

New Species of the American Genus
Adelph Mocsary
(Hymenoptera, Chrysididae)

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Abstract. Fourteen new species of *Adelph* are described, from several Caribbean islands, Central and South America.

New Species of the American Genus *Adelph*

Adelph is considered to be one of the more primitive genera of Amiseginae (Krombein 1957), based on the females having fully developed wings, the propodeum laterally angulate or toothed, eyes with long erect setae, the generally large and well-developed occipital carina, and the presence of a lateral marginal groove on the pronotum.

Although not as extremely sexually dimorphic as some genera of Amiseginae *Adelph* does have some modifications found only in one sex or the other. Females have the flagellum short and fusiform and the basal articles may be partly white, as in *paradoxa*. The male flagellum is elongate, slender and cylindrical in cross section. Males have large flattened foliaceous mandibles with one, or more typically 2 apical teeth. This modification of the male mandible is unique in the Chrysididae.

These wasps are undoubtedly parasites of walking stick eggs. However, only the host of *anisomorphae* is known. This species was reared from the eggs of *Anisomorpha ferruginea* (Beauv.) (Phasmatidae) in Georgia, Louisiana, Florida and New York (Krombein 1957).

Adelph occurs primarily in the neotropical region as far south as northern Argentina. One species, *anisomorpha*, is found in the eastern United States and southeastern Canada. Although collections are sparse, each major Caribbean island appears to have its own species, with 2 in Jamaica.

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The following abbreviations are used: MOD = midocellus diameter, LID = least interocular distance, F = flagellum, and PD = puncture diameter. Some of these and other measurements are illustrated in figs. 2, 4, 7 and 8. Type repositories are indicated in capitals.

Adelph Mocsary

- Adelph* Mocsary 1890. Termez. Fuzetek 13:46.
Adelph mexicana Mocsary 1890:46. Monotypic and desig. by Ashmead 1902.
Pseudepyris Ducke 1902. Zs. Hym. Dipt. 2:204.
Type: *Pseudepyris paradoxa* Ducke 1902:205.
Monotypic and desig. by Bodenstern 1939.
Adelpha Schulz 1906. Spolia Hym. p. 153.
Unnec. proposed for *Adelph* Mocsary 1890.
Preocc. by Hubner 1819.
Parachrysis Kieffer 1910. Ann. Soc. Ent. France 78:287. Preocc. by Gribodo 1879.
Type: *Parachrysis metallic* Kieffer 1910:288. Monotypic and desig. by Krombein 1959.

Adelph antennalis Kimsey,
new species

Holotype male: Body length 3 mm. Face polished with shallow punctures 0.50-1.0 PD apart; scapal basin smooth without sculpturing; mandibles with 2 apical teeth; subantennal distance 0.6 MOD long; malar space 3 MOD long; postocular distance 0.9 MOD long; F-I length 4.8 times width; F-II 2.6 times as long as broad; mesopleuron with small, sparse shallow punctures; scrobal sulcus narrow and parallel-sided, about 7 times as long as broad; metanotal disk about as long as broad; propodeal

Key to *Adelophe* Males

1. Scapal basin with extensive cross-ridging medially (as in figs. 3,5) 2
 Scapal basin smooth and impunctate medially, without cross-ridging (as in
 figs. 1,2,4) 7
2. Pronotal anterior carina faint or obsolescent 3
 Pronotal anterior carina well-developed 4
3. Metanotal disk 4 times as broad as long *jamaicensis* Kimsey
 Metanotal disk twice as broad as long or narrower *cylindrica* Kimsey*
4. Thorax red, malar space 4-5 MOD long, subantennal distance 0.6 MOD long
 *masneri* Kimsey
 Thorax black, malar space shorter than 3.5 MOD, subantennal distance 1 MOD or
 longer 5
5. Scrobal sulcus 6-7 times as long as broad, mandible with single apical tooth .
 *paradoxa* Mocsary
 Scrobal sulcus 3.5-5.0 times as long as broad, mandible apically bidentate . 6
6. Subantennal distance about 1 MOD; malar space less than 2.5 MOD long; F-I
 less than 3.5 times as long as broad; antenna dark brown, except scape
 red *robusta* Kimsey
 Subantennal distance more than 1.5 MOD, malar space more than 3 MOD long,
 F-I 4 times as long as broad, antenna red *confusa* Kimsey
7. F-I length more than 4 times breadth 8
 F-I length less than 4 times breadth 11
8. Scrobal sulcus less than 4 times as long as broad, propodeal posteromedial
 enclosure rugose *laevis* Kimsey
 Scrobal sulcus 6-7 times as long as broad, propodeal posteromedial enclosure
 smooth 9
9. Subantennal distance 0.6 MOD, pedicel yellow, postocular distance 1 MOD or
 shorter *antennalis* Kimsey
 Subantennal distance 1 MOD or longer, pedicel brown, postocular distance
 longer than 1.5 MOD 10
10. Malar space 3 MOD long, F-II length more than 3 times breadth, scape
 yellow *cubana* Kimsey
 Malar space shorter than 2.5 MOD. F-II length less than 3 times breadth,
 scape brown *puertoricana* Kimsey
11. Scrobal sulcus 4 times as long as broad or shorter 12
 Scrobal sulcus 6-7 times as long as broad 14
12. Subantennal distance less than 1 MOD, scrobal sulcus 2.5-3.0 times as long
 as broad, malar space shorter than 3 MOD *flavipes* (Ducke)
 Subantennal distance 1.5 MOD or longer, scrobal sulcus 4 times as long as
 broad, malar space 4 MOD or longer. 13
13. F-I about twice as long as broad; metanotal disk as long as broad; scape,
 pedicel and legs yellow; propodeal posteromedial enclosure
 smooth *longifacies* Kimsey
 F-I length 3 times breadth; metanotal disk breadth 3 times length; scape
 and legs red, pedicel brown; propodeal posteromedial enclosure
 rugose *anisomorphae* Krombein

