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## ERIOSTETHUS MORLEY AND A NEW POLYSPHINCTINE GENUS (Ichneumonidae, Hymenoptera)

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*Abstract*: A polysphinctine genus *Eriostethus* Morley, is redescribed with 3 species now known (2 species considered new). The genus occurs in Australia and New Guinea. The species from New Guinea was collected from mossy forest. A new polysphinctine genus named *Millironia* is similar in general appearance to *Eriostethus* (compare figs. 1a & 14a). Seven species of *Millironia*, 5 of which are new, occur in Australia, New Guinea, Samoa, Japan, India and the Philippines. The Philippine species were caught in a light trap. The species from Japan was reported parasitic on a spider.

Only 17 specimens were available for study. For the loan of specimen I wish to thank the following: Dr. J. Linsley Gressitt, Bishop Museum, Honolulu, Hawaii; Dr. Henry Townes, University of Michigan, Ann Arbor, Michigan; Dr. G. S. Walley, Canada Department of Agriculture, Ottawa, Canada; Dr. M. A. Lieftinck, Leiden Museum, Leiden, Netherlands; and Dr. J. F. Perkins, British Museum of Natural History, London, England.

All the species discussed in this paper have the areolet absent, nervellus entire or unbroken, and would key to *Eriostethus* using Townes' key to Indo-Australian genera of Ichneumonidae (1961: 428). The following differentiation will define the genus *Eriostethus* and will supplement couplet 3 of Townes' key:

Ocellar triangle not very prominent, ocelli not unusually large, distance of lateral ocellus from eye equal to or 1/2 diameter of ocellus; head profile as in fig. 1d: vertex gradually sloping behind posterior ocelli; temple slightly convex, malar space equal to basal width of mandible; occipital carina absent (in type) or if present, not

strong (figs. 9 & 10); frons wider than face (fig. 1c); tergite 1 without a median furrow (fig 1f); tergite 2 transverse, wider than long; wings dusky; head and thorax mostly reddish yellow and/or black; whitish band on tergites 2-4 apical .....

..... **Eriostethus**  
 Ocellar triangle very prominent, ocelli very large, lateral ocellus almost touching orbit of eye; head profile as in fig. 14c: vertex abruptly declivous behind posterior ocelli, temple flat, malar space usually less than basal width of mandible; face and frons subequal in width (figs. 13 & 14d); occipital carina present, high and reflexed; tergite 1 with a median furrow (fig. 14h); tergite 2 elongate or quadrate, usually longer than wide; wings usually clear or dusky; head and thorax mostly yellow; whitish band on tergites 2-4 preapical ..... **Millironia**

#### Genus *Eriostethus* Morley

*Eriostethus* Morley, 1914. Rev. Ichn. Brit. Mus. 3: 34 (Type: *E. pulcherrimus* Morley; Monobasic).

Other than Morley's work the only treatment of the genus is that by Townes (1961) where a brief diagnosis was given in his key to polysphinctine genera found in the Indo-Australian region. The type of the genus and another species, *Eugalta samoana* Fullaway, were listed under *Eriostethus* in the catalogue of Indo-Australian Ichneumonidae by Townes, Townes & Gupta (1961). In the present study only the type *pulcherrimus* and 2 new species are described in *Eriostethus*. The species *samoana* is included in the new genus *Millironia*, therefore, a new combination.

The species are mostly black with the head and thorax usually reddish yellow; tergite 1 is yellowish white and the rest of the tergites are banded white apically; the wings are infuscate or dusky. This black and reddish coloration is common in many ichneumonids and braconids from the Australian region.

Head shiny and impunctate, with sparse hairs on face and clypeus; face squarish, slightly emarginate near antennal sockets, dorsally with a median cleft; frons wider than face; malar space equal to or wider than basal width of mandible; mandible apically narrow with 2 small teeth, lower tooth smaller; clypeus convex and apically rounded, clypeal foveae in line with ventral margin of eye; ocellar triangle not so prominent with lateral ocellus distant from eye by a space equal to or 1/2 the diameter of ocellus; vertex gradually sloping behind ocelli; temple not as flat as in *Millironia*; occipital carina absent but temple roundedly angled in this region, if present, carina not strong but complete. Thorax shiny and impunctate; pronotal collar elongate with a dorsal transverse groove, epomia absent; notaulus hardly discernible, slightly impressed anteriorly; prepectal carina reaching midheight of mesopleurum; propodeum small, convex, smooth and shiny, with sparse hairs on sides; propodeal spiracle small, circular, and situated on basal 1/4 of propodeum; propodeal carinae absent except for short pleural carinae on apical 0.2-0.3; metapleural and submetapleural carinae strong; wing venation as in figs. 1a & 2: areolet absent, abscissa 2 of cubitus about 1.5× as long as intercubitus, ramellus present, nervulus interstitial with straight basal vein, discoideus with abscissa 2 about 2× as long as abscissa 3, nervellus not broken; hind tibial spurs subequal in length or outer spur slightly shorter; tarsal segment 4 smallest, about 1/2 as long as last segment; last tarsal segment enlarged, tarsal claw with a basal lobe in ♀, pulvilli long. Abdomen shiny and impunctate; tergite 1 about 1.5× as long as apical

