pronotal disc punctate as in head, and with smooth interspaces. Mesoscutum impunctate

and shagreened. Scutellum shagreened and with about 10 punctures; scutellar pits rectangular, each separated by 1.0 times their own length. Propodeal disc as long as wide, with parallel sides and straight posterior margin; 5 discal carinae present; median carina and outer lateral carinae reaching transverse carina; inner lateral carinae even irregular; median area reticulate; sublateral area with transverse striae.

Post marginal vein of forewing very short.

**Holotype.** Female, Lienfuachi, Taiwan, 25. III. 1979, A. Shinohara leg.

**Type depository.** NSMT.

***Epyris miaoliensis* sp. nov.** (Figs. 102-104)

**Female (holotype).** HL 0.95 mm; HW 0.93 mm; WF 0.58 mm; LM 1.75 mm; LPD 0.50 mm; WPD 0.75 mm; FWL 2.9 mm; TL 4.6 mm.

Body black; mandible brown; antennal scape blackish brown, pedicel brown, funiculus dark brown; coxae and femora blackish brown, tibiae and tarsi brown; wings hyaline, wing veins and pterostigma brown.

Head as long as wide, with straight posterior margin in full face view; frons and vertex densely punctate, and with shagreened interspaces. Mandible slender, with a single acute tooth. Median clypeal lobe triangular, with an acute tip. First 5 segments of antenna in a ratio of 9 : 6 : 7 : 8 : 7 in length. Eye with erect hairs, 0.40 mm in length; WF 1.45 times EL. Ocelli relatively large, DAO 0.08 mm; front angle of ocellar triangle right angled; OOL 1.8 times WOT.

Pronotum short, disc 0.33 times as long as wide; maximum width 1.13 mm; surface densely punctuated and with shagreened interspaces. Mesoscutum punctate; interspaces shagreened. Scutellum shagreened; scutellar pits round, about 0.06 mm in diameter, and each separated by 2.2 times their own diameter. Propodeal disc wider than long, 0.67 times as long as wide; median carina reaching transverse carina; basal triangular area with 3-4 pairs of irregular longitudinal rugae; sublateral area with transverse striae.

Post marginal vein of forewing as long as length of pterostigma.

**Holotype.** Female, Miaoli Hsien, 1300m alt., 10. VII. 1995, C.-C. Lin leg.

**Type depository.** TARI.

***Epyris nanshanchiensis* sp. nov.** (Figs. 105-108)

**Male (holotype).** HL 0.90 mm; HW 0.85 mm; WF 0.53 mm; LM 1.45 mm; LPD 0.45 mm; WPD 0.63 mm; FWL 2.8 mm; TL 3.5 mm.

Body black; mandible and antenna blackish brown; caxae and femora blackish brown, tibiae and tarsi brown; wings hyaline.

Head 1.06 times as long as wide, with straight posterior margin in full face view; frons and vertex densely punctate and with shagreened interspaces. Median clypeal projection triangular. First 5 segments of antenna in a ratio of 7 : 7 : 6 : 9 : 9 in length. Eye 0.43 mm in length, with short erect hairs; WF 1.2 times EL. Ocelli forming an obtuse triangle; POL : AOL = 9 : 7; OOL 1.6 times WOT.

Pronotum short, disc 0.5 times as long as wide and 0.75 mm in maximum width; surface densely punctate and with shagreened interspaces. Mesonotum punctate and with shagreened interspaces; scutellar pits tear-drop shaped, separated by 1.5 times their own maximum length. Propodeum wider than long, with a median carina; median basal area half-circular; sublateral area transversely striate.

Post marginal vein of forewing slightly shorter than pterostigma.

**Holotype.** Male, Nanshanchi, nr Puli, Nantou Hsien, 15. III. 1979, A. Shinohara leg.

**Type depository.** NSMT.

***Epyris liukueiensis* sp. nov.** (Figs. 109, 110)

**Male (holotype).** HL 0.65 mm; HW 0.63 mm; WF 0.38 mm; LM 1.20 mm; LPD 0.35 mm; WPD 0.38 mm; FWL 1.9 mm; TL 2.6 mm.

Body black; mandible and antenna brown; legs brown; wings hyaline.

Head as long as wide, with almost straight posterior margin in full face view; posterolateral corner rounded, not forming an angle; frons and vertex shagreened and with small shallow punctures sparsely. Anterior margin of clypeus with rounded median lobe, and weakly convex lateral margins. First 3 segments of antenna in a ratio of 5 : 4 : 5 in length (4th to terminal segments lacking in both antennal segments). Eye 0.30 mm in length, with short erect hairs; WF 1.27 times EL. Ocelli forming an obtuse triangle; POL : AOL = 7 : 5.5; OOL 1.4 times WOT.

Pronotal disc 0.55 times as long as wide, and 0.50 mm in maximum width; surface as in head. Mesoscutum shagreened. Scutellum shagreened; scutellar pits tear-drop shaped, separated by 1.1 times their own maximum length. Propodeal disc as long as wide, with parallel sides; median carina present and reaching transverse carina; basal triangular area with 3 or 4 pairs of irregular longitudinal rugae; sublateral area transversely striate.

Post marginal vein of fore wing as long as pterostigma.

**Holotype.** Male, Liukuei, Taiwan, 29. IV. 1971, N. Fukuhara leg.

**Type depository.** NSMT.

***Epyris hangunensis* sp. nov.** (Figs. 111, 112)

**Male (holotype).** HL 0.93 mm; HW 0.93 mm; WF 0.55 mm; LM 1.80 mm; LPD 0.50 mm; WPD 0.70 mm; FWL 3.3 mm; TL 4.8 mm.

Body black; mandible reddish brown; antennal scape blackish brown, funiculus dark brown; legs dark brown; wings subhyaline, tinged with a yellowish brown; wing veins and pterostigma brown.

Head as long as wide, with straight posterior margin in full face view; posterolateral corner forming an angle; frons and vertex punctate and with very weakly shagreened interspaces; punctures on frons separated by 1.0-1.5 times their own diameter; punctures on vertex sparser than those on frons. Mandible slender, with an apical tooth only. Median clypeal lobe forming an obtuse triangle. First 5 segments of antenna in a ratio of 10 : 5 : 5.5 : 9 : 9 in length; pedicel slightly longer than wide; 3rd segment 1.2 times as long as wide; 4th segment 1.8 times as long as wide. Eye without hairs, 0.38 mm in length; WF 1.48 times EL. Ocelli forming an obtuse triangle; POL : AOL = 10 : 9; OOL 1.6 times WOT.

Pronotum punctate and with very weakly shagreened interspaces; punctures separated by 1-2 times their own diameter; disc 0.88 times as long as wide in dorsal view. Mesoscutum weakly shagreened; scutellum weakly shagreened and with scattered shallow weak punctures; scutellar pits oval, ca. 0.08 mm in diameter, and separated by 1.5 times by their own diameter. Propodeal disc wide, 0.71 times as long as wide, with parallel sides and straight posterior margin in dorsal view; 3 discal carinae present; median carina reaching transverse carina; a pair of submedian carinae straight and parallel, present at anterior 2/3 of disc; midline area irregularly striate; lateral carina with numerous transverse striae.

Post marginal vein of forewing short, 1/4 of the length of pterostigma.

Metasoma smooth and shining.

**Variation.** Head length and width vary from 0.70 to 0.10 mm and 0.68 to 1.12 mm, respectively,

**Holotype.** Male, Suigen, Korea, 16. IX. 1925, K. Sato leg.

**Paratypes.** 1 male, same data as holotype; 1 male, Mt. Sudosan, 1000 m alt., Kyongsangbuk-do, Korea, 13-14. VII. 1971, K. Yamagishi leg.

**Type depository.** Types are deposited in NSMT.

## 2. Genus *Calyozina* Enderlein

This genus contains small wasps with the following combination of characteristics.

Male: 1) antenna with 13 segments; 3rd to 12th segments each pectinated or broadest at posterior end; 2) eye with hairs; 3) circular carina present around eye; 4) palpal formula = 6, 3; 5) pronotal disc wider than long, flat and rectangular; anterior and lateral margins concave and marginate; anterolateral corner forming an acute angle; 6) pronotal disc with large coarse punctures; 7) notauli large; 8) scutellar pits large and circular, slightly to well separated; 9) propodeum with several discal carinae; 10) paramere of genitalia forming a broad lobe; 11) cuspis of genitalia forming a lobe.

Female is not known.

The characters 3), 5), and 6) are autoapomorphic in this genus. Although Evans (1964, 1965, 1978) and Krombein (1990, 1992) reported several *calyozina* species from the Nearctic and the Ethiopian regions, respectively, morphological examinations suggested that these species should be included in the genus *Epyris* (See Figs. 113-127 and 127-146). The following species are transferred from *Calyozina* to *Epyris* hereafter.

*Epyris amazonicus* (Evans, 1964) **comb. nov.** (Figs. 113-116); *Epyris neotropicus* (Evans, 1964) **comb. nov.** (Figs. 117-121); *Epyris mexicanus* (Evans, 1965) **comb. nov.**; *Epyris azureus* (Evans, 1978) **comb. nov.** (Figs. 122-127); *Epyris caperatus* (Krombein, 1990) **comb. nov.**

Turner (1915) incorrectly synonymized *Calyozina* under *Paracalyzoa* Cameron, 1909.

### Key to the species of *Calyozina*

1. Antennal 3-9 segments not ramose, only broadest at posterior end in each segment (Fig. 131) ..... *C. nepalensis* sp. nov.
- Antennal 3-9 segments each ramose (Figs. 119 and 146) ..... 2
2. Propodeal disc with strong sublateral carinae; frons and vertex with relatively small punctures ..... *C. thaiana* sp. nov.
- Propodeal disc with weak sublateral carinae; punctures on frons and vertex larger and coarser ..... *C. ramicornis* Enderlein

### *Calyozina ramicornis* Enderlein, 1912 (Figs. 116-126)

*Calyozina ramicornis* Enderlein, 1912. *Calyozina ramicornis*: Krombein, 1992.

**Redescription of type.** Female. HL 1.10 mm; HW 1.10 mm; WF 0.70 mm; LPD 0.38 mm; WPD 0.43 mm; FWL 3.4 mm; TL 5.0 mm.

Body black; mandible blackish brown excepting reddish brown tip; antenna brown; legs

dark brown; wings hyaline; veins yellowish brown.

Head as long as wide, with convex posterior margin and dully angulate posterolateral corners in full face view; occipital collar well developed; frons and vertex densely punctate which are ca. 0.05-0.06 mm in diameter. Mandible slender with 4 teeth; apical tooth large and basal 3 small and blunt. Median lobe of clypeus triangular, with a rounded tip. First 5 segments of antenna in a ratio of 12 : 5 : 5 : 6 : 8 in length; scape relatively short, 1.7 times as long as wide; pedicel short and moniform, with a cornicle at benter; flagellar segments pectinate; length of blade of 3rd segment 2.4 times length of its shaft; 6th segment 1.7 times length of its shaft. Eye 0.53 mm in length, with short hairs; WF 1.54 times EL. Ocelli large, forming an obtuse triangle; OOL 1.2 times WOT.

Pronotal disc 0.44 times as long as wide, with concave anterior margin and lateral margins in dorsal view; anterolateral corner prominently angulate; surface strongly punctate; diameter of punctures vary from 0.03 to 0.13 mm; in lateral view, anterodorsal corner forming a right angle. Mesoscutum microreticulate with shallow punctures. Notauli strong and large, slightly diverging toward the front. Scutellum micreticulate; scutellar pit large and circular which are 0.13 mm in diameter. Propodeal disc slightly wider than long, with a median carina; basal triangular area reticulate; sublateral carina present, but weak.

Metasoma smooth and shining; 0.90 mm in maximum dorsal width. Anterior half of middle tibia with several spines.

**Specimen examined.** Male, Taihorin, Formosa, H. Sauter [holotype, ZMB.]

**Remarks.** The holotype is also figured by Krombein (1992).

***Calyozina nepalensis* sp. nov.** (Figs. 139-144)

**Male (holotype).** HL 0.90 mm; HW 0.88 mm; WF 0.60 mm; LM 1.60 mm; LPD 0.53 mm; WPD 0.60 mm; FWL 1.53 mm; TL 3.5 mm.

Body black; mandible and legs blackish brown; antenna blackish brown excepting brownish 2nd segment and basal portion of 3rd segment; wings hyaline; wing veins brown.

Head almost as long as wide, with convex posterior margin in full face view; frons and vertex with shallow punctures and with microreticulate interspaces; punctures separated by about 0.5-1.0 times their own diameter. Mandible with 4 teeth; apical tooth large; basal 3 small and blunt. Median lobe of clypeus triangular, with a rounded tip. Antenna not pectinated, but 4th to 12th segments each broadest at posterior end and weakly produced posteriorly; first 5 segments in a ratio of about 12 : 7 : 7 : 7 : 8 in length; scape short, twice as long as wide; 2nd and 3rd segments each 1.7 times as long as wide. Eye 0.38 mm in length, with short



erect hairs; WF 1.58 times EL. Ocelli forming an obtuse triangle; OOL 0.9 times WOT.

Pronotal disc 0.48 times as long as wide, with concave anterior margin and lateral margins in dorsal view, and deeply punctate as in Fig. 127. Mesonotum microreticulate; notauli large and linear, and each groove tapering to the posterior end; scutellar pits oblique and elliptical, separated by 0.5 times their own maximum diameter. Propodeum 0.88 times as long as wide; median carina reaching transverse carina; basal triangle reticulate; sublateral area with transverse rugae, somewhat reticulate.

Metasoma smooth and shining; 0.68 mm in maximum dorsal width. Genitalia as in Figs. 130 and 131.

Middle legs without distinct spine.

**Holotype.** Male, Ktmd, Pulchauki, 6600 ft., 2. VII. 1967, Can. Exp.

**Type depository.** CNC.

***Calyozina thaiana* sp. nov.** (Figs. 145, 146)

**Male (holotype).** HL 1.25 mm; HW 1.3 mm; WF 0.80 mm; LM 2.50 mm; LPD 0.80 mm; WPD 1.01 mm; FWL 3.7 mm; TL 5.8 mm.

Body black; mandible blackish brown; antenna brown with a reddish tinge; coxae, trochanters and femora blackish brown; fore and middle tibiae brown, somewhat reddish; hind tibia blackish brown to brown; tarsi yellowish brown; wings hyaline; wing veins yellow and pterostigma brown.

Head slightly wider than long, with convex posterior margin in full face view; frons and vertex densely punctate, with microreticulate interspaces; punctures ca. 0.04-0.05 mm in diameter. Mandible with 4 teeth; apical tooth acute and large; basal 3 teeth blunt and small. Median lobe of clypeus triangular. Antenna pectinate; first 5 segments in a ratio of 13 : 7 : 6 : 9 : 9 in length; scape short and broad, 1.86 times as long as wide; 2nd segment 1.4 times as long as wide, with a cornicle at center; blade of 3rd segment 2.5 times length of its shaft; 5th segment 2.6 times of its shaft, and 9th segment 2.1 times of its shaft. Eye 0.60 mm in length, with short erect hairs sparsely; WF 1.33 times EL. Front angle of ocellar triangle more than a right angle; OOL 0.86 times WOT. Maxillary palpi with 6 segments, labial with 3 segments.