* Although *cylindrica* is only known from the female the structure of the scapal basin, pronotum and metanotum should be the same in both sexes.

14. Malar space 3 MOD or longer, eyes without setulae *calvata* Kimsey
Malar space shorter than 3 MOD, eyes with setulae 15
15. Postocular distance 1 MOD or shorter 16
Postocular distance longer than 1 MOD 17
16. Malar space 2 MOD long, subantennal distance shorter than 0.5 MOD, legs
yellow *metallica* Kieffer
Malar space almost 3 MOD long, subantennal distance longer than 0.5 MOD,
legs brown *insula* Kimsey
17. Propodeal dorsolateral enclosure smooth, lateral tooth apically whitish
translucent; legs yellow 18
Propodeal dorsolateral enclosure rugose, lateral tooth black; legs
brown *mexicana* Mocsary
18. Subantennal distance about 1 MOD, postocular distance less than 1.5 MOD,
F-I more than 3 times as long as broad, propodeal dorsomedial
enclosure cross-ridged *brasiliensis* Kimsey
Subantennal distance more than 1 MOD, postocular distance more than 1.5
MOD, F-I less than 3 times as long as broad, propodeal dorsomedial
enclosure smooth *nesos* Kimsey

dorsomedial enclosure cross-ridged, dorso-lateral enclosure coarsely rugose, postero-medial enclosure smooth, lateral tooth tiny acute, black and almost absent. Head and thoracic dorsum with faint bluish tints, scape and pedicel yellow, flagellum brown; legs yellow. Ocular setulae 0.6 MOD long, flagellar setae 0.7 MOD long.

Female: Unknown.

Holotype male: BRAZIL: Teresopolis, 3 March 1966 (H. and M. Townes, GAINESVILLE). Paratypes - 2 males: BRAZIL: same data as type and Serra dos Orgaos, 21-26 January 1969, C. Porter and A. Garcia.

Discussion: The most distinctive feature of male *antennalis* is the unusually long F-I. This species can also be recognized by the extensively sculptured propodeum, short subantennal distance and yellowish scape and pedicel. It most closely resembles *anisomorphae* but can be distinguished, in addition to the characteristics given above, by the sparser punctation and simple parallel-sided scrobal sulcus.

Adelphe brasiliensis Kimsey,
new species
(Fig. 7)

Holotype male. Body length 3.5 mm. Face polished with shallow punctures, punctures 0.5-2.0 PD apart, scapal basin impunctate and polished; mandibles with 2 apical teeth; subantennal distance 0.9 MOD; malar space 2.5 MOD; postocular distance 1.4 MOD long; occipital

carina large and flared; F-I 3.6 times as long as broad; F-II length 2.3 times breadth; mesopleuron (fig. 7) polished and impunctate; scrobal sulcus narrow and parallel-sided, 6 times as long as broad; metanotal disk 1.5-2.0 times as long as broad; propodeal dorsomedial enclosure with a few transverse cross-ridges, dorsolateral enclosure smooth, postero-medial enclosure entirely rugose, lateral tooth capitate and apically translucent white. Ocular setae relatively dense and more than 0.6 MOD long, flagellar setae more than 0.7 MOD long. Head and thoracic dorsum with blue highlights; scape and pedicel yellowish, flagellum brown; legs yellow. Body with extensive erect black setae. Ocular setulae and flagellar setae 0.9 MOD long.

