NOTES ON EMBIDOBIINI (SCELIONIDAE: HYMENOPTERA) WITH DESCRIPTION OF A NEW GENUS

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Abstract

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Endecascelio stipitipennis n. gen. and n. sp. is described from Central Africa (former Belgian Congo). The extent and interrelationships of the tribe Embidobiini are discussed. A diagnosis of the tribe and a key to genera of the world is given.

The genus *Embidobia* Ashmead is for the first time reported from the Oligocene of Baltic amber.

While sorting miscellaneous Proctotrupoidea from Central Africa the second author found an unusual scelionid that immediately attracted his attention. This wasp, described below as a new genus and species, has sparked our interest because of its bearing on the clarification and extent of the tribe Embidobiini of the subfamily Scelioninae (Scelionidae).

Recently, the genus *Embidobia* Ashmead was redefined, following the examination of the type-species (Masner 1964). In 1968 Masner pointed out the close relationships of *Embidobia* Ashmead, *Echthrodesis* Masner, *Mirobaeoides* Dodd, and *Mirobaeus* Dodd, to form a natural unit within Scelioninae. In 1970 Kozlov established the monotypic tribe Embidobiini for reception of *Embidobia.* The present paper extends the limits of Embidobiini by inclusion of the above mentioned genera as well as the new genus from Central Africa. In accordance with Kozlov (1970) the tribe Embidobiini is considered as a highly apomorphous and specialized branch of Scelioninae with distinct ties to both Gryonini and Psilanteridini. Among the numerous other genera of Scelioninae only *Palaeogryon* Masner might have some ties to Embidobiini (cf. Masner 1969), yet we hesitate to include it in this tribe before the male sex and the host relationships of this highly peculiar genus are known.

The striking resemblance of Embidobiini with Baeini and Idrini is, probably, due to convergence. In some species of Baeini and particularly of Idrini the antennal club in the female shows traces of three faint sutures that subdivide the club seemingly into four segments. In Embidobiini, however, the four-segmented club of the female antenna has true segmentation, each segment being separated by a distinct gap. The two different types of club formation are easily seen following the treatment of the antennae in potassium hydroxide (KOH).

Morphologically, the tribe Embidobiini is homogenous and quite peculiar chiefly because of the 11-segmented antennae in the females. Biologically, however, the genera are greatly different. *Embidobia* (Neotropic, Palearctic, Oriental, Australian) and an undescribed genus from the Neotropic region are parasitic in eggs of Embioptera (Ashmead 1896; Dodd 1939; unpub. data). *Echthrodesis* (Ethiopian), on the other hand, is perhaps the most unique genus of Scelionidae in that individuals attack the egg masses of an amaurobiid spider in the intertidal zone of the South African coastline (Lamoral 1968; Masner 1968). The biology of an undescribed genus of Embidobiini (related to *Echthrodesis*) from the South African mainland is unknown. The hosts and habits of the two Australian genera viz. *Mirobaeus* and *Mirobaeoides* are also unknown.

During the preparation of this paper the first author had an opportunity to study a female of *Embidobia* sp. preserved in Baltic amber (coll. C. T. Brues, Harvard University). The Oligocene species is closest to extant *Embidobia gryontoides* (Priesner) described recently from Egypt. In 1964 when synonymizing *Efflatounina* with *Embidobia* the first author pointed out that there were only very minute differences between the two genera. The Oligocene species fills this minute gap by being perfectly interjacent. The occurrence of *Embidobia* in Baltic amber demonstrates again that the climate was generally warmer in the Baltic basin during the Oligocene. The hosts of this parasitic genus (order Embioptera) now are distributed much more to the south of the Baltic Sea.

Tribe Embidobiini Kozlov, 1970 s.l.