Propodeal disc 0.44 times as long as wide, strongly punctate as in Fig. 145. Mesonotum strongly microreticulate with scattered shallow small punctures. Notauli large and linear; scutellar pits elliptical, separated by 1.0 times their own maximum diameter. Propodeal disc 0.79 times as long as wide, with 3 discal carinae which are reaching transverse carina;

sublateral carinae present; median area reticulate; sublateral and lateral areas with rather strong transverse rugae.

Metasoma smooth and shining, 1.03 mm in maximum dorsal width.

Middle tibia without distinct spine.

**Variation.** A single paratype male with the following measurements: HL 1.10 mm; HW 1.05 mm; WF 0.63 mm; LM 2.95 mm; LPD 0.55 mm; WPD 0.78 mm; FWL 3.1 mm; TL 5.0 mm. Middle and hind tibiae blackish brown, while fore tibia brown and somewhat reddish.

**Holotype.** Male, Nakhon Ratchasima, Khao Yai National Park, 700-800 m alt., 18-24. IV. 1990, E. Fuller leg.

**Paratype.** 1 male, Bangkok, 180 km N. E., Khao Yai, N. P., 780 m, 10-16. IV. 1990, B. V. Brown leg.

**Type depository.** The types are deposited in the PMA.

### 3. Genus *Isobrachium* Foerster

This genus is known in 7 species excluding the fossil, and distributed in the Oriental (2 spp.), Palaearctic (4 spp.), and Ethiopian (1 sp.) regions. It is separated from the genus *Epyris* by the absence of notauli (not parapsidal furrows). It is suggested that this genus phylogenetically most relating to the genus *Holepyris* by the lacking of notauli and the subcosta which is arising well based of pterostigma.

I have examined the holotype of *Isobrachium luzonicum* Kieffer, 1922, in MNHN. It bears four labels "Mt. Makiling, Luzon, Baker", "HOLOTYPE", "Isobrachium luzonicum", and "MUSEUM PARIS 1957 Coll. Kieffer." Although the specimen is covered with mold, both of notauli and parapsidal furrows are recognized on the dorsum of mesoscutum. Therefore, I transferred *I. luzonicum* from the genus *Isobrachium* to *Epyris*.

#### *Epyris luzonicus* (Kieffer, 1922) comb. nov.

*Isobrachium luzonicum* Kieffer, 1922.

#### *Isobrachium kongohyasha* sp. nov. (Figs. 147-151)

**Male (holotype).** HL 0.55 mm; HW 0.55 mm; WF 0.35 mm; LM 0.88 mm; DPL 0.25 mm; DPW 0.29 mm; FWL ca. 1.7 mm; TL 2.5 mm.

Head and mesosoma black; metasoma blackish brown; mandible and antenna dark brown; legs dark brown; wings hyaline.

Head as long as wide with convex posterior margin in full face view; frons and vertex

moderately punctate and strongly microreticulate interspaces. Mandible with acute 4 teeth. Median projection of clypeus broad U-shaped. First 5 segments of antenna in a ratio of 6 : 3 : 5 : 6 : 6 in length; 2nd segment 1.5 times as long as wide; 3rd twice as long as wide; 4th 2.5 times as long as wide. Eye 0.23 mm in length, moderately convex, and hairless; WF 1.5 times EL. Ocelli forming a right triangle; OOL 2.4 times WOT; median ocelli 0.04 mm in diameter.

Pronotum strongly microreticulate; disc triangular in dorsal view, with a dully angulate anterior margin. Mesonotum strongly microreticulate, thin parapsidal furrows present, but notauli lacking. scutellar pits oval, 0.05 mm in diameter, connected with a shallow groove, and separated by 1.5 times their own maximum diameter. Propodeum slightly wider than long, with parallel sides and concave posterior margin in dorsal view; disc with 5 discal carinae and a pair of sublateral carinae; lateral and transverse carinae present, and all the discal carinae reaching transverse carina.

Metasoma smooth and shining.

Subcosta arising well based of pterostigma; pterostigma thin, 0.11 mm long; post marginal vein absent; radial vein long.

**Holotype.** Male, Khao Yai Nat. Park, Pak Chong, Thailand, 10-17. II. 1989, T. W. Thormin leg.

**Type depository.** CNC.

#### 4. Genus *Trachyepyrus* Kieffer

##### *Trachyepyrus indicus* (Muesebeck, 1934) (Figs. 152-158)

*Pristobethylus indicus* Muesebeck, 1934. *Trachyepyrus indicus*: Krombein, 1987.

The following specimens were examined. This is the first record of this genus and species from Indonesia.

**Specimens examined.** 1 female, Sialang-Buah Beach, North Sumatra, Indonesia, 25. VII. 1990, T. Nambu leg.; 1 female, same data, A. Shimizu leg.

**Distribution.** India, Sri Lanka, Indonesia (new record).

**Remarks.** Two females were taken on sand at a sea shore.

5. Genus *Holepyris* Kieffer***Holepyris sylvanidis* (Brethes, 1913) (Fig. 160)**

*Parepyris sylvanidis* Brethes, 1913. *Rhabdepyris zae* Turner & Waterston, 1921, [Synonymy by Evans, 1964].

*Holepyris sylvanidis*: Evans, 1964.

**Specimens examined.** [Northern Thailand] 4 males, 19 45N 99 44E, Sop Huai, 22. V. 2001, K. Konoshi leg.; 1 male, 18 50N 98 46E, Samoeng, 17. V. 2001, K. Konoshi leg.; 2 females, 18 12N 100 12E, Phrae, 8. XI. 2002, K. Konoshi leg.; 1 male, 17 24N 99 48E, Sukhothai, 9. XI. 2002, K. Konoshi leg. [Northeastern Thailand] 1 female, 4 males, Kamalasai, Kalasin, 15. III. 2001, Y. Hanboonsong leg.; 1 female, Kamalasai, Kalasin, 27. ix. 2001, Y. Hanboonsong leg.; 8 males, Tatoon, Surin, 12. III. 2001, Y. Hanboonsong leg.; 3 males, Muang, Loei, 14. III. 2001, Y. Hanboonsong leg.; 1 male, Muang, Loei, 15. VIII. 2001, Y. Hanboonsong leg.; 1 male, Wangsapung, Loei, 15. VIII. 2001, Y. Hanboonsong leg.; 5 males, Wangsapung, Loei, 15. VIII. 2001, Y. Hanboonsong leg.; 1 male, 16 33N 102 06E, Chum Phae, Khon Kaen, 11. V. 2001, K. Konishi leg.; 1 male, Chum Phae, Khon Kaen, 28. IX. 2001, Y. Hanboonsong leg.; 2 males, Khon Kaen, VI. 2001, P. Visarathanonth leg.; 2 males, 16 03N 102 45E, Khon Kaen, 25. X. 2002, K. Konoshi leg.; 2 males, Kantarawichai, Maha Sarakham, 27. IX. 2001, Y. Hanboonsong leg.; 1 male, Phayakhaphum Phiasi, Maha Sarakham, 11. VIII. 2001, Y. Hanboonsong leg.; 1 male, Muang, Surisaket, 14. VIII. 2001, Y. Hanboonsong leg.; 2 males, Satirk, Buriram, 12. iii. 2001, Y. Hanboonsong leg.; 1 female, 2 males, Muang, Buriram, 11. VIII. 2001, Y. Hanboonsong leg.; 4 males, Muang, Mukdahan, 13. VIII. 2001, Y. Hanboonsong leg. [Central Thailand] 1 female, 2 males, Pathumthani, VI. 2001, P. Visarathanonth leg.; 1 male, 14 16N 101 04E, Nakhon Nayok, 2. XI. 2002, K. Konoshi leg. [Southern Thailand] 1 female, Nakhon Si Thammarat, VIII. 2001, P. Visarathanonth leg.; 1 female, Phatthalung, 12. xi. 2000, K. Konishi leg.; 1 female, Phatthalung, 25-29. V. 2001, K. Takahashi leg.; 1 female, 2 males, Phatthalung, VIII, 2001, P. Visarathanonth leg.; 1 female, 5 males, Field Crop Research Center, Songkhla, 30. V. 2001, K. Takahashi leg.

**Remarks.** This species apparently attack various coleopteran larvae in stored grain. It is easily distinguished from the other Asian species of *Holepyris* by the eyes without hairs, and the short lateral lobes of clypeus in both sexes. This is the first record of this species from Thailand.

**Distribution.** Europe, Africa, North and South Americas, Australia, Asia (Egypt, Israel, Iran, India, Bangladesh, Thailand [new record]).

***Holepyris shamensis* sp. nov.** (Fig. 159)

**Male (holotype).** HL 0.55 mm; HW 0.49 mm; WF 0.30 mm; LM 1.88 mm; LPD 0.35 mm; WPD 0.29 mm; FWL 1.6 mm; TL 3.1 mm.

Body black; clypeus and antenna brown; mandible yellow; legs yellowish brown; wings hyaline; wing veins yellowish brown.

Head 1.19 times as long as wide, with straight posterior margin and angulate posterolateral corners in full face view; frons and vertex shagreened. Mandible with an apical tooth alone. Median lobe of clypeus rounded; lateral lobe rounded, not forming an angle. First 5 segments of antenna in a ratio of 5 : 4 : 4 : 5 : 5 in length; scape 2.6 times as long as wide; pedicel 1.8 times as long as wide; 3rd to 5th segments each longer than wide; terminal segment 2.5 times as long as wide. Eye 0.25 mm in length, with short erect hairs; WF 0.8 times EL. Ocelli relatively large and forming an obtuse triangle; DAO 0.06 mm; POL : AOL = 14 : 9 ; OOL 0.9 times WOT.

Pronotal disc shagreened, 0.5 times as long as wide. Mesonotum shagreened. Propodeal disc 1.22 times as long as wide, with parallel sides; median carina reaching transverse carina; 2 pairs of sublateral carinae present at anterior half; posterior half of discal surface weakly striate.

Metasoma smooth and shining.

**Holotype.** Male, Charoen Wattana, Muang, Amnat Charoen, Thailand, 13. VIII. 2001, Y. Hanboonsong leg.

**Paratypes.** 3 males, Tatoon, Surin, 12. III. 2001, Y. Hanboonsong leg.; 1 male, Kahasarakham, 15. III. 2001, Y. Hanboonsong leg.; 1 male, Mukda, Tanyathip Muang, Mukdahan, 13. VIII. 2001, Y. Hanboonsong leg.

**Type depository.** NIAES.

***Holepyris thailandensis* sp. nov.** (Figs. 163, 164)

**Female (holotype).** HL 0.75 mm; HW 0.60 mm; WF 0.35 mm; LM 1.08 mm; LPD 0.45 mm; WPD 0.40 mm; FWL 1.8 mm; TL 3.4 mm.

Body black; mandible, clypeus, and antenna brown; legs yellowish brown; wings subhyaline; wing veins brown.

Head 1.25 times as long as wide, with weakly convex posterior margin and dully angulate posterolateral corners in full face view; frons and vertex shagreened. Mandible with a single apical tooth. Median lobe of clypeus rounded. First 5 segments of antenna in a ratio of 10 : 4 : 2 : 3 : 3 in length; pedicel longer than wide; 3rd segment shorter than wide; 4th

and 5th segments each as long as wide. Eye 0.30 mm in length, with erect hairs; WF 1.17 times EL. Ocelli forming an obtuse triangle. POL : AOL = 6 : 5; OOL 1.5 times WOT.

Pronotal disc shagreened, almost as long as wide. Mesonotum shagreened. Propodeal disc 1.13 times as long as wide; median carina reaching transverse carina; 2 pairs of sublateral carinae present at anterior half; posterior half of discal surface weakly shagreened.

Metasoma smooth and shining.

**Holotype.** Female, Khon Kaen, Thailand, 2. X. 2000, K. Takahashi leg.

**Paratypes.** 1 female, Muang, Mukadahan, Thailand, 13. VIII. 2001, Y. Hanboonsong leg.; 1 female, Muang, Mukadahan, Thailand, 11. VIII. 2001, Y. Hanboonsong leg.

**Type depository.** NIAES.

**Remarks.** Although there is a possibility that this species is the female of *H. shamensis* sp. nov., I treat it here as a separate species because of a confirmed case of male-female association.

***Holepyris seidakka* sp. nov.** (Figs. 163, 164, 167)

**Female (holotype).** HL 0.88 mm; HW 0.65 mm; WF 0.48 mm; LM 1.57 mm; LPD 0.58 mm; WPD 0.48 mm; FWL 2.4 mm; TL 3.9 mm.

Body black; mandible and clypeus blackish brown; basal half of antennal scape blackish brown; apical half of scape, pedicel, and funiculus reddish brown; coxae and femora dark brown; tibiae and tarsi reddish brown; wings hyaline.

Head long, 1.35 times as long as wide, with concave posterior margin and acutely angulate posterolateral corners in full face view; frons and vertex strongly shagreened. Mandible with 2 teeth. First 5 segments of antenna in a ratio of 9.5 : 4 : 3.5 : 4 : 2.5 in length; 2nd segment longer than wide; 3rd and 4th each almost as long as wide; 5th segment slightly shorter than wide. Eye 0.30 mm in length, with erect hairs; WF 1.46 times EL. Ocelli forming an obtuse triangle. POL : AOL = 7 : 6; OOL 1.7 times WOT.

Pro- and mesonota strongly shagreened. Promotal disc 0.68 times as long as wide in dorsal view; anterior margin distinctly carinate. Propodeal disc long, 1.21 times as long as wide, with 5 discal carinae; median carina reaching transverse carina; 2 pairs of outer carinae present at anterior 2/3; interspaces between carinae with transverse rugae; sublateral area with transverse rugae.

Metasoma smooth and shining.

**Holotype.** Female, Nanshanchi, nr Puli, Nantou Hsien, Taiwan, 16. III. 1979, A. Shinohara leg.

**Type depository.** NSMT.

***Holepyris aekoh* sp. nov.** (Figs. 165, 168, 170)

**Female (holotype).** HL 0.70 mm; HW 0.53 mm; WF 0.35 mm; LM 0.43 mm; LPD 0.50 mm; WPD 0.40 mm; FWL 1.9 mm; TL 3.0 mm.

Head and mesosoma black; metasoma blackish brown; mandible, clypeus, and antenna reddish brown; legs reddish brown; wings hyaline.

Head long, 1.32 times as long as wide, with straight posterior margin and angulate posterolateral corners in full face view; frons and vertex shagreened. Mandible with 2 teeth. Clypeus with roundly produced median lobe and moderately angulate lateral lobes. First 5 segments of antenna in a ratio of 9.5 : 3 : 2 : 3 : 2.5 in length; 2nd segment slightly longer than wide; 3rd 0.6 times as long as wide; 4th segment as long as wide. Eye with erect hairs, 0.23 mm in diameter; WF 1.52 times EL. Ocelli forming compact triangle; POL : AOL = 1 : 1; OOL 2.6 times WOT.