Female: Unknown.

Holotype male: BRAZIL: Rio de Janeiro, Mangaratiba, Muriqui, July 1969 (M. Alvarenga, GAINESVILLE). Paratypes - 11 males: BRAZIL: same data as type (1 male); Guanabara, Represa, Rio Grande (M. Alvarenga), December 1967 (3 males), July 1966 (1 male), January 1968 (1 male), September 1969 (2 males); Rio de Janeiro, 7 March 1966 (H. and M. Townes) (1 male); Minas Gerais, Serra do Caraca, Santa Barbara, February 1969 (F. M. Oliveira) (1 male).

Discussion: This Brazilian species superficially resembles *metallica* and to a lesser extent *mexicana*. It can be distinguished from these and other *Adelphe* species by the large, flared occipital carina, the propodeum with the dorsomedial enclosure smooth, posteromedial enclosure rugose and lateral tooth whitish apically, and the scape and pedicel reddish yellow.

Adelpho calvata Kimsey
new species
(Fig. 1)

Holotype male: Body length 3 mm. Face (fig. 1), polished with shallow punctures 1.0-1.5 PD apart, scapal basin smooth and impunctate without cross-ridging; mandibles apically bidentate; eyes asetose; subantennal distance 0.9 MOD; malar space 3.5 MOD; postocular distance 0.6 MOD; F-I 2.9 times as long as broad; F-II length 1.5 times breadth; mesopleuron nearly impunctate except for sparse tiny prick-like punctures, scrobal sulcus narrow and parallel-sided, 7 times as long as broad; metanotal disk about as broad as long; propodeal dorsomedial enclosure cross-ridged, dorsolateral enclosure cross-ridged, posteromedial enclosure smooth, without sculpture, lateral tooth clear and slightly bulbous apically. Head and thoracic dorsum with faint green tints; entire antenna concolorous dark brown; legs yellow. Eyes asetose, flagellar setae 0.6 MOD long.

Female: Unknown.

Holotype male: BRAZIL: Amazonas, 71 38'W, 4 33'S, September 1979 (M. Alvarenga, GAINESVILLE).

Discussion: *A. calvata* is also closely related to *metallica*, but it can be separated from that and other species by the asetose eyes, long flared occipital carina, short male F-I and II, whitish propodeal tooth and the metanotal disk about as broad as long. The lack of ocular setae is unique to *calvata*, all other *Adelpho* have clearly, often densely setose eyes.

Adelpho confusa Kimsey
new species
(Fig. 3)

Holotype male: Body length 4.5 mm. Face (fig. 3) coarsely punctate along margin of scapal basin, sparser laterally and dorsally, punctures 0.5-1.0 PD apart; scapal basin with coarse, even cross-ridges; mandibles with 2 apical teeth; subantennal distance elongate, 1.9 MOD; malar space 3.4 MOD long; postocular distance 1.2 MOD; F-I length 4 times width; F-II length 2.7 times width; mesopleuron with large shallow punctures, 0.5-1.0 PD apart; scrobal sulcus broad, 4.5 times as long as broad; metanotal disk 2.5 times as wide as long; propodeal dorsomedial enclosure coarsely rugose, posteromedial enclosure finely rugose, lateral angle obtuse and obsolescent. Face and thoracic dorsum with greenish bronze highlights; antenna, legs and abdomen red. Ocular setulae 0.2 MOD long, flagellar setae 0.6 MOD long.

Female: Unknown.

Holotype male: PANAMA: Chiriqui Prov.,

15 km nw Hato del Volcan, 1200 m, 24-31 May 1977, Peck and Howden (OTTAWA).

Discussion: *A. confusa* is most similar to *robusta* the other Panamanian species, based on the cross-ridged scapal basin, broad scrobal sulcus, relatively short malar space and long clypeus. This species can be distinguished from others with a cross-ridged scapal basin by the entirely red antenna, the bronze highlights on the head and thorax, and the elongate malar space and F-I.