Lateral ocelli either touching the inner orbit or rather close to it; antennae in female sex 11-segmented with rather abrupt 4-segmented club, in males (so far known) 12-segmented, segments 11 and 12 not fused; mesoscutum anteriorly without specialized polished area; tibial spur formula 1-1-1; metasoma subsessile, moderately elongate, with submarginal impressed groove, with 7 tergites and 6 sternites in female, first three tergites the largest, tergites 2 and/or 3 usually the longest, first tergite transverse, sometimes with a hump in female; seventh tergite not extrusible with ovipositor, rather large, triangular, pointed, with 2 pairs of long upcurved bristles arising from sensory plates.

So far known only as egg parasites of *Embioptera* and *Arachnida*.

Genera included. *Embidobia* Ashmead (*Efflatounina* Priesner), *Endecascelio* n. gen., *Echthrodesis* Masner, *Mirobaeus* Dodd, *Mirobaeoides* Dodd.

Key to Genera of Embidobiini of the World

1. Wings and venation developed 2
– Wings absent or vestigial, no distinct venation 3
2. Stigmal vein distinctly longer than marginalis, postmarginalis present; eyes longer than cheeks; lateral ocelli distant from eye margin at their own diameter; third tergite of metasoma as long as second tergite or slightly longer. Neotropic, Palearctic, Oriental, Australian, Fossil or Baltic Oligocene ..... *Embidobia* Ashmead ♂ ♀
– Stigmal vein much shorter than marginalis, postmarginalis absent (Fig. 5); eyes much shorter than cheeks, lateral ocelli distant from eye margin by far more than own diameter (Figs. 2, 3); third tergite much shorter than second tergite (Fig. 1). Ethiopian ..... *Endecascelio* n. gen. ♀
3. Second tergite of metasoma by far the largest; eyes densely hairy, small, as long as cheeks; lateral ocelli very small, not touching the inner orbit; head, mesosoma dorsally, and metasoma clothed with extremely dense silvery hairs to such extent that sutures are difficult to observe. Ethiopian .... *Echthrodesis* Masner ♂ ♀
– Third tergite by far the largest; eyes large and bare; lateral ocelli touching the inner orbit; body not conspicuously hairy 4
4. Scutellum present, rather large, 3 times wider than long; third tergite of metasoma 1.5 times longer than second tergite. Australian ..... *Mirobaeus* Dodd ♀
– Scutellum absent; third tergite occupying almost all of dorsal part of metasoma. Australian ..... *Mirobaeoides* Dodd ♀

Endecascelio new genus

Type-species. *Endecascelio stipitipennis* n. sp. (described below).

Female. Head strongly transverse, as wide as mesosoma; lateral ocelli distant from eyes at about 2.5 of their own diameter; eyes sparsely hairy, very small, shorter than cheeks; vertex without carina yet rather acute angled; mandibles tridentate; antenna 11-segmented, segments 4–7 very short, transverse, club distinctly 4-segmented.

Mesosoma rather short and high, slightly shorter than broad; mesoscutum broadly transverse, without furrows and without specialized anterior area; scutellum semicircular, unarmed, separated from mesoscutum by a deep simple suture; metanotum very narrow, unarmed, not protruding medially, almost overlapped by posterior margin of scutellum; propodeum deeply excavate medially, excavation flanked by acute edge at each side, posterolateral corners of propodeum also acute and strongly protruding; fore and hind wings stipitate, i.e. with a great part of base very narrow; fore wing rather pointed apically, with extremely long fringes between the frenal gutter and the tip of the wing, the fringes forming a solid dark strip along the margin of the wing if adpressed; submarginal vein attaining to about half the wing length, inconspicuously 'broken' in distal two-thirds, marginal vein almost 2.5 times as long as short-knobbed stigmalis, postmarginalis and all other veins absent; hind wing with submarginal vein attaining to ⅔ length, with rather long marginal cilia; tarsi 5-segmented; tibial spur formula 1-1-1.

Metasoma elongate, flat dorsally, strongly keeled ventrally, twice as long as mesosoma, broadly sessile, all segments transverse; submarginal impressed groove distinct, tergopleurites very narrow; first and second tergites with sharp carinae running dorsally along the sides; first tergite medially with a large hump directed backwards; second tergite the longest; following tergites shorter, seventh tergite spatulate, triangular, with 2 pairs of bristles arising from sensory plates.