Pro- and mesonota shagreened. Propodeum long, 1.25 times as long as wide in dorsal view, with 5 discal carinae; median and inner submedian carinae reaching transverse carina; outer submedian carinae almost reaching transverse carina.

Mertasoma smooth and shining.

**Variation.** Paratypes vary in head length from 1.00 mm to 0.68 mm, and in head width from 0.68 mm to 0.50 mm.

**Holotype.** Female, Nanshanchi, nr Puli, Nantou Hsien, Taiwan, 21. III. 1979, A. Shinohara leg.

**Paratypes.** 1 female, same locality as holotype, 15. III. 1979, A. Shinohara leg.; 1 female, same locality as holotype, 16. III. 1979, A. Shinohara leg.; 2 females, Meifeng, 2140 m alt., Nantou Hsien, Taiwan, 3-15. X. 1990, C. R. Star leg.

**Type depository.** NSMT.

**Remarks.** This species is most resembling *H. susanowo* Terayama, 1999, from the Nansei Islands, southern Japan in having the long head and propodeum, and short 3rd antennal segments. However, it is separated from the latter by the long inner submedian carinae on the propodeal disc which are reaching the transverse carena.

***Holepyris aeki* sp. nov.** (Figs. 166, 169, 171)

**Female (holotype).** HL 1.08 mm; HW 0.93 mm; WF 0.60 mm; LM 1.83 mm; DPL 0.80 mm; WPD 0.75 mm; FWL 3.1 mm; TL 4.2 mm.

Body black; basal 2/3 of antennal scape dark brown; apical 1/3 reddish brown; pedicel and funiculus reddish brown; coxae, trochanters and femora dark brown; tibiae and tarsi brown; wings hyaline.

Head wide in this genus, slightly longer than wide, with straight posterior margin in full face view; frons and vertex densely punctate; interspaces microreticulate. Mandible with an apical tooth only. First 5 segments of antenna in a ratio of 17 : 5 : 5 : 5 : 5 in length; 2nd to 5th segments each as long as wide. Eye 0.38 mm in length; WF 1.6 times EL. Ocelli forming an obtuse triangle; OOL 1.5 times WOL; POL : AOL = 10 : 7; OOL 2.1 times WOT.

Pro- and mesonota densely punctate, and with microreticulate interspaces. Propodeum almost as long as wide, with 5 discal carinae which are reaching transverse carina; interspaces between careiae reticulate; sublateral area reticulate.

**Holotype.** Female, Wushe, 1150 m alt., Nantou Hsien, Taiwan, 23. III. 1983, H. Townes & M. Townes leg.

**Type depository.** PMA.

***Holepyris gundai* sp. nov.** (Figs. 172, 176)

**Male (holotype).** HL 0.70 mm; HW 0.70 mm; WF 0.43 mm; LM 1.10 mm; LPD 0.43 mm; WPD 0.38 mm; FWL 2.1 mm; TL 2.7 mm.

Head and mesosoma black; metasoma brown; antenna brown; clypeus largely brown; legs yellowish brown.

Head as long as wide, with strongly convex posterior margin in full face view; frons and vertex microreticulate. First 5 segments of antenna 8 : 6 : 8 : 9 : 9 in length; 2nd segment 2.4 times as long as wide; 3rd 3.2 times as long as wide; 4th segment 3.0 times as long as wide. Eye 0.30 mm in length, with erect hairs; WF 1.4 times EL. Ocelli forming an obtuse triangle. POL : AOL = 8 : 6 ; OOL 1.1 times WOT.

Pro- and mesonota microreticulate. Propodeum slightly longer than wide; disc microreticulate, with 3 discal carinae; median carina almost reaching transverse carina; outer carinae present at anterior half.

**Holotype.** Male, Wushe, 1200 m alt., Nantou Hsien, Taiwan, 16. III. 1983, H. Townes & M. Townes leg.

**Type depository.** PMA.

***Holepyris gouzanze* sp. nov.** (Figs. 173, 175, 177)

**Male (holotype).** HL 0.95 mm; HW 0.85 mm; WF 0.58 mm; LM 1.55 mm; DPL 0.55



mm; WPD 0.60 mm; TL 4.4 mm.

Head and mesosoma black; metasoma blackish brown; clypeus and antenna black; legs dark brown.

Head 1.12 times as long as wide, with convex posterior margin in full face view; frons and vertex strongly microreticulate. First 5 segments of antenna in a ratio of 6 : 5 : 6 : 6.5 : 6.5 in length; 2nd segment twice as long as wide; 3rd 2.4 times as long as wide; 4th segments 2.6 times as long as wide. Eye 0.40 mm in length, with short erect hairs; WF 1.4 times EL. Ocelli forming an obtuse triangle; POL : AOL = 9 : 7; OOL 1.3 times WOT.

Pro- and mesonota strongly microreticulate. Propodeum wider than long, with 3 discal carinae which are reaching transverse carina; anterior half of median area reticulate and posterior half transversely rugose; sublateral area with transverse rugae.

**Holotype.** Male, Meifeng, 2140 m alt., Nantou Hsien, Taiwan, 3-15. X. 1990, C. R. Starr leg.

**Paratypes.** 2 males, same data as holotype.

**Type depository.** PMA.

***Holepyris daiitoku* sp. nov.** (Figs. 174, 178)

**Male (holotype).** HL 0.78 mm; HW 0.75 mm; WF 0.45 mm; LM 1.40 mm; LPD 0.45 mm; WPD 0.44 mm; FWL 2.8 mm; TL 3.3 mm.

Body black; clypeus largely brown; antenna brown; coxae and femora brown; trochanters, tibiae and tarsi yellowish brown.

Head as long as wide, with convex posterior margin; frons and vertex strongly microreticulate. First 5 segments of antenna in a ratio of 8 : 7 : 9 : 10 : 10 in length; 2nd segment longer than wide; 3rd 2.8 times as long as wide; 4th segment 2.9 times as long as wide. Eye 0.35 mm in length, with erect hairs; WF 1.3 times EL. Ocelli forming a right triangle; POL : AOL = 1 : 1; OOL 1.7 times WOT.

Pro- and mesonota strongly microreticulate. Propodeum as long as wide, with 5 discal carinae; median carina reaching transverse carina; 2 pairs of outer carinae present at anterior 3/4.

**Variation.** One paratype specimen has 0.88 mm in head length and 0.60 mm in head width.

**Holotype.** Male, Wufeng, Nantou Hsien, Taiwan, 22. III. 1983, H. Townes & M. Townes leg.

**Paratype.** 1 male, same data as holotype.

**Type depository.** PMA.

6. Genus *Allobethylus* Kieffer

*Allobethylus khonkaensis* sp. nov. (Figs. 179, 180)

**Female (holotype).** HL 0.45 mm; HW 0.33 mm; WF 0.26 mm; LPD 0.28 mm; WPD 0.23 mm; FWL 1.2 mm; TL 2.3 mm.

Head and mesosoma black; metasoma castaneous; mandible brown; basal 4/5 of antennal scape black, the rest brown; pedicel and funiculus brown; legs brown; wings hyaline.

Head elongate, 1.36 times as long as wide, with parallel sides and straight posterior margin in full face view; in profile head flat, 2.25 times as long as high, with almost parallel dorsal and ventral margins; frons and vertex shagreened. Mandible elongate with 3 apical teeth. Anterior margin of clypeus weakly produced medially, with a rounded tip. First 5 segments of antenna in a ratio of 7 : 2.5 : 1 : 2 : 2 in length; pedicel longer than wide; 3rd segment wider than long; 4th and 5th segments each slightly longer than wide. Eye 0.14 mm in length, with short erect hairs; WF 1.86 times EL. Ocelli forming a regular triangle; OOL 2.86 times WOT.

Pronotum shagreened. Mesonotum shagreened, with notauli. Propodeal disc shagreened, 1.21 times as long as wide, with median and transverse carinae.

Metasoma smooth and shining.

**Holotype.** Female, Khon Kaen, Thailand, VI. 2001.

**Type depository.** NIAES.

7. Genus *Proplastanoxus* gen. nov.

**Type species:** *Proplastanoxus elegans* gen. et sp. nov.

**Gender:** masculine.

**Etymology:** *Pro*, Gr., + *Plastanoxus*.

**Diagnosis.** Minute bethylids with the following combination of characteristics: 1, median lobe of clypeus truncate; 2, antenna with 12 segments; 3, mesoscutum without notauli; 4, parapsidal furrows present; 5, radial vein long; 6, prostigma present; 7, anal vein present; 8, costa present.

**Remarks.** This genus belongs to the tribe Cephalonomiini of subfamily Epyrinae by the

12-segmented antennae (character 2) and the truncated anterior margin of clypeus (char. 1), and easily distinguished from the other genera in the tribe by the absence of notauli (char. 3), the long radial vein (char. 5), and the presence of anal vein (char. 7). It is most closely relating the *Plastanoxus*, *Israelius* and undescribed new genus (Figs. 185-187; Terayama, in prep.). However, it is distinguished from the genus *Plastanoxus* by the characters 4 and 7, from the genus *Israelius* by the character 5, and from the undescribed new genus by the character 3.

***Proplastanoxus elegans* sp. nov.** (Figs. 181-184)

**Female (holotype).** HL 0.55 mm; HW 0.48 mm; WF 0.29 mm; LM 0.93 mm; LPD 0.30 mm; WPD 0.38 mm; FWL 1.8 mm; TL 2.5 mm.

Head and metasoma blackish brown; mesosoma black; coxae and femora brown; tibiae and tarsi yellowish brown.

Head 1.15 times as long as wide, with convex posterior margin in full face view; frons and vertex relatively weakly microreticulate. Mandible with 3 teeth; apical tooth largest and basal one smallest. Clypeus truncated apically. Antennal scape long, 3.2 times as long as wide; 2nd segment longer than wide; 3rd and 4th segments each wider than long. Eye large, 0.25 mm in length; WF 1.17 times EL. Ocelli relatively large, forming a compact triangle; OOL 1.85 times WOT.

Pro- and mesonota relatively strongly microreticulate. Propodeum with parallel sides and strongly concave posterior margin in dorsal view; median carina delicate but reaching transverse carina; basal triangular area strongly reticulate.

First and 2nd metasomal terga smooth and shining; 3rd to 6th very weakly microreticulate.

Forewing shown as in Fig. 182 and hindwing as in Fig. 183; pterostigma small; radial vein long, almost the same length as subcosta; basal vein broad, widest at the midlength.

**Holotype.** Female, Nakhon Ratchasima, Khao Yai National Park, 700-800 m, 12-18. IV. 1990, E. Fuller leg.

**Paratypes.** 1 female, same data as holotype; 1 female, Bangkok 180 km N. E., Khao Yai N. P., 780 mm, 10-16. IV. 1990, B. V. Brown leg.

**Type depository.** PMA.

9. Genus *Plastanoxus* Kieffer*Plastanoxus konishii* sp. nov. (Figs. 188-190)

**Holotype (Female).** HL 0.35 mm; HW 0.28 mm; WF 0.18 mm; LM 0.50 mm; LPD 0.20 mm; WPD 0.23 mm; FWL 0.8 mm; TL 1.4 mm.

Body black; antenna blackish brown; legs black; wings hyaline.

Head 1.25 times as long as wide, with convex posterior margin in full face view; in profile, head thin, twice as long as high, with parallel dorsal and ventral margins; frons and vertex smooth and shining. First 5 antennal segments in a ratio of 4 : 1 : 0.5 : 1.1 : 1.5 in length; pedicel as long as wide; 3rd segment short, 0.5 times as long as wide; 4th and 5th segments each slightly shorter than wide. Eye 0.14 mm in length; WF 1.3 times EL. Ocelli forming a regular triangle; POL : AOL = 1 : 1 ; OOL 1.7 times WOT.

Pronotal disc 0.20 mm in maximum width in dorsal view; anterior half weakly shagreened and posterior half smooth. Mesonotum weakly shagreened. Propodeal disc shagreened, slightly wider than long; lateral and transvers carinae present; median carina absent.

Forewing as in Fig. 188; M + Cu vein indistinct; apical half of radial vein distinct, but basal half indistinct.

Metasoma smooth and shining.

**Male.** HL 0.28 mm; HW 0.28 mm; WF 0.16 mm; LM 0.45 mm; LPD 0.13 mm; WPD 0.18 mm; FWL 0.7 mm; TL 1.3 mm.

Body black; legs blackish brown; wings hyaline.

Head as long as wide, with convex posterior margin in full face view; posterolateral corner not forming an angle; frons and vertex smooth; in profile, head 1.9 times as long as high, with weakly convex dorsal and ventral margins. Eye 0.15mm in length. Ocelli larger than female.

General shape of mesosoma and wings including veins as in female.

**Holotype.** Female, Phatthalung, Thailand, 11. XI. 2000, K. Konishi leg.

**Paratypes.** 1 male, same data as holotype; 1 female, 1 male, same locality, 12. IX. 2000, K. Konishi leg.; 2 females, 1 male, same locality, 13. IX. 2000, K. Konishi leg.

**Type depository.** NIAES.

*Plastanoxus thailandensis* sp. nov. (Figs. 191, 192)

**Male (holotype).** HL 0.35 mm; HW 0.38 mm; WF 0.24 mm; LM 0.68 mm; LPD 0.20

mm; WPD 0.28 mm; FWL 0.7 mm; TL 1.4 mm.

Body black; antenna and legs blackish brown; wings hyaline.

Head wider than long, with convex posterior margin in full face view; frons and vertex shagreened; in profile, head 1.33 times as long as high, with convex dorsal and ventral margins. First 5 segments of antenna in a ratio of 5 : 3 : 2 : 1.5 : 1.5 in length; pedicel 1.5 times as long as wide; 3rd segment slightly longer than wide; 4th and 5th segments each as long as wide. Eye 0.18 mm in length; WF 2.1 times EL. Ocelli forming a compact triangle; OOL 1.2 times WOT.

Pronotal disc shagreened, 0.46 times as long as wide in dorsal view. Mesonotum shagreened. Propodeal disc 0.7 times as long as wide; median, lateral and transverse carinae present; anterior half of disc micropunctate, posterior half shagreened.

M + Cu vein of forewing distinct, with broad distal portion; radial vein distinct.

Metasoma smooth and shining.

**Male.** HL 0.32 mm; HW 0.34 mm; WF 0.21 mm; LM 0.53 mm; LPD 0.22 mm; WPD 0.23 mm; FWL 0.9 mm; TL 1.2 mm.

Body black; legs blackish brown; wings hyaline.

Head 0.94 times as long as wide, with strongly convex posterior margin in full face view; frons and vertex weakly microreticulate, rather shining; in profile, head 1.5 times as long as high, with strongly convex dorsal and weakly convex ventral margins. Eye 0.14 mm in length. Ocelli larger than those of female.

General shape of mesosoma and wings including veins as in female.

**Variation.** Total body length varies from 1.3 mm to 1.6 mm in females, and 1.1 mm to 1.5 mm in males. Median carina of propodeum indistinct in some individuals.