Adelpho cubana Kimsey,
new species

Holotype male: Body length 3.5 mm. Face with close, nearly contiguous shallow punctures; scapal basin small and smooth; mandibles with 2 apical teeth; subantennal distance 1.2 MOD; malar space 3.1 MOD long; postocular distance 1.8 MOD; F-I length 4.5 times breadth; F-II 3.3 times as long as broad; mesopleuron with tiny sparse punctures, 2-4 PD apart; scrobal sulcus narrow, about 6 times as long as broad; metanotal disk about 1.5 times as broad as long; propodeal dorsomedial enclosure narrow and vaguely wrinkled, dorsolateral and posteromedial enclosures smooth, with posteromedial carina obsolescent, lateral angle reduced to small bump. Head and thorax black without highlights; legs yellow; scape yellowish, pedicel and flagellum brown. Ocular setulae 0.3 MOD long, flagellar setae 0.5 MOD long.

Female: Unknown.

Holotype male: CUBA: Pico Turquino, in side, 18-20 June 1936, 4500-6000 ft, Darlington (CAMBRIDGE).

Discussion: Although Cuba is closest to the mainland in Florida *cubana* does not appear to be closely related to *antismorphae* the North American species. Instead, *cubana* most closely resembles *puertoricana*, *laevis* and *antennalis* from Puerto Rico, Mexico and Brazil. Diagnostic features of this species are the long F-I and malar space, yellow scape and brown pedicel, relatively narrow metanotal disk and smooth propodeal enclosures.

Adelpho cylindrica Kimsey,
new species
(Fig. 5)

Holotype female: Body length 4 mm. Face (fig. 5) with coarse, nearly contiguous punctures; scapal basin with close fine cross-ridges; subantennal distance 1 MOD; malar space 3.7 MOD long; postocular distance nearly absent, 0.1 MOD long; F-I length 2.2 times breadth; F-II 1.1 times as long as broad; occipital carina and pronotal anterior and lateral carina reduced and somewhat obscure; thorax appearing compressed

and cylindrical; mesopleuron coarsely punctate, punctures 0.2 PD apart; scrobal sulcus narrow, about 7 times as long as broad; metanotal disk 1.7 times as broad as long; propodeal dorso-medial and lateral enclosures cross-ridged, posteromedial enclosure rugose, lateral angle small, obtuse and black. Head and thorax black without highlights; scape, pedicel, F-I-III and legs yellow; rest of body dark brown. Ocular setulae 0.5 MOD long, flagellar setae 0.5 MOD long.

Male: Unknown.

Holotype female: BRAZIL: Mato Grosso, Sinop, October 1976, malaise trap, M. Alvarenga (GAINESVILLE).

Discussion: *A. cylindrica* does not closely resemble any other species of *Adelph*. Although the pronotal carina is faint in both *cylindrica* and *jamaicensis* these species are very different otherwise and are probably not closely related. In addition, the compressed, somewhat cylindrical and coarsely punctate thorax, cross-ridged scapal basin and virtually absent postocular distance distinguish *cylindrica* from all other *Adelph*.

Adelph insula Kimsey,
new species

Holotype male: Body length 3.5 mm. Face with coarse contiguous punctures, scapal basin smooth with scattered punctures; mandibles apically bidentate; subantennal distance 0.9 MOD; malar space 2.9 MOD long; postocular distance 0.8 MOD; F-I length 3.4 times breadth, F-II 2.5 times as long as broad; mesopleuron smooth with tiny punctures separated by 2-3 PD; scrobal sulcus narrow, about 7 times as long as broad; metanotal disk 3 times as broad as long; propodeal dorsomedial and lateral enclosures finely cross-ridged, posteromedial enclosure rugose, lateral angle obtuse and absolescent. Head and thorax black without highlights; antenna dark brown; fore and midlegs yellowish brown, with brown tarsomeres, hindleg brown except tibia medially pale. Ocular setulae 0.3 MOD long, flagellar setae 0.2 MOD long.

Female: Unknown.

Holotype male: JAMAICA: Hardwar Gap, 4000 ft, 6 July 1966, Howden and Becker (OTTAWA).

Discussion: *A. insula* is one of 2 species from Jamaica; *jamaicensis* was collected on the coast and *insula* in the mountains. These species are very different structurally, and *insula* most closely resembles the Brazilian species *metallica* and *brasiliensis*, and *neos* from Guadeloupe, based on the smooth scapal basin, short F-I and long narrow scrobal sulcus. *A. insula* can be distinguished by the brown legs and antenna, malar space about 3 MOD long, subantennal distance about 1 MOD, the short post-

ocular distance, broad and short metanotal disk, and the coarsely sculptured propodeal enclosures.