Male. Unknown, but once discovered it may be easily associated and recognized by the long marginal vein in the fore wing. The following combination of characters peculiar to this genus applies to the female sex only: 11-segmented antenna, peculiar metasomatic hump directed backwards, large triangular seventh tergite and also, probably, the small eyes with ocelli rather distant from the inner orbit. *Endecascelio* differs from *Embidobia* and *Echthrodesis* by wing venation and absence of a hairy coating, respectively. The stipitate wings and the metasomatic hump facing backwards are quite peculiar to this new interesting genus.

Endecascelio stipitipennis new species

Figs. 1–6

Female. Hazelnut brown, metasoma and particularly the hump lighter, scape and following six segments, ventral side of club, mandibles, and all legs including coxae yellow; wings hyaline.

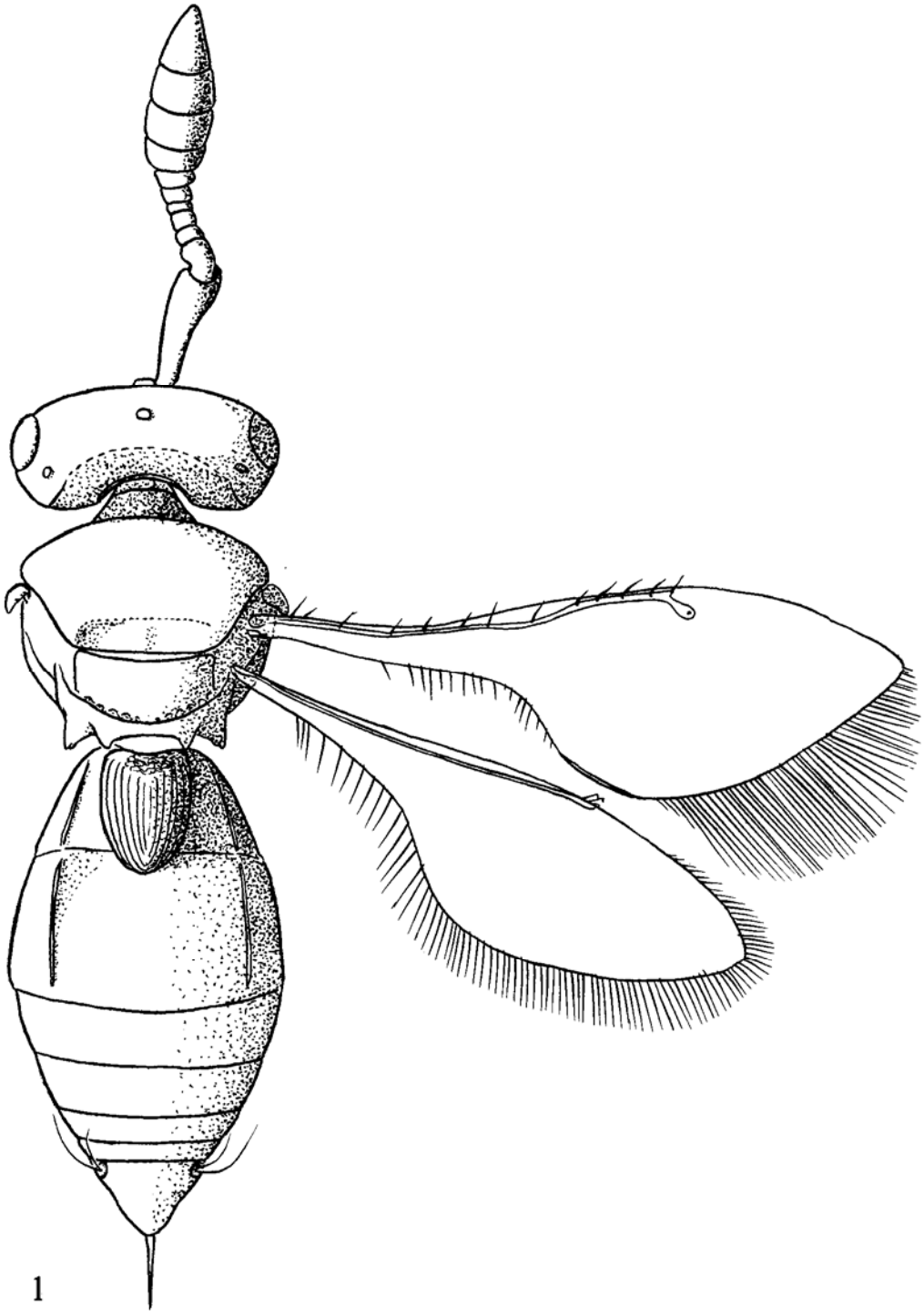
Most of head covered with sparse adpressed hairs; frons medially almost smooth and highly shining, with a strong median keel running up from antennal insertion but not reaching the median ocellus; heavy longitudinal striae emerge from anterior tentorial pits encircling eyes, so that cheeks and most of frons along the inner orbits are longitudinally striate; malar groove obscured by striation; temples almost smooth; vertex and occiput finely rugose; ocelli very small, widely separate, POL:LOL:OOL (in μ) 265:140:63; eyes small, elliptical (115μ:75μ); scape longer than following six segments combined; pedicel twice as long as segment 3, segments 4–7 strongly transverse; segments of club transverse, apical one clearly conical.