**Holotype.** Female, Muang, Loei, Thailand, 14. III. 2001, Y. Hanboonsong leg.

**Paratypes.** 7 females, same data as holotype; 7 females, same locality, 11. XI. 2000, K. Konishi leg.; 2 females, same locality, 12. XI. 2000, K. Konishi leg.; 6 females, same locality, 13. XI. K. Konishi leg.; 1 male, Phatthalung, Thailand, 11. XI. 2000, K. Konishi leg.; 3 males, Phatthalung, Thailand, 12. XI. 2000, K. Konishi leg.; 3 males, Nakhon, Thailand, VIII. 2001, P. Visarathanonth leg.; 1 male, Sukhothai Thailand, 9. XI. 2002, K. Konishi leg.; 1 male, Khon Kaen, Thailand, 25. X. 2002, K. Konishi leg.

**Type depository.** NIAES.

**Remarks.** This species is easily separated from the other Thai species, *P. konishii*, by the distinct M + Cu and radial veins of forewings.

10. Genus *Cephalonomia* Westwood***Cephalonomia elegantula* sp. nov.** (Figs. 193, 194, 204)

**Female (holotype).** HL 0.33 mm; HW 0.25 mm; WF 0.18 mm; LM 0.45 mm; LP 0.16 mm; WPD 0.18 mm; FWL 0.7 mm; TL 1.4 mm.

Body black; antenna brown.

Head 1.30 times as long as wide, with parallel sides and straight posterior margin in full face view; frons and vertex smooth; head in profile, 2.6 times as long as high. Mandible with 3 teeth. Antenna short, not exceeding posterior margin of head; first 4 segments in a ratio of 3 : 1 : 0.5 : 0.5 in length. Eye 0.08 mm in length; WF 2.3 times EL. Ocelli forming an obtuse triangle; POL : AOL = 3 : 2.

Pronotum smooth; disc 0.7 times as long as wide; 0.25 mm in maximum width in dorsal view. Mesonotum smooth. Propodeal disc slightly longer than wide, with subparallel sides and straight posterior margin in dorsal view; basal triangular area microreticulate; lateral and posterior surfaces smooth; transverse carina present.

Forewing as in Fig. 204; pterostigma present at basal 2/5 of forewing; M + Cu vein absent.

Metasoma smooth and shining.

**Holotype.** Female, Chia Hsien, Kuantzulín, Taiwan, 22. VIII. 1993, S. Okajima leg.

**Paratypes.** 1 female, same data as holotype; 1 female, Nanshanchi, Nantou Hsien, Taiwan, 3. IV. 1993, S. Okajima leg.

**Type depository.** NIAES.

***Cephalonomia chihpenensis* sp. nov.** (Figs. 195-199, 202)

**Female (holotype).** HL 0.53 mm; HW 0.39 mm; WF 0.30 mm; LM 0.86 mm; LP 0.35 mm; WPD 0.30 mm; FWL 1.4 mm; TL 2.5 mm.

Body black; fore coxa and femur dark brown, fore tibia and tarsus brown; middle and hind legs dark brown.

Head 1.35 times as long as wide, with subparallel sides and straight posterior margin in full face view; frons and vertex shagreened; in profile, head flat, 2.6 times as long as high. Mandible with a single apical projection alone. First 4 segments of antenna in a ratio of 5 : 2.5 : 1 : 2.5 in length; pedicel slightly longer than wide; 3rd and 4th segments each wider than long. Eye 0.15 mm in length; WF twice EL. Ocelli forming a compact triangle

Mesosoma flat dorsoventrally, 4.4 times as long as high in profile. Pronotal disc 0.9

times as long as wide, 0.28 mm in maximum length, and with a median carina present at posterior half; surface microreticulate. Mesonotum microreticulate. Propodeum microreticulate, 1.17 times as long as wide, widest at anterior end in dorsal view; transverse carina absent.

Forewing as in Fig. 202; pterostigma present at basal 2/5 of forewing; M + Cu vein present, but barely visible.

Metasoma smooth and shining.

**Holotype.** Chihpen, Taitung Hsien, Taiwan, 10. IX. 1993, S. Okajima leg.

**Type depository.** NIAES.

***Cephalonomia tarsalis* (Ashmead, 1893) (Fig. 203)**

*Ateleopterus tarsalis* Ashmead, 1893. *Cephalonomia tarsalis*: Gahan, 1930; Evans, 1964.

**Specimens examined.** [Northern Thailand] 2 females, 18 12N 100 12E, Phrae, 8. XI. 2002, K. Konishi leg. [Northeastern Thailand] 1 female, Muang, Nakhon Ratchasima, 13. III. 2001, Y. Hanboonsong leg.; 5 females, 3 males, Muang, Nakhon Ratchasima, 18. VIII. 2001, Y. Hanboonsong leg.; 4 females, Kantarawichai, Maha Sarakham, 15. III. 2001, Y. Hanboonsong leg.; 1 female, 1 male, Satirk, Buriram, 12. III. 2001, Y. Hanboonsong leg.; 4 females, Muang, Buriram, 11. VIII. 2001, Y. Hanboonsong leg.; 2 females, Yasothom, 10. III. 2001, Y. Hanboonsong leg.; 1 male, Chum Phae, Khon Kaen, 14. III. 2001, Y. Hanboonsong leg.; 3 females, 1 male, Srikoraphum, Surin, 18. VIII. 2001, Y. Hanboonsong leg.; 4 females, 1 male, Kantharawichai, Maha Sarakham, 27. IX. 2001, Y. Hanboonsong leg.; 2 females, Phayakhaphum, Phiasi, Maha Sarakham, 11. VIII. 2001, Y. Hanboonsong leg. [Central Thailand] 1f, Phatthalung, Thailand, 12. XI. 2000, K. Konishi leg.; 7 females, Pathumthani, VI. 2001, P. Visarathanonth leg.; 6 females, Bangkok, v. 2001, P. Visarathanonth leg.; 34 females, 6 males, Suphan Buri, VIII. 2001, P. Visarathanonth leg. [Southern Thailand] 7 females, Nakhon Si Thammarat, VIII. 2001, P. Visarathanonth leg.; 1 female, 1 male, Phatthalung, 25-29. V. 2001, K. Takahashi leg.; 2 females, Phatthalung, VIII. 2001, P. Visarathanonth leg.

**Distribution.** North America (U. S. A.), South America (Argentina), Europe (England, Albania), Africa (Nigeria), Australia, Asia (Israel, China, Japan, Thailand [new record]).

**Remarks.** This species is separated from the Asian congeners by the presence of a median carina of propodeal disc and the distinct M + Cu vein of forewings. It is widely distributed in the world in association with stored products, and is the first record of the species from Thailand.

***Cephalonomia thaiana* sp. nov.** (Figs. 200, 201, 205)

**Holotype (Female).** HL 0.38 mm; HW 0.30 mm; WF 0.20 mm; LM 0.59 mm; LPD 0.25 mm; WDP 0.25 mm; FWL 0.9 mm; TL 1.7 mm.

Body black; mandible dark brown; legs dark brown excepting brownish tarsi; antennal scape blackish brown, 2nd and 3rd segments brown, and 4th to terminal segments blackish brown; wings hyaline; wing veins and pterostigma brown.

Head 1.23 times as long as wide, with convex sides and even convex posterior margin in full face view; in profile, head thin, 3.2 times as long as high; frons and vertex shagreened. First 5 segments of antenna in a ratio of 4.5 : 2.5 : 1 : 1.5 : 1.5 in length; pedicel 2.1 times as long as wide; 3rd segment shorter than wide; 4th and 5th segments each as long as wide. Eye 0.14 mm in diameter. WF 1.5 times EL. Ocelli forming a regular triangle; POL : AOL = 1 : 1; OOL twice WOT.

Mesosoma flat dorsoventrally; pronotum shagreened, disc 0.7 times as long as wide in dorsal view; mesonotum shagreened; propodeum as long as wide, widest as anterior end in dorsal view; posterolateral corner forming an angle; lateral and transverse carinae present.

Pterostigma present at basal 1/4 of wing; M + Cu vein indistinct.

Metasoma smooth and shining.

**Male.** HL 0.30 mm; HW 0.28 mm; WF 0.23 mm; LM 0.48 mm; LPD 0.19 mm; WPD 0.22 mm; FWL 0.9 mm; TL 1.2 mm.

Body black; antenna and legs blackish brown.

Head slightly longer than wide in full face view; in profile, head thicker than female, 1.7 times as long as high; frons and vertex shagreened. First 5 segments of antenna in a ratio of about 4 : 3 : 1 : 1.2 : 1.2 in length; pedicel 3.0 times as long as wide; 3rd to 5th segments each as long as wide. Eye 0.10 mm in length; WF 2.3 times EL.

Mesosoma and metasoma as in female.

**Holotype.** Female, Phatthalung, Thailand, 12. XI. 2000, K. Konishi leg.

**Paratypes.** 4 females, same data as holotype; 1 female, Satik, Bureum, Thailand, 12. III. 2001, Y. Hanboonsong leg.; 1 female, Nakhon Pathom, Thailand, 18. IV. 2000, P. Visarathanonth leg.; 1 female, Chum Phae, Thailand, 11. V. 2001, K. Konishi leg.; 1 female, Chaiyaphum, Thailand, 18. VIII. 2001, Y. Hanboonsong leg.; 1 female, Kaset Permpod, Muang, Thailand, 12. VIII. 2001, Y. Hanboonsong leg.; 1 female, 2 males, Wangsapung, Loei, Thailand, 15. VIII. 2001, Y. Hanboonsong leg.; 1 male, Fai Isan, Muang, Loei, Thailand, 15. VIII. 2001, Y. Hanboonsong leg.; 1 female, Fire Mee Chai, Khon Kaen, Thailand, 28. IX. 2001, Y. Hanboonsong leg.; 1 male, Ubon Ratchathari, Thailand, 6. X. 2000, Y. Hanboonsong leg.; 1



female, 1 male, Payakaphumpisai, Roiet, 11. VIII, 2001, Y. Hanboonsong leg.; 2 females, 3 males, Nakhon Si, Thailand, VIII. 2001, P. Visarathanonth leg.; 2 females, 1 male, same locality, 16. XI. 2002, K. Konishi leg.; 1 male, Lop Buri, Thailand, XI. 2000, P. Visarathanonth leg.; 6 females, 5 males, Nakhon Pathom, Thailand, I. 2001, P. Visarathanonth leg.; 1 male, Nankhon Nayok, Thailand, 2. XI. 2002, K. Konishi leg.; 1 female, 1 male, Sukhothai, Thailand, 9. XI. 2002, K. Konishi leg.; 1 female, 2 males, Songkhla, Thailand, 11. XI. 2002, K. Konishi leg.; 2 females, 1 male, Phetchaduri, Thailand, 23. X. 2002, K. Konishi leg.; 2 females, Prachinburi, Thailand, 23. X. 2002, K. Konishi leg.

**Type depository.** All the types are preserved in NIAES.

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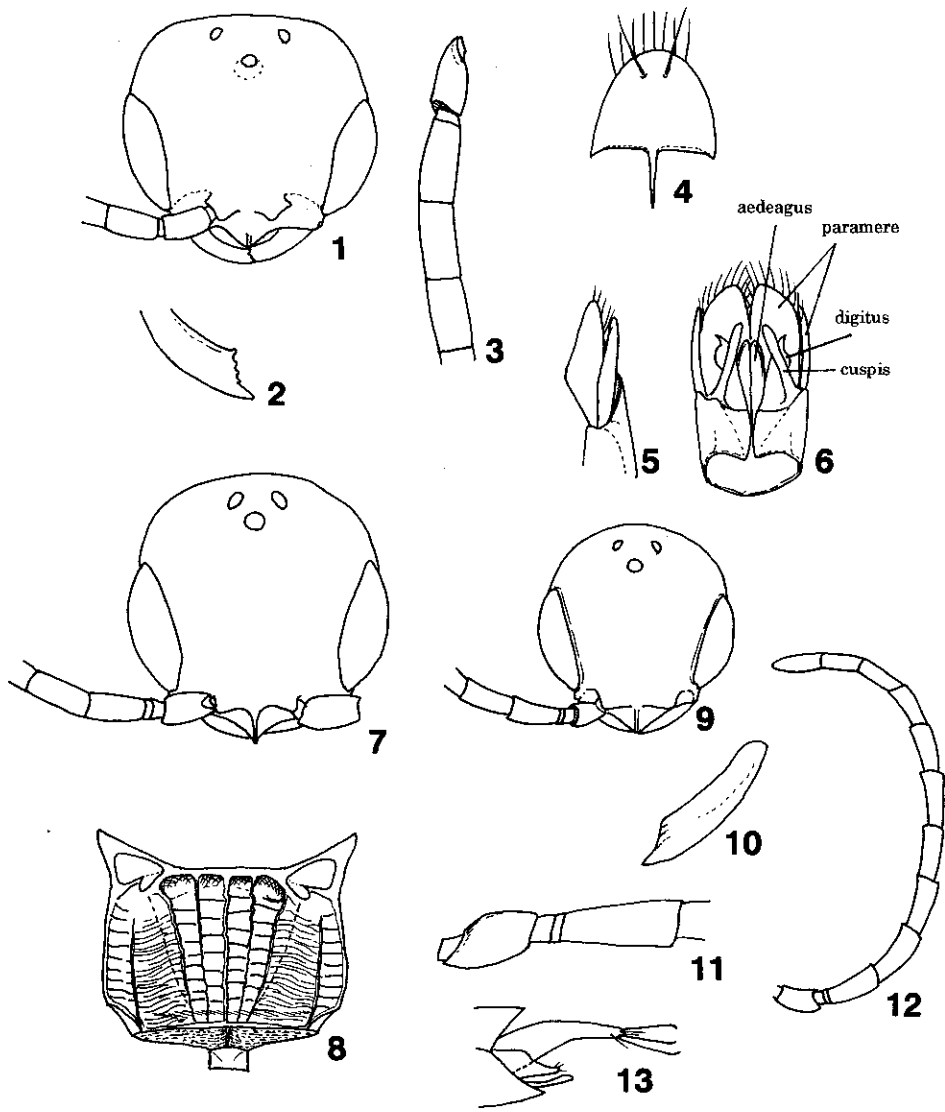


Plate I. Figs. 1-6, *Epyris superbus* sp. nov.; 7, 8, *E. shiva* sp. nov.; 9-13, *E. leyteanus* sp. nov.  
1, 7, 9, Head, full face view; 2, 10, mandible; 3, 11, 12, antenna; 4, subgenital plate; 5, 13, paramere, lateral view; 6, genitalia; 8, propodeum, dorsal view.