Adelph jamaicensis Kimsey,
new species
(Fig. 10)

Holotype male: Body length 4 mm. Face coarsely punctate, punctures on brow contiguous to 0.5 PD apart; scapal basin with narrow medial zone of dense cross-ridging; mandibles apically bidentate; subantennal distance 1.2 MOD long; malar space 3.6 MOD long; postocular distance 1.4 MOD; F-I length 4.2 times breadth; F-II 2.9 times as long as broad; head ventrally with deep pit on either side of midline of genal bridge and long oral fossa (fig. 10); thoracic dorsum with deep nearly contiguous punctures; pronotum without lateral component of transverse anterior carina; mesopleuron coarsely punctate, punctures 0.5-1.0 PD apart, scrobal sulcus narrow and parallel-sided, traversed by several septa, over 7 times as long as broad; metanotal disk about 4 times as broad as long; propodeum dorsomedial and dorsolateral enclosures strongly cross-ridged, posteromedial enclosure coarsely rugose, lateral angle very slightly indicated; only 4 external terga visible. Body non-metallic black, with red scape, coxae and legs; wings with brown stain through stigma. Ocular setulae 0.4 MOD long, flagellar setae very short and fine, less than 0.1 MOD long.

Female: Body with dorsal punctation deeper than male and contiguous; color black and red, with red on entire antenna and legs, posterior half of pronotum, medial disk of mesopleuron, entire scutellum and side of propodeum; forewing with dense black setae on membrane, except medial white zone.

Holotype male: JAMAICA: Ocho Rios, Fern Gully, 19-28 February 1984, D. Lindeman (OTTAWA). Paratypes 3 males and 6 females, same data as type.

Discussion: This species exhibits several unusual features which distinguish it from other *Adelph*, including the incomplete pronotal carina, ventral pits on the head and nearly aseptose flagellum. The extensive red coloration of the female is somewhat similar to that seen in *masneri* although not as extreme. In addition, the coarse punctation of the body and cross-ridged scapal basin align *jamaicensis* with *masneri*, *paradoxa* and *robusta*.

Adelph laevis Kimsey,
new species

Holotype male: Body length 3 mm. Face polished, with shallow punctures 0.4-1.0 PD apart; scapal basin smooth; mandibles with 2

apical teeth; subantennal distance 1 MOD; malar space 2.3 MOD long; postocular distance 1.1 MOD; F-I length 4.3 times width; F-II length 2.3 times breadth; mesopleuron with few, tiny, scattered punctures 2-4 PD apart; scrobal sulcus broad, about 3.5 times as long as broad; metanotal disk about twice as broad as long; propodeal dorsomedial enclosure narrow and weakly rugose, dorsolateral enclosures smooth, posteromedial enclosure rugose along margins and smooth medially, lateral tooth tiny, acute and black. Head and thoracic dorsum with bronze highlights; legs yellow; scape and pedicel brown, only slightly lighter than flagellum. Ocular setulae 0.5 MOD long, flagellar setae 0.6 MOD long.

Female: Similar to male, except face more polished; F-I length 3 times breadth; F-II length 0.8 times breadth; propodeal dorsomedial enclosure smooth, lateral angle large and apically rounded; face and thoracic dorsum with coppery highlights; wings darker brown.

Holotype male: MEXICO: Veracruz, 33 km ne Catemaco, Tuxtlas Res. Sta., 160 m, 1 July 1983, M. Kaulbars (OTTAWA). Paratypes: 2 males and 1 female, same data as type; 1 female, Oaxaca: Metate, 85.5 km sw Tuxtepec, 17 October 1962, 900 m, H. and M. Townes.

Discussion: The most distinctive features of this species are the long male F-I, broad scrobal sulcus and brown antenna. It most closely resembles *puertoricana* in the dimensions of the head and antenna and brown antenna. *A. laevis* can be distinguished from this species by the broad scrobal sulcus, the propodeal posteromedial enclosure rugose and the bronze highlights on the head and thorax.

Adelpho longifacies Kimsey,
new species
(Fig. 4)

Holotype male: Body length 3 mm. Face (fig. 4) polished, with scattered punctures, 0.5-2.0 PD apart; scapal basin elongate and smooth; mandibles with 2 apical teeth; subantennal distance 1.6 MOD; malar space 4.3 MOD long; postocular distance 1.8 MOD; F-I length 2.1 times breadth; F-II 1.9 times as long as broad; mesopleuron with small punctures 0.2-4.0 PD apart; scrobal sulcus broad, about 4 times as long as broad and traversed by septa; metanotal disk small, circular and as broad as long; propodeal dorsomedial enclosure cross-ridged, dorsolateral enclosure rugose, posteromedial enclosure smooth, lateral angle tiny, acute and black. Head and thorax black without highlights; legs, scape and pedicel yellow, rest of body dark brown to black. Ocular setulae 0.7 MOD long, flagellar setae 0.8 MOD long.