Mesoscutum and scutellum with numerous minute adpressed hairs, in sculpture very similar to vertex; mesoscutum regularly convex at anterior margin but with a transverse posterior depression; scutellum transverse, its posterior margin with a foveolate furrow; sides of pronotum seemingly rugose; mesopleuron separate from both pronotum and metapleuron by strongly raised carinae, divided in two vertical strips, the antero-lateral one, narrowly pointed above, convex and rugose, and the posterior one nearly parallel-sided, concave and longitudinally striate; metapleuron convex but similarly striate.

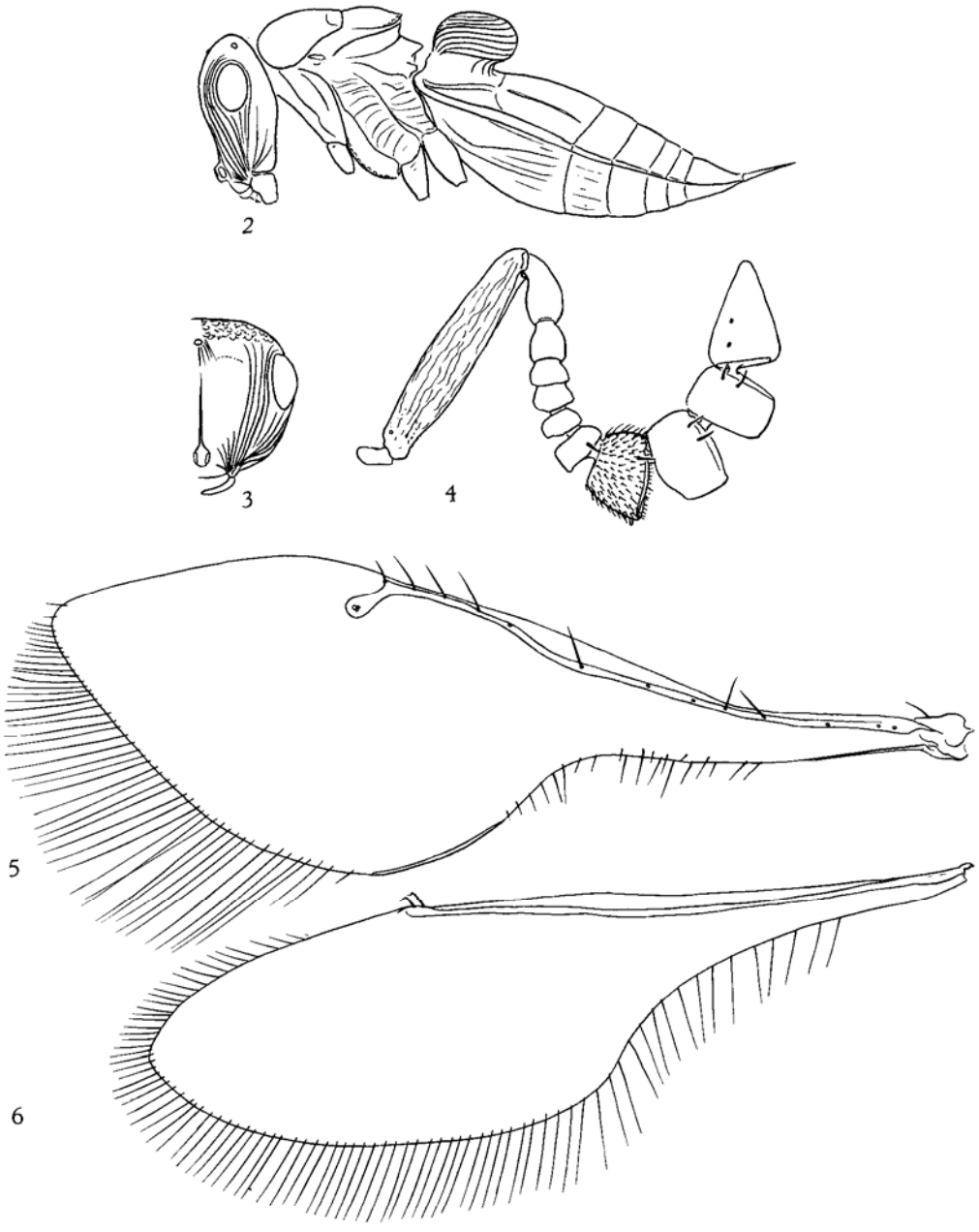
The elliptical base of metasomatic hump nearly as long as tergite 1, but the top of hump extending posteriorly backwards over the base of tergite 2; ellipsoidal part of hump with reticulate anterior face, elsewhere with longitudinal striae converging towards the apex, the basal part with short vertical striae; tergite 1 with a few longitudinal striae; tergites 2 and 3 with evenly dense granulose sculpture, following tergites with much finer sculpture, apical tergite smooth and shining; ovipositor slightly exserted.