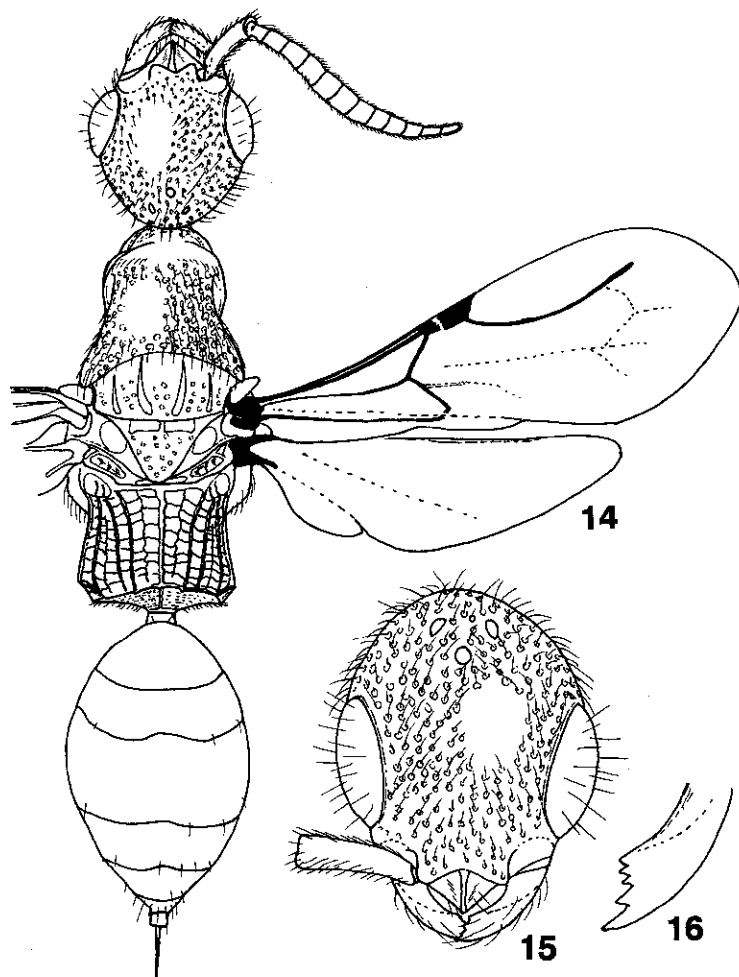


Plate II. Figs. 14-16, *Epyris longicephalus* sp. nov. 14, Body, dorsal view; 15, head, full face view; 16, mandible.

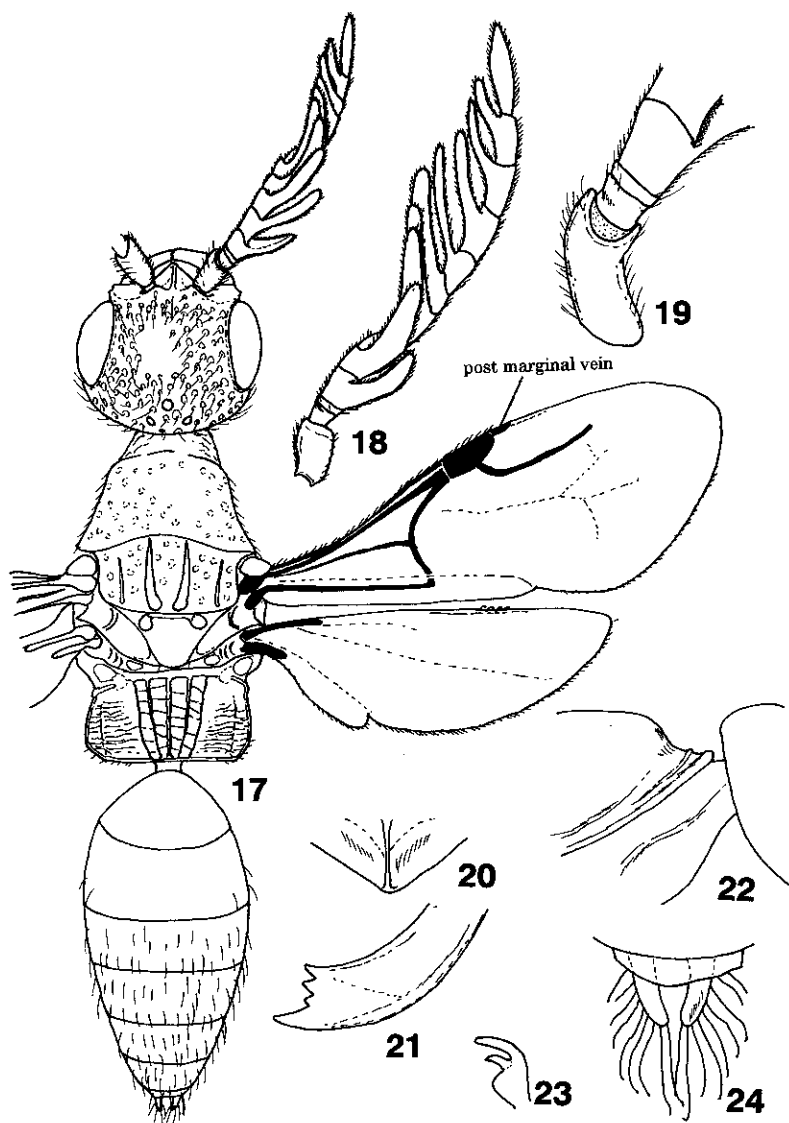


Plate III. Figs. 17-24, *Epyris staphylinoides* (Hope, 1837), male (drawn from the lectotype of *Calyzoa ashmeadi* Enderlein, 1901). 17, Body, dorsal view; 18, antenna; 19, first 4 segments of antenna; 20, clypeus; 21, mandible; 22, pronotum, lateral view; 23, tarsal claw of middle leg; 24, paramere, dorsal view.

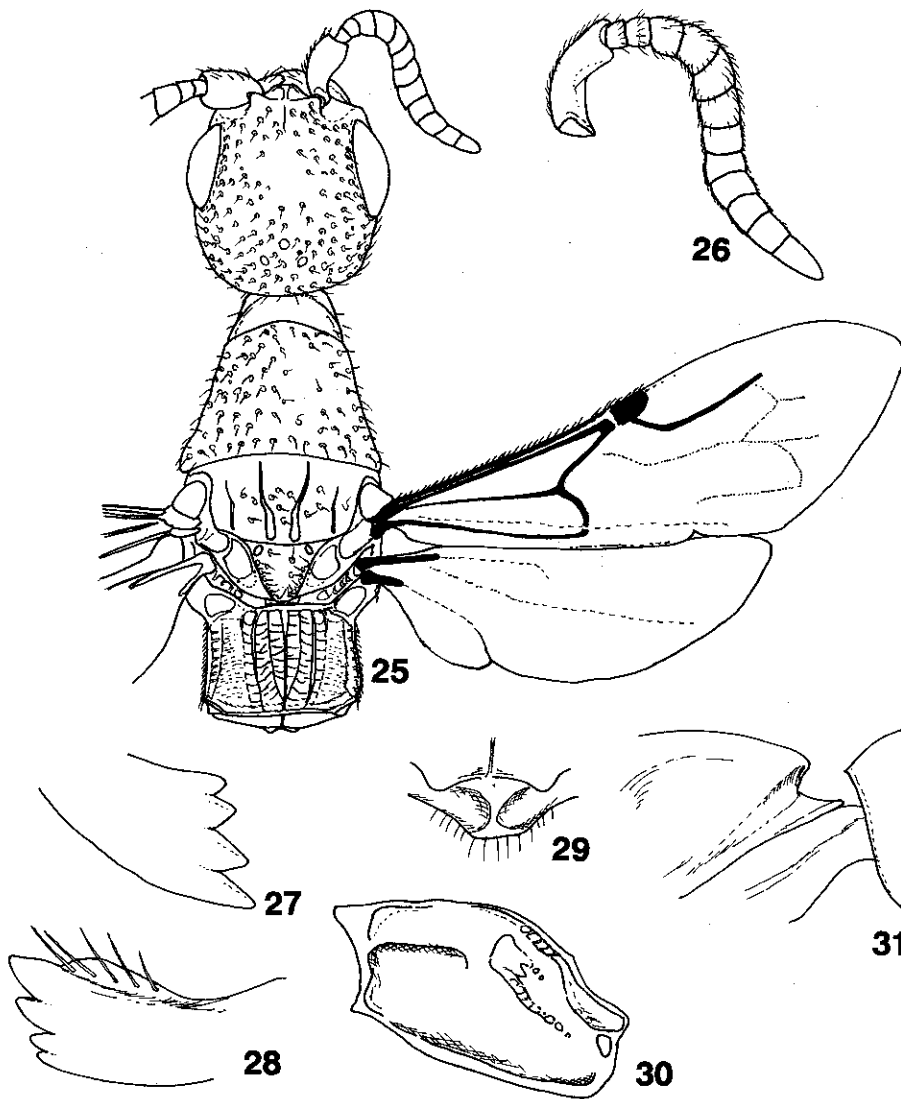


Plate IV. Figs. 25-31, *Epyris staphylinoides* (Hope, 1837), female (drawn from the cotype of *Calyoza ashmeadi* Enderlein, 1901). 25, Body, dorsal view; 26, antenna; 27, mandible; 28, ventral subapical tooth of mandible; 29, clypeus; 30, mesopleuron; 31, pronotum, lateral view.

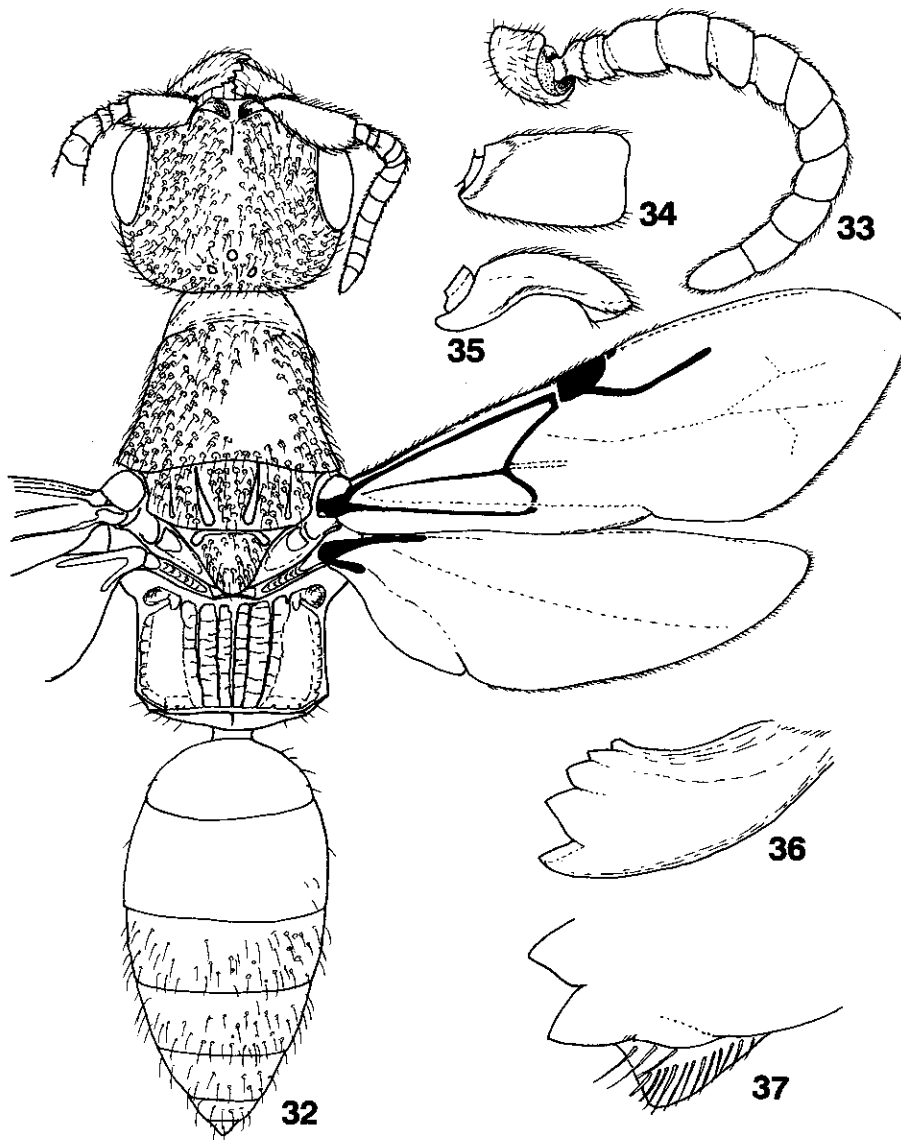


Plate V. Figs. 32-37, *Epyris camernensis* sp. nov., female. 32, Body, dorsal view; 33, antenna; 34, antennal scape, frontal view; 35, *ditto*, lateral view; 36, mandible; 37, ventral tooth of mandible.



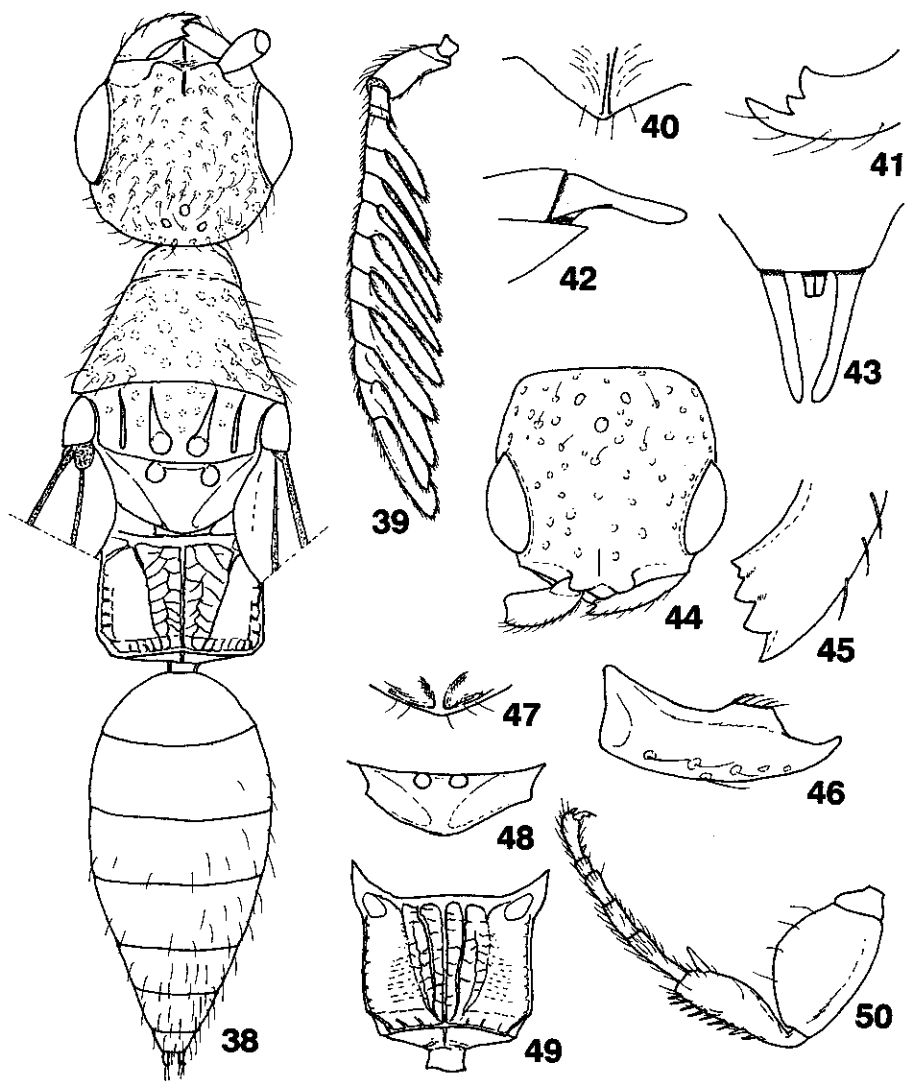


Plate VI. Figs. 38-50, *Epyris hirtipennis* (Cameron) (drawn from the types); 38-43, male; 44-50, female. 38, Body, dorsal view; 39, antenna; 40, 47, clypeus; 41, 45, mandible; 42, paramere, lateral view; 43, *ditto*, dorsal view; 44, head, full face view; 48, mesoscutum; 46, ventral subapical tooth of mandible; 49, propodeum, dorsal view; 50, middle leg.