Female: Unknown.

Holotype male: ECUADOR: Pichincha, 16 km se Santo Domingo, Tinalandia, 680 m, 15-30 June 1975, S. and J. Peck (OTTAWA). One male paratype: COLOMBIA: Choco, 15 km w Bolivar, 1900-2000 m, 14 June 1973, J. Helava.

Discussion: The most distinctive feature of this species is the very long smooth face, with an usually long clypeus. *A. longifacies* most closely resembles *anisomorphae* and *flavipes*. It can be distinguished from these and other *Adelpho* species by the long subantennal distance and long malar space, F-I and II about twice as long as broad, the scrobal sulcus 4 times as long as broad, the propodeal dorsomedial and lateral enclosures cross-ridged and posteromedial enclosure smooth.

Adelpho masneri Kimsey,
new species

Holotype male: Body length 3 mm. Face coarsely punctate, punctures on brow contiguous to 0.5 PD apart; scapal basin transversely cross-ridged; mandibles apically bidentate; subantennal distance 0.6 MOD long; malar space 4.7 MOD long; postocular distance 1.6 MOD; F-I length 3.1 times breadth; F-II 2.5 times as long as broad; mesopleuron with small dense punctures, 0.5-1.0 PD apart; scrobal sulcus long and parallel-sided, 7 times as long as broad; metanotal disk 4 times as broad as long; propodeum dorsomedial and dorsolateral enclosures cross-ridged, posteromedial enclosure smooth and without medial carina, without distinct lateral angle or tooth. Body non-metallic, head black, thorax and legs red, propodeum red except dorsum black, tegula and abdomen dark brown, scape red, pedicel and flagellum dark brown, forewing with brown band through stigma. Ocular setulae and flagellar setae 0.5 MOD long.

Female: Unknown.

Holotype male: DOMINICAN REP.: Loma El Penon, La Cumbre, P. Plata, L. Masner (OTTAWA). One male paratype, same data as type.

Discussion: *A. masneri* resembles *jamaicensis*, *robusta* and *paradoxa* due to the cross-ridged scapal basin. However, *masneri* can be distinguished from these species by its distinctive coloration, it is the only *Adelpho* species with a red thorax; the lack of a propodeal angle; the bidentate male mandible, and the short metanotal disk. This species is named for Lubomir Masner who collected both specimens and who is currently puzzling over the meaning of the black-red-black color pattern in Hymenoptera.

Adelphes nesos Kimsey,
new species
(Figs. 2,9)

Holotype male: Body length 4.5 mm. Face (fig. 2), with sparse shallow punctures separated by 1-2 PD, scapal basin impunctate and smooth with deep medial groove; mandibles apically bidentate; subantennal space 1.3 MOD long; malar space 2.2 MOD long; postocular distance 1.9 MOD long; F-I 2.8 times as long as broad; F-II 2.2 times as long as broad; mesopleuron with tiny punctures, 4-6 PD apart, scrobal sulcus parallel-sided, 7 times as long as broad; metanotal disk twice as broad as long; propodeum (fig. 9) dorsomedial enclosure smooth with slight rugosities along medial ridge, posteromedial enclosures smooth, lateral tooth long slender and translucent apically. Head and thoracic dorsum with blue highlights; scape reddish, rest of antenna brown; legs yellow. Ocular setulae very short and sparse, about 0.3 MOD long; flagellar setae denser and somewhat longer, 0.4 MOD long.

Female: Unknown.

Holotype male: GUADELOUPE: Domain Duclos Petit Bourg, Forest Castarel, 23 March 1977, malaise trap, W. H. Whitcomb (GAINESVILLE). Paratypes 3 males: same data as type except 16 March 1977; DOMINICA: Pont Casse, Rd. F. W. Lake, J. Maldonado; TRINIDAD: Waller Field, 8 February 1977, P. Feinsinger.

Discussion: *A. nesos* exhibits the least sculpturing and sparsest punctation of any species of *Adelphes*; the propodeal enclosures are all smooth. Another unusual feature of this species is the elongate, spikelike and apically whitish propodeal tooth.

Adelphes puertoricana Kimsey,
new species

Holotype male: Body length 2.5 mm. Face polished with large shallow punctures, 0.5-1.0 PD apart; scapal basin smooth; mandibles apically bidentate; subantennal distance 1.1 MOD; malar space 2.3 MOD long; postocular distance 1.6 MOD; F-I length 4.3 times breadth; F-II length 2.8 times breadth; mesopleuron polished with tiny punctures, 1-3 PD apart; scrobal sulcus narrow, about 6 times as long as wide; metanotal disk small, about twice as broad as long; propodeal enclosures smooth, lateral angle obsolescent, tiny and black. Head and thorax black without highlights; antenna brown, legs yellow. Ocular setulae 0.2 MOD long, flagellar setae 0.3 MOD long.