width, without a median furrow, glymma present (fig. 1f); tergite 2 with a large rhomboidal area bounded by a deep groove; tergites 3-5 transverse with 2 strong lateral swellings on each tergite; ovipositor sheath 0.35-0.4 as long as fore wing; ovipositor as in fig. 1g.

KEY TO SPECIES OF ERIOSTETHUS

1. Occipital carina present (figs. 9 & 10); recurrent vein 2 crooked, with a vein stub above lower bulla (fig. 2); interspace between eye and lateral ocellus equal to 1/2 diameter of ocellus; groove surrounding rhomboidal area on tergite 2 shallow; front trochanters and tarsus dark brown. (Australia) ..... **carinatus**
- Occipital carina absent (fig. 1b); recurrent vein 2 gradually convex, without a stub above lower bulla (fig. 1a); interspace between eye and lateral ocellus equal to diameter of ocellus; groove surrounding rhomboidal area on tergite 2 deep; front trochanters and tarsus yellow ..... 2
2. Head and mesoscutum reddish yellow; tergite 1 in profile without a pyramidal elevation, middle part gradually sloping to base; face about 1.4× as long as wide. (Australia) ..... **pulcherrimus**
- Head and mesoscutum black; tergite 1 in profile with a pyramidal elevation near base (fig. 8); face about 1.2× as long as wide. (New Guinea)..... **nigropictus**

**Eriostethus pulcherrimus** Morley      Fig. 1a-g.

*Eriostethus pulcherrimus* Mor., 1914, Rev. Ichn. Brit. Mus. 3: 35 (Type: ♀, "somewhere in Australasia"; London).—Townes, Townes & Gupta, 1961, Cat. & Recl. Indo-Australian Ichneumonidae, p. 26 (listed).

♀: Fore wing 5.5-8 mm long. Face 1.4× as long as wide, with a small tubercle on mid-dorsal cleavage; front, top, and side view of head as in fig. 1 b-d, respectively; interspace between eye and lateral ocellus equal to diameter of ocellus; malar space equal to basal width of mandible; occipital carina absent but back of head roundedly angled in this region; temple fairly wide behind eye (fig. 1d), in side view temple about 1/2 as long as eye when measured at middle; scape suborbicular, flagellar segment 1 about 4× as long as its diameter; wing venation as in fig. 1a: abscissa of cubitus 1.5× as long as intercubitus; recurrent vein 2 gradually convex; hamuli 5; propodeum deeply sulcate basally with 2 small teeth midbasally; abdomen shiny and impunctate with sparse hairs scattered beyond tergite 3, dorsal view of tergites 1-3 as in fig. 1f; tergite 1 about 1.5× as long as apical width, spiracle situated on basal 1/3, with 2 dorsal carinae on basal 0.2, with a U-shaped groove apically; tergite 2 transverse, 2/3 as long as apical width, with a centrally elevated rhomboidal area enclosed by a groove, spiracle situated on basal 0.3; tergite 3 widest, about 0.65 as long as apical width, area enclosed by groove transversely elongate with sides raised; tergite 4 very similar to 3 but only slightly narrower, 0.65 as long as apical width; tergite 5 narrower apically, 0.6 as long as apical width with only slight indication of lateral swelling; tergites 6-8 together equal to length of tergite 3 and gradually narrowing to apex, lateral swelling on tergites absent. Ovipositor sheath 0.4 as long as fore wing, ovipositor tapered acutely with a slight enlargement at middle (fig. 1g).

Head, pro- and mesothorax, and fore legs yellowish red; propodeum and metathorax and hind leg black; antenna (except for yellow bulb of scape), mid leg (except for yellowish apical 1/2 of femur and distal 1/2 of tibia), and ovipositor sheath dark brown; wings