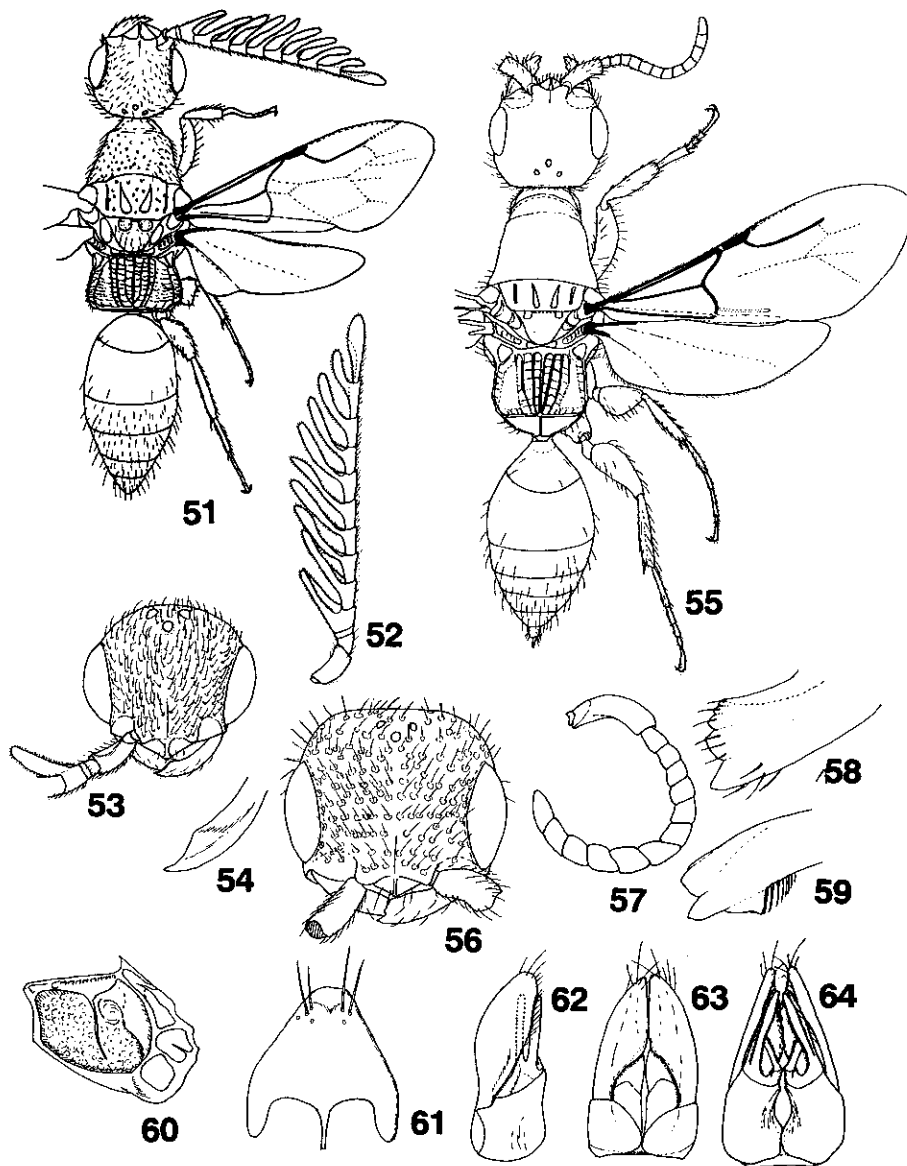


Plate VII. Figs. 51-54, 60-64, *Epyris apicalis* Walker in Smith, 1876, female, (drawn from the holotype in 56-59); 55-59, *Calyozina sauteri* Enderlein, 1912, male. 51, 55, Body, dorsal view; 52, 57, antenna; 53, 56, head, full face view; 54, 58, mandible; 59, ventral subapical tooth of mandible; 60, mesopreuron; 61, subgenital plate; 62, male genitalia, lateral view; 63, ditto, dorsal view; 64, ditto, ventral view.

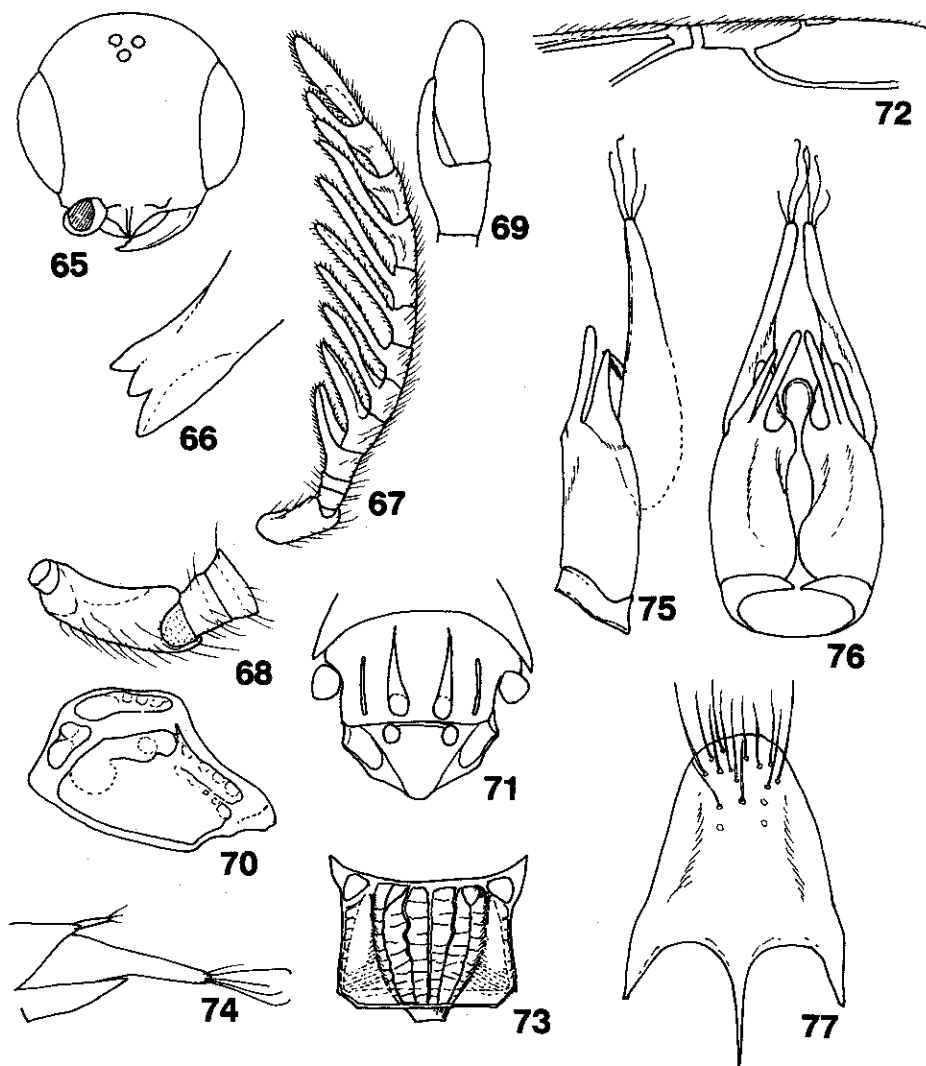


Plate VIII. Figs. 65-77, *Epyris aequatorialis* sp. nov. 65, Head, full face view; 66, mandible; 67, antenna; 68, first 3 segments of antenna; 69, apical 2 segments of antenna; 70, mesopreuton; 71, mesonotum; 72, pterostigma; 73, propodeum, dorsal view; 74, paramere, lateral view; 75, genitalia, lateral view; 76, *ditto*, ventral view; 77, subgenital plate.

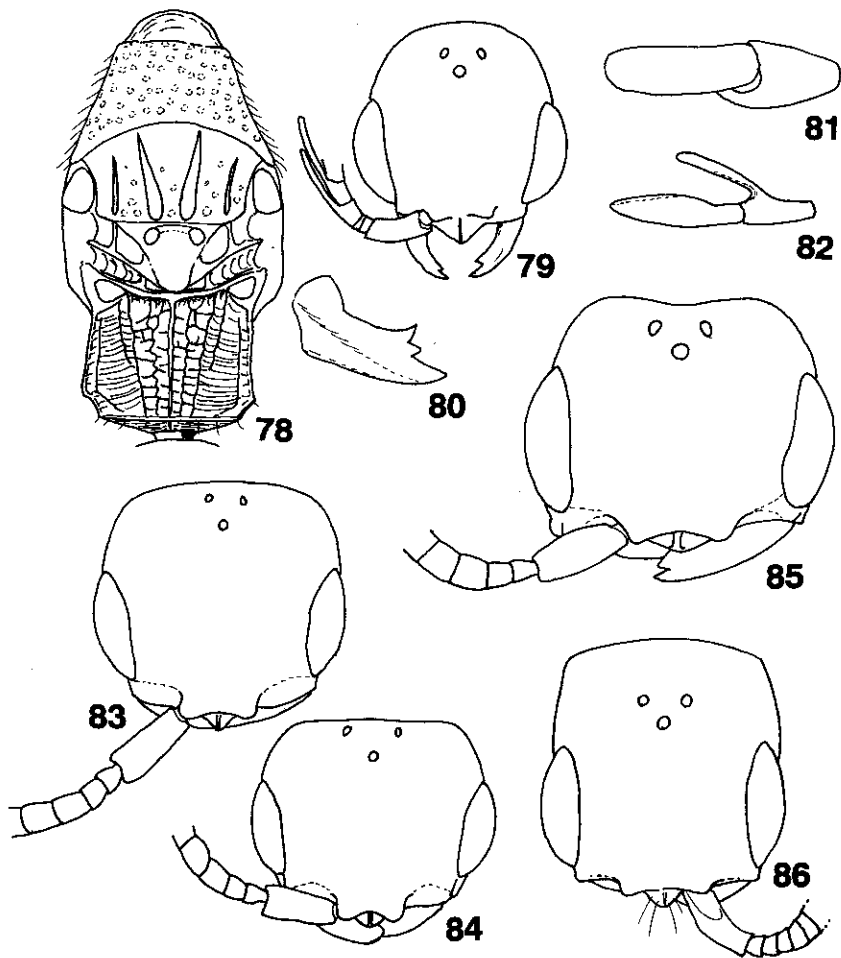


Plate IX. 78-82, *E. budda* sp. nov.; 83, *E. indra* sp. nov.; 84, *E. shakha* sp. nov.; 85, *E. maya* sp. nov.; 86, *E. sarawakensis* sp. nov. 78, Mesosoma, dorsal view; 79, 83-86, head, full face view; 80, mandible; 81, antennal 12th and 13th segments, lateral view; 82, *ditto*, dorsal view.

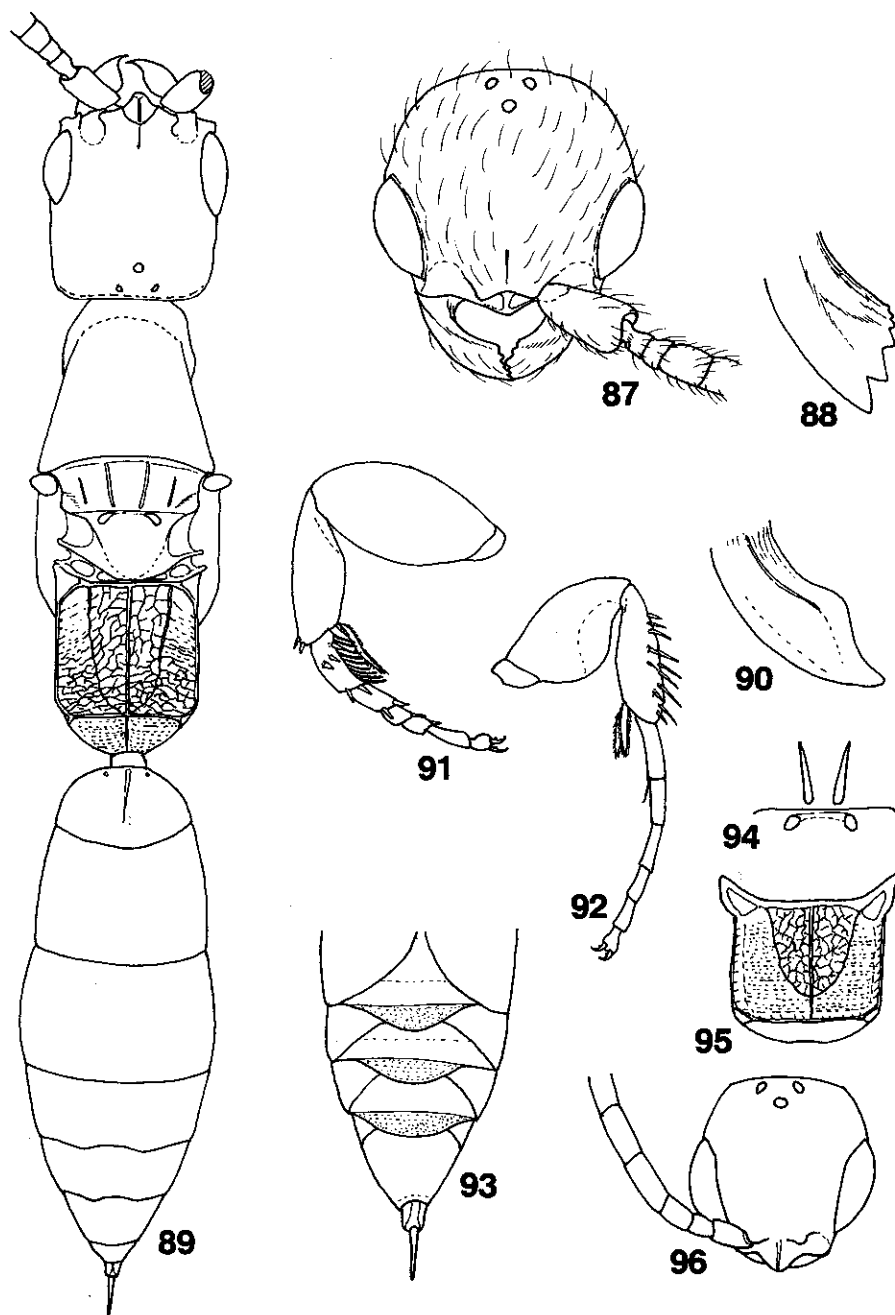


Plate X. Figs. 87, 88, *Epyris sabhaensis* sp. nov.; 89-93, *Epyris nantohensis* sp. nov.; 94-96, *Epyris wusheanus* sp. nov. 87, 96, Head, full face view; 88, 90, mandible; 89, body, dorsal view; 91, fore leg; 92, middle leg; 93, matasoma, ventral view; 94, scutellar pits and notauli; 95, propodeum, dorsal view.