Female: Unknown.

Holotype male: PUERTO RICO: El Yirque Sta., Luguillo Forest, 1-16 July 1969, H. and A. Howden (OTTAWA).

Discussion: *A. puertoricana* most closely resembles *cubana* and less so *antennalis*, based on the smooth scapal basin, long F-I, long narrow scrobal sulcus and the propodeal posteromedial enclosure smooth. It can be separated from these species by the shorter malar space and F-II, brown scape and pedicel, and long subantennal and postocular distances.

Adelphes robusta Kimsey,
new species
(Figs. 6,8)

Holotype male: Body length 4.5 mm. Face with large contiguous punctures, scapal basin entirely covered with cross-ridging; mandibles apically bidentate; subantennal distance 0.9 MOD long; malar space 2.3 MOD long; postocular distance 1.2 MOD long (fig. 6); F-I length 3.2 times breadth; F-II length 2.3 times breadth; mesopleuron (fig. 8), with large shallow punctures; scrobal sulcus broad and traversed by several septa, 3.5 times as long as broad; metanotal disk twice as broad as long; propodeal dorsomedial enclosure evenly cross-ridged, dorsolateral enclosure rugose, posteromedial enclosure coarsely rugose, lateral tooth short, blunt, somewhat enlarged apically and black. Dorsum of head and thorax with bronze-green highlights; scape, pedicel and base of F-I reddish brown, rest of flagellum dark brown; legs yellow. Body with extensive erect, long black setae. Ocular and flagellar setae dense, 0.5 MOD long.

Female: Same as male, except F-I length twice breadth; F-II length 0.8 times breadth; scape, pedicel and F-III red, remaining flagellomeres dark brown; femora dark brown, rest of leg lighter brown; body more densely setose, and head more coarsely punctate and cross-ridged than male.

Holotype male: PANAMA: Zona del Canal, Barro Colorado Island, 20 September 1976 (R. B. and L. S. Kimsey, DAVIS). Paratypes: 13 males and 4 females: Same data as type, except 15 September 1976 (1 male) and 8 September 1981 (1 female); Hato del Volcan, July 1982, B. Gill (2 males and 1 female); COSTA RICA: Osa Peninsula, Sirena, July 1977, D. H. Janzen (1 male); COLOMBIA: Valle, Central de Anchicaya, 30 km e Buenaventura, R. C. Wilkerson, 14-16 July 1975 (2 males); ECUADOR: Pichincha Prov., Santo Domingo, 17-30 July 1975, S. and J. Peck (1 male); PERU: Tingo Maria, 5 October 1964, C. C. Porter (1 male); BRAZIL: Amazonas, 71 38°W 2 33°S, September 1979 (5 males and 1 female); Bahia, Encruzilhada, November 1974, M. Alvarenga (1 female).

Discussion: *Adelphes robusta* and *paradoxa* are the most similar of the species with a densely cross-ridged scapal basin. *A.*

robusta can be distinguished from *paradoxa* and other *Adelphæ* species by the bidentate male mandible; the broad scrobal sulcus traversed by septa; the scape, pedicel and even basal