MEASUREMENTS (in μ).

Antenna (length:width)	1(255:48)	2(83:41)	3(38:39)
	4(24:41)	5(26:43)	6(31:45)
	7(35:57)	8(76:86)	9(78:90)
	10(70:86)	11(117:76)	



FIGS. 1–6. *Endecascelio stipitipennis* ♀, holotype (drawings by P. Dessart). 1, dorsal aspect; 2, lateral aspect; 3, head, seen from front; 4, left antenna; 5, fore wing; 6, hind wing.



FIGS. 2–6.

Head (length:width:height) 175:390:390
Mesosoma (length:width:height) 340:380:335
Metasoma (length:width:height) 795:405:265
Mesoscutum (length) 175
Scutellum (length:width) 115:240
Metasomatic hump (base) 130
(ellipsoidal part) 190:120:75
Fore wing (length:width) 950:310
Hind wing (length:width) 875:255
Total body length: 1310 μ (1.3 mm)

Male. Unknown.

HOST. Unknown.

HOLOTYPE. 1 ♀, on card point, left antenna and left pair of wings on slides No. 6911/061. Labels: Congo belge: Parc National Albert, 29-IX–3-X-1952, P. Vanschuytbroeck & J. Kekenbosch 1077-81; Massif Ruwenzori, Kalenge. 2000 m Riv. Katsambu affl.Butahu.

Type deposited in the Musée Royal d'Afrique centrale, Tervuren, Belgium.

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