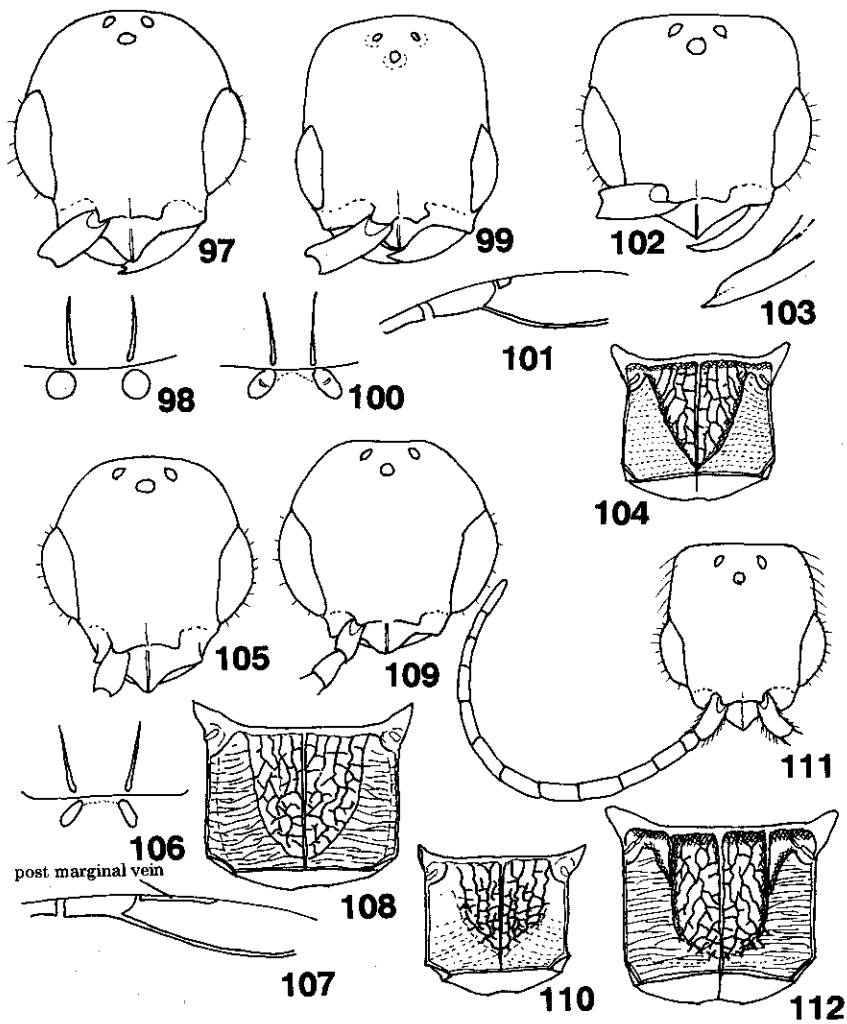


Plate XI. Figs. 97, 98, *Epyris meifengensis* sp. nov.; 99-101, *E. lienfuaensis* sp. nov.; 102-104, *E. miaoliensis* sp. nov.; 105-108, *E. nanshanchiensis* sp. nov.; 109, 110, *E. liukueiensis* sp. nov.; 111, 112, *E. hangunensis* sp. nov. 97, 99, 102, 105, 109, 111, Head, full face view; 98, 100, 106, scutellar pits and notauli; 101, 107, pterostigma and post marginal vein; 103, mandible; 104, 108, 110, 112, propodeum, dorsal view.

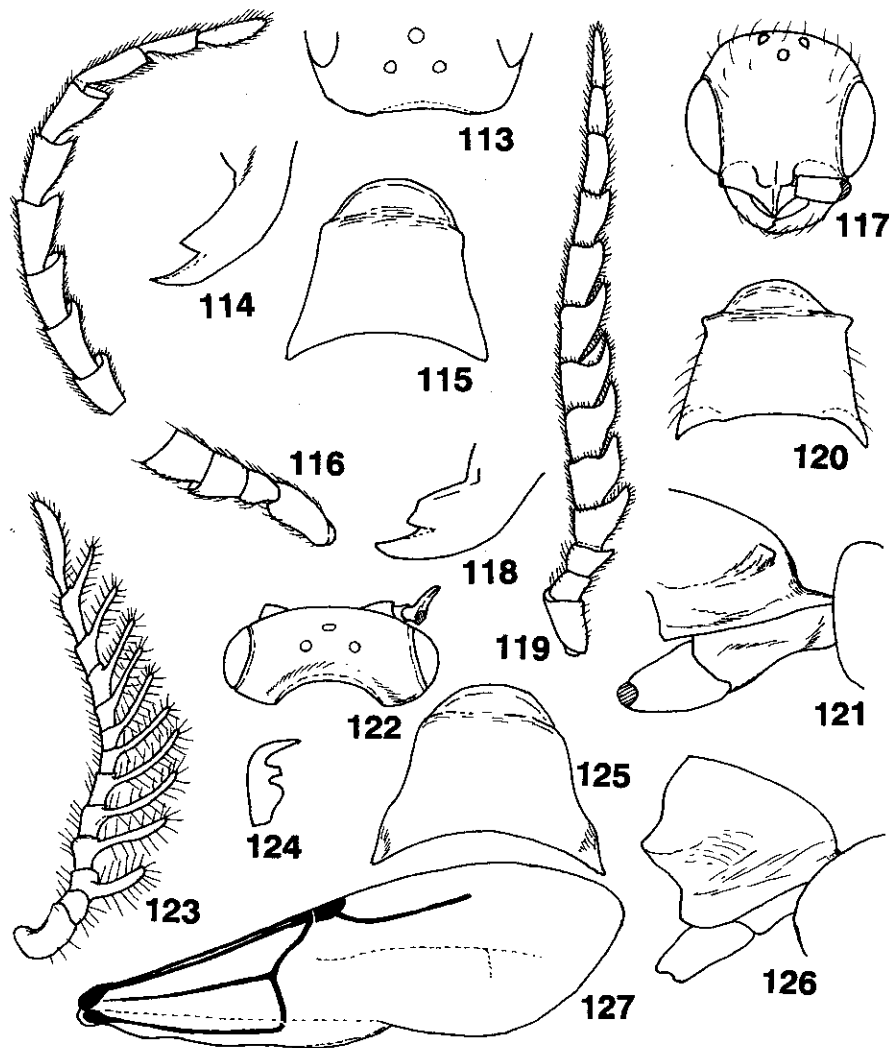


Plate XII. Figs. 113-116, *Epyris amazonicus* (Evans, 1964) (drawn from the holotype of *Calyozina amazonica* Evans, 1964); 117-121, *E. neotropicus* (Evans, 1964) (drawn from the holotype of *Calyozina neotropica* Evans, 1964); 122-127, *E. azureus* (Evans, 1978) (drawn from the type of *Calyozina azurea* Evans, 1978). 116, 119, 123, Antenna; 113, 122, posterior portion of head; 114, 118, mandible; 115, 120, 125, pronotum, dorsal view; 121, 126, *ditto*, lateral view; 124, tarsal claw of middle leg; 127, forewing.

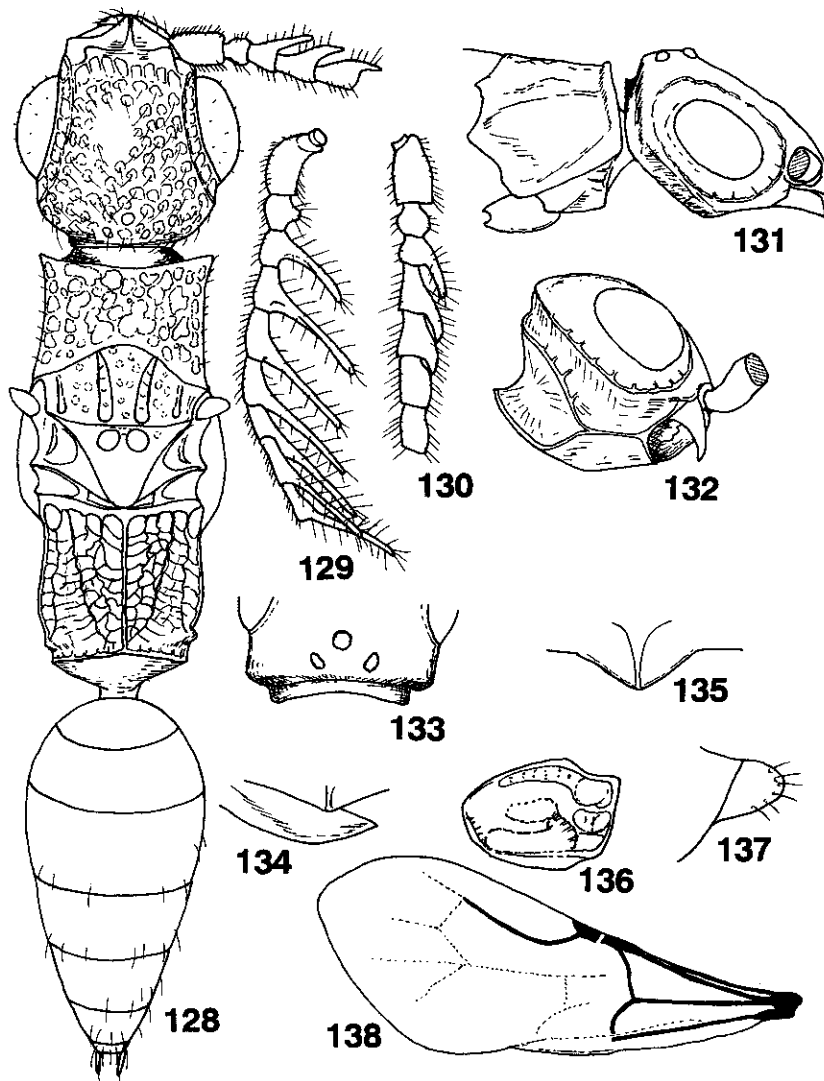


Plate XIII. Figs. 128-138, *Calyozina ramicornis* Enderlein, 1912 (drawn from the holotype).

128, Body, dorsal view; 129, first 9 segments of antenna, lateral view; 130, first 7 segments of antenna, frontal view; 131, head and pronotum, lateral view; 132, head, postero-lateral view; 133, posterior portion of head; 134, mandible, 135, clypeus; 136, mesopreuron; 137, paramere, lateral view; 138, fore leg.



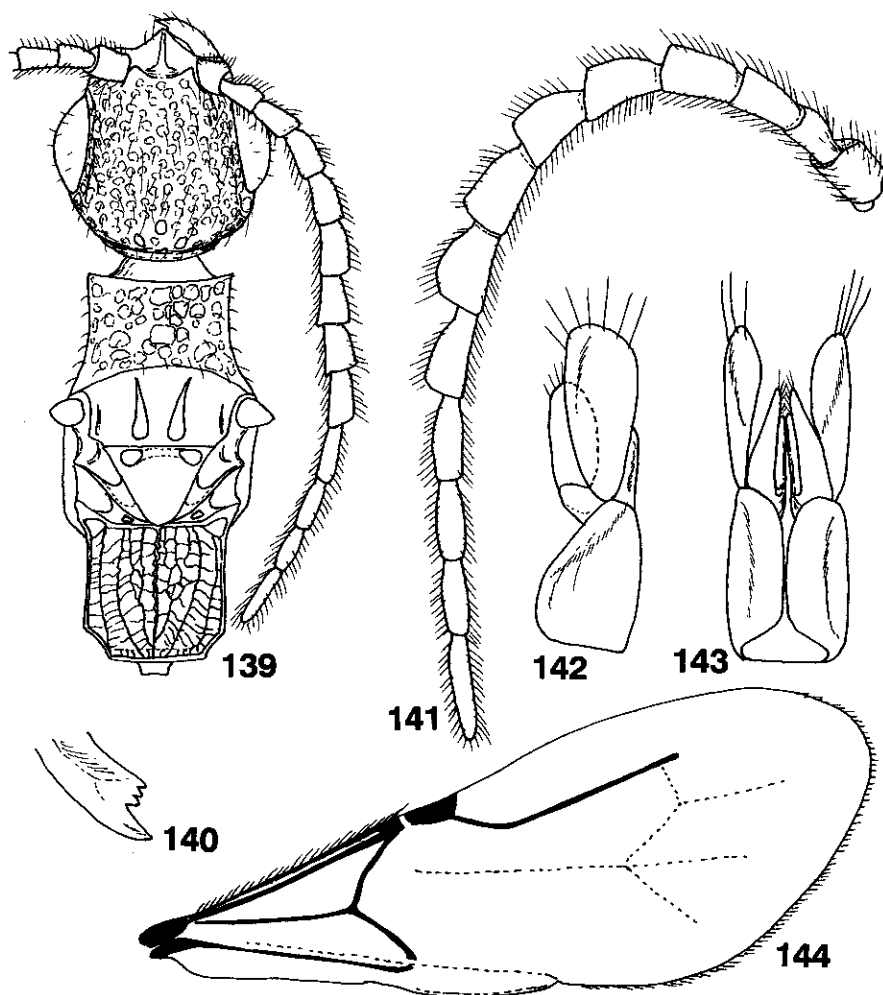


Plate XIV. Figs. 139-144, *Calyozina nepalensis* sp. nov. 139, Head and mesosoma, dorsal view; 140, mandible; 141, antenna; 142, genitalia, lateral view; 143, *ditto*, ventral view; 144, forewing.