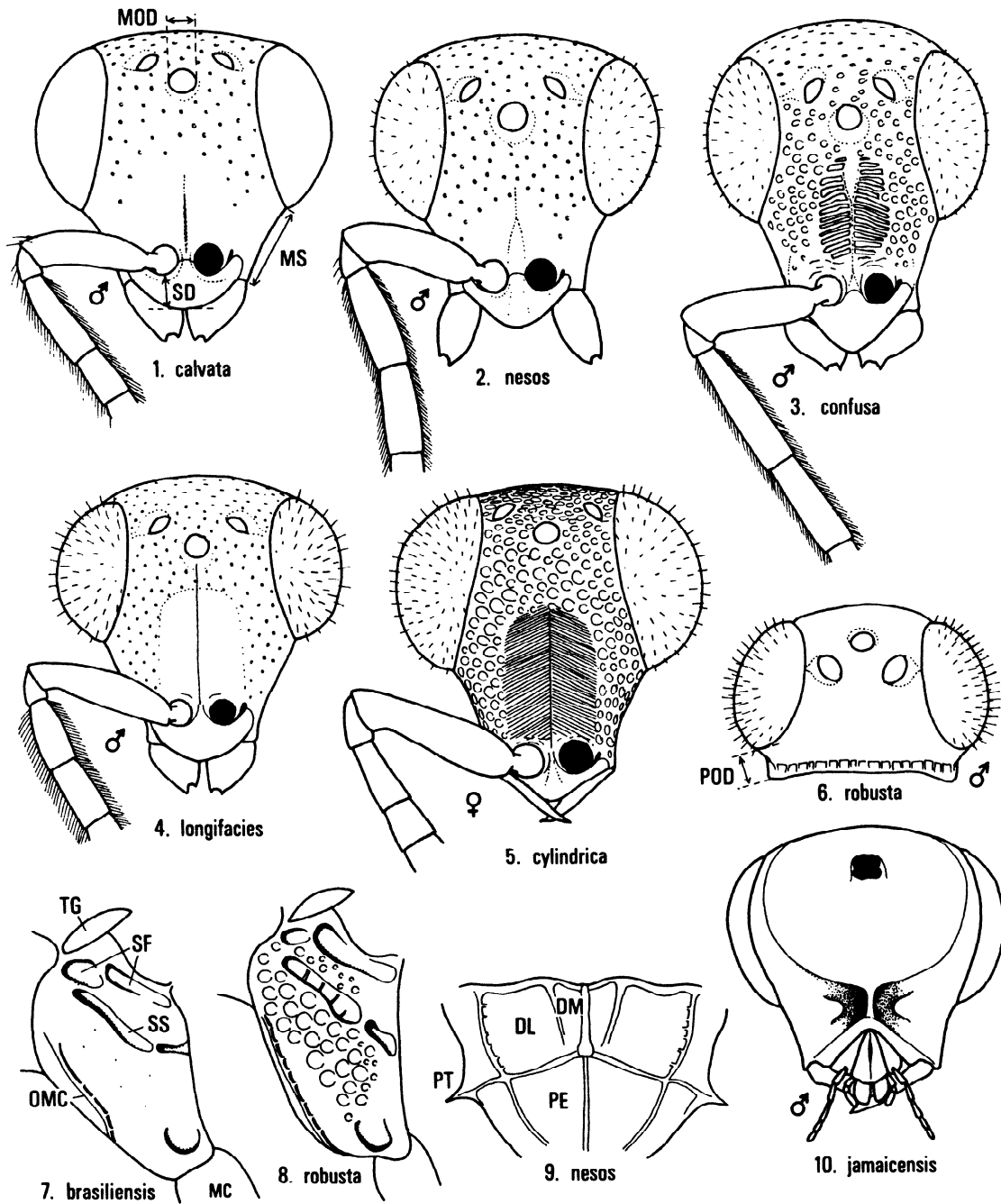
flagellomeres paler than apical flagellar segments, and the male F-I about 3 times as long as broad. These wasps tend to be heavy-bodied with extensive long, erect black setae.

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References Cited

- Ducke, A. 1902. Neue goldwespen von Para. Zs. Syst. Hym. Dipt. 2:204-207.
- _____. 1093. Neue sudamerikanische chrysididen. Zs. Syst. Hym. Dipt. 3:129-232.
- _____. 1911 (1909). Alla revisione die chrysididi dello stato Brasiliano del Para (third suppl.). Bull. Soc. Ent. Ital. 41:98-115.
- Kieffer, J. J. 1910 (1909). Description de nouveaux microhymenopteres du Bresil. Ann. Soc. Ent. France 78:287-348.
- Krombein, K. V. 1957. A generic review of the Amiseginae, a group of phasmatid egg parasites, and notes on the Adelphinae. Trans. Amer. Ent. Soc. 82:147-215.
- _____. 1960. Additions to the Amiseginae and Adelphinae. Trans. Amer. Ent. Soc. 86:27-39.
- Mocsary, A. 1890. Additamentum primum ad monographium chrysididarum. Termes. Fuzetek 13:450-466.
- Schultz, W. A. 1906. Spolia Hymenopterologica. 355 pp. A. Pape, Paderborn.



Explanation of Figures

Figs. 1-5. Front view of face, MOD = midocellus diameter, MS = malar space, SD = subantennal distance. Fig. 6. Dorsal view of head, POD = postocular distance. Figs. 7-8. Mesopleuron, MC = midcoxa, OMC = oblique mesopleural carina, SF = subalar fovea, SS = scrobal sulcus, TG = tegula. Fig. 9. Posterior view of propodeum, DL = dorsolateral enclosure, DM = dorsomedial enclosure, PE = postero-medial enclosure, PT = propodeal tooth. Fig. 10. Ventral view of head.