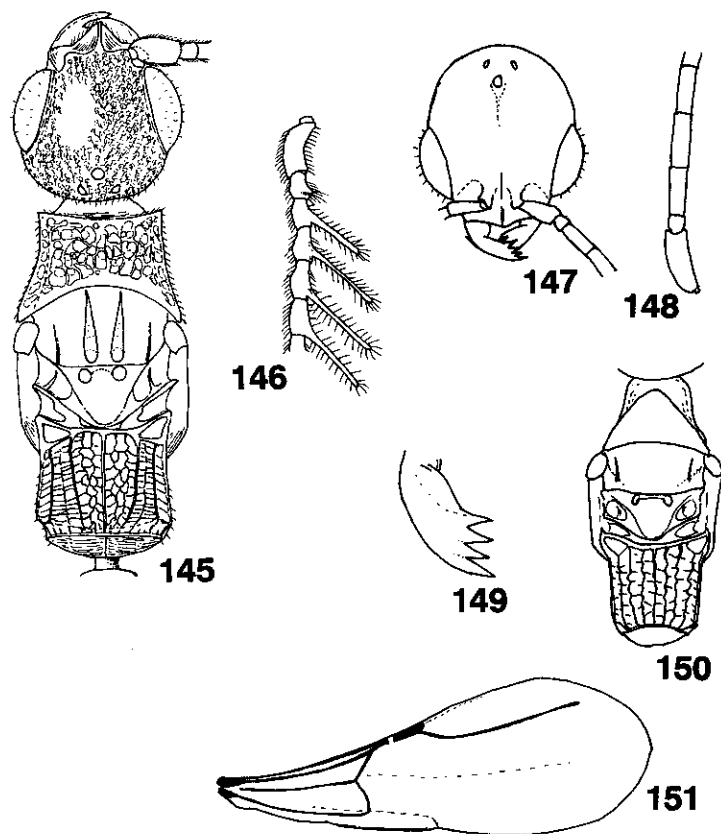
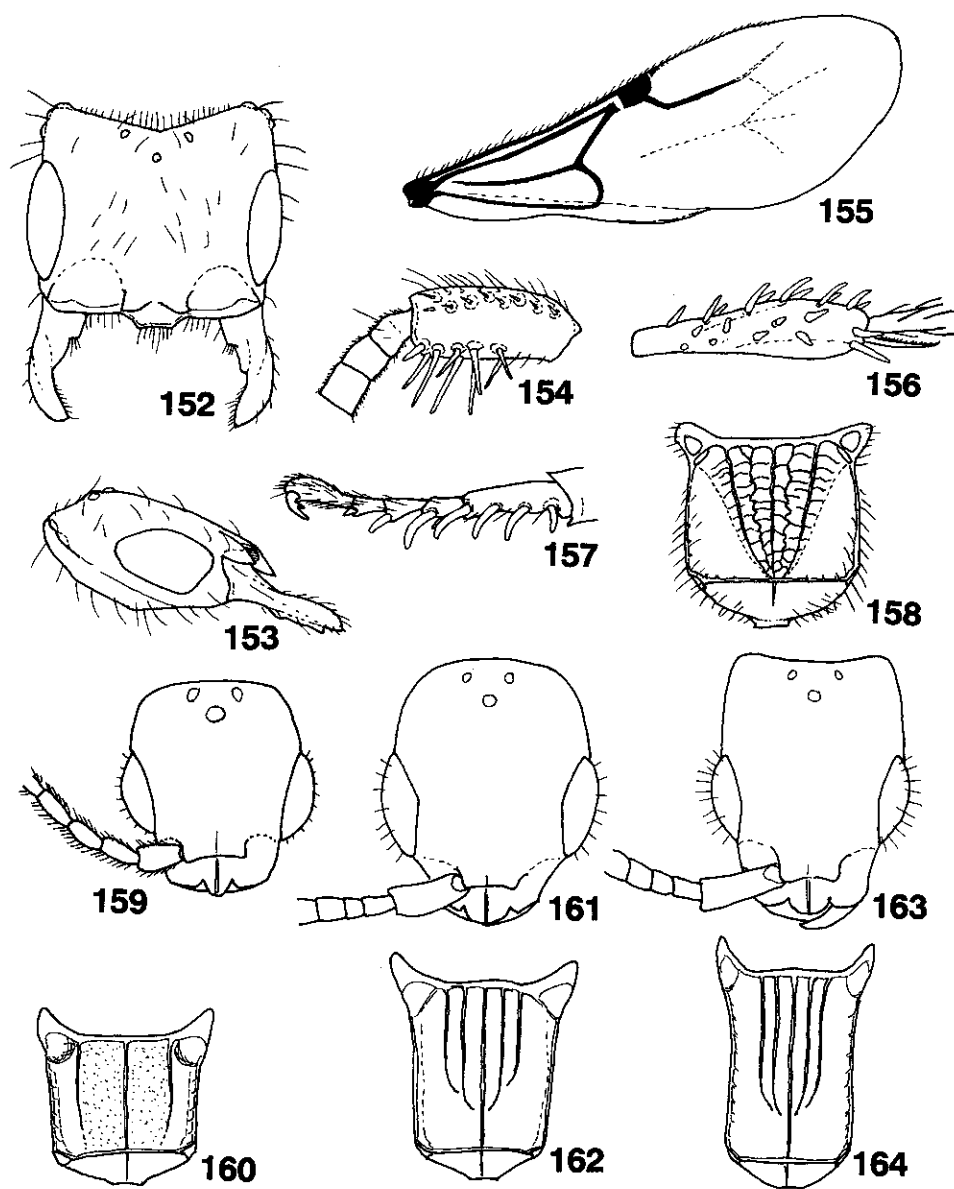


Plate XV. Figs. 145, 146, *Calyozina thaiana* sp. nov.; 147-151, *Isobrachium kongohyasha* sp. nov. 145, Head and mesosoma; 146, first 6 segments of antenna; 147, head, full face view; 148, first 5 segments of antenna; 149, mandible; 150, mesosoma; 151, forewing.



**Plate XVI.** Figs. 152-158, *Trachiepyris indicus* (Muesebeck, 1934); 159, *Holepyris shamensis* sp. nov.; 160, *H. sylvanidis* (Brethes, 1913); 161, 162, *H. thailandensis* sp. nov.; 163, 164, *H. seidakka* sp. nov. 152, 159-163, Head, full face view; 153, *ditto*, lateral view; 154, first 4 segments of antenna; 155, forewing; 156, middle tibia; 157, fore tarsus; 158, 160-164, propodeum, dorsal view.

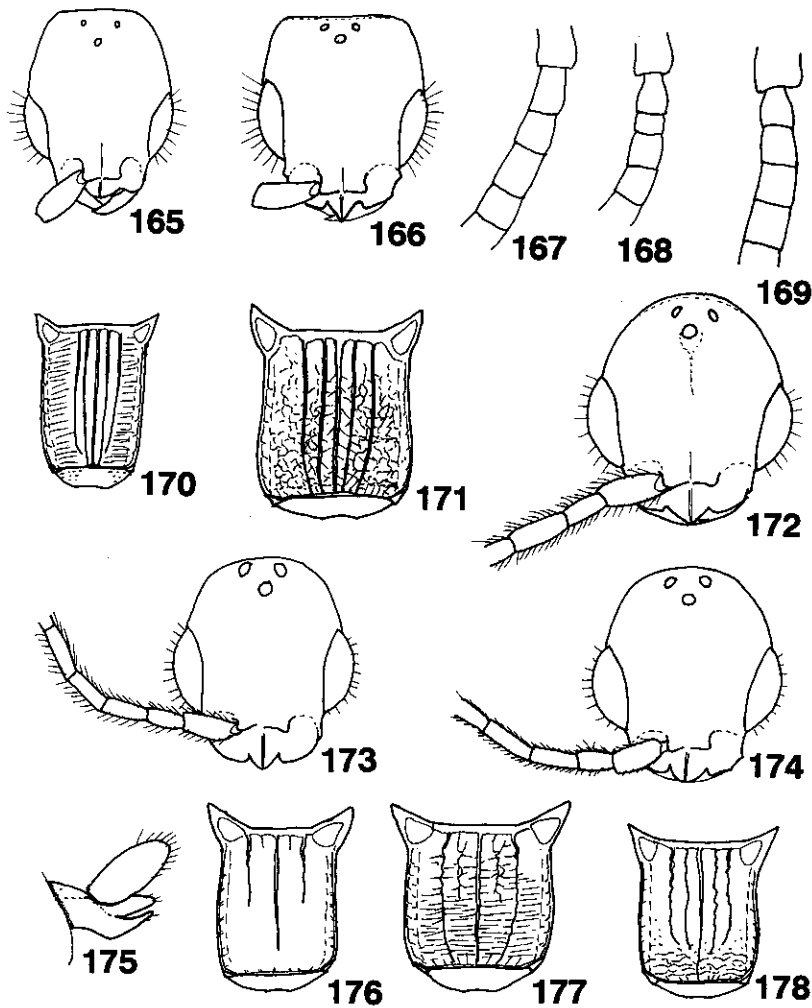


Plate XVII. Figs. 165, 168, 170, *Holepyris aekoh* sp. nov.; 166, 169, 171, *H. aeki* sp. nov.; 167, *H. seidakka* sp. nov.; 172, 176, *H. gundari* sp. nov.; 173, 175, 177, *H. gouzanze* sp. nov.; 174, 178, *H. daiitoku* sp. nov. 165, 166, 172-174, Head, full face view; 167-169, first 5 segments of antenna; 170, 171, 176-178, propodeum, dorsal view; 175, paramere, lateral view.

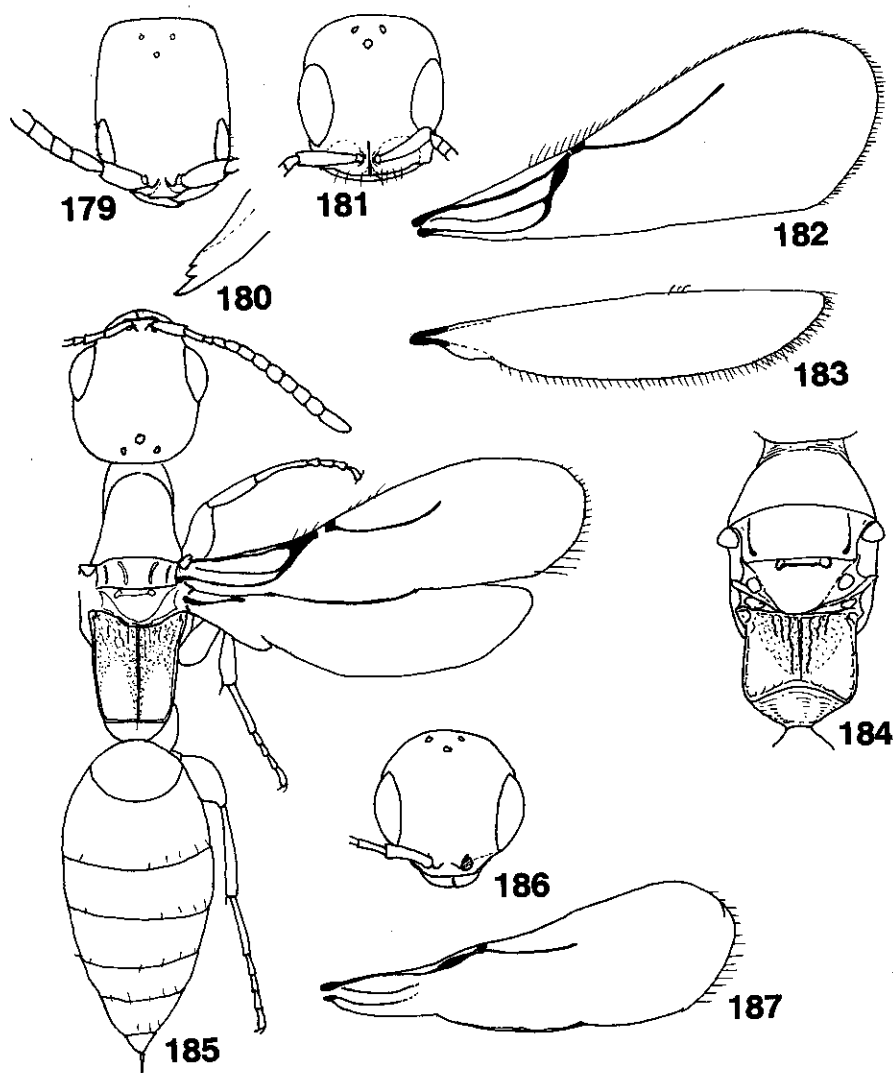


Plate XVIII. Figs. 179, 180, *Allobethylus khonkaensis* sp. nov.; 181-184, *Proplatanoxus elegans* gen. et sp. nov.; 185-187, Undescribed new genus (185, female; 186, 187, male; Terayama, in prep.). 179, 181, 186, Head, full face view; 180, mandible; 182, 187, forewing; 183, hindwing; 184, mesosoma, dorsal view; 185, body, dorsal view.

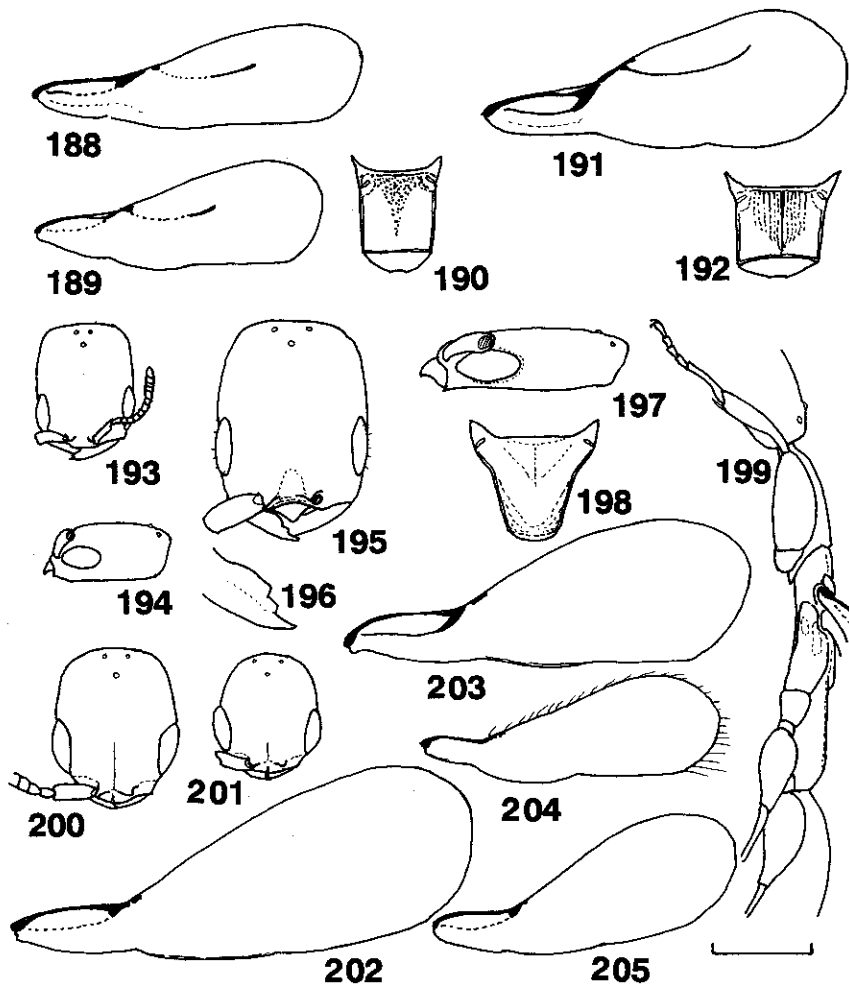


Plate XIX. Figs. 188-190, *Plastanoxus konishii* sp. nov. (188, 190, female; 189, male); 191, 192, *P. thailandensis* sp. nov., female; 193, 194, 204, *Cephalonomia elegantula* sp. nov.; 195-199, 202, *C. chihpenensis* sp. nov., female; 203, *C. tarsalis* (Ashmead, 1893), female; 200, 201, 205, *C. thaiana* sp. nov. (200, 205, female; 201, male). 188, 189, 191, 202-205, Forewing; 190, 192, 198, propodeum, dorsal view; 193, 195, 200, 201, head, full face view; 194, 197, *ditto*, lateral view; 196, mandible; 199, mesosoma, lateral view. Bar: 0.5mm for Figs. 188-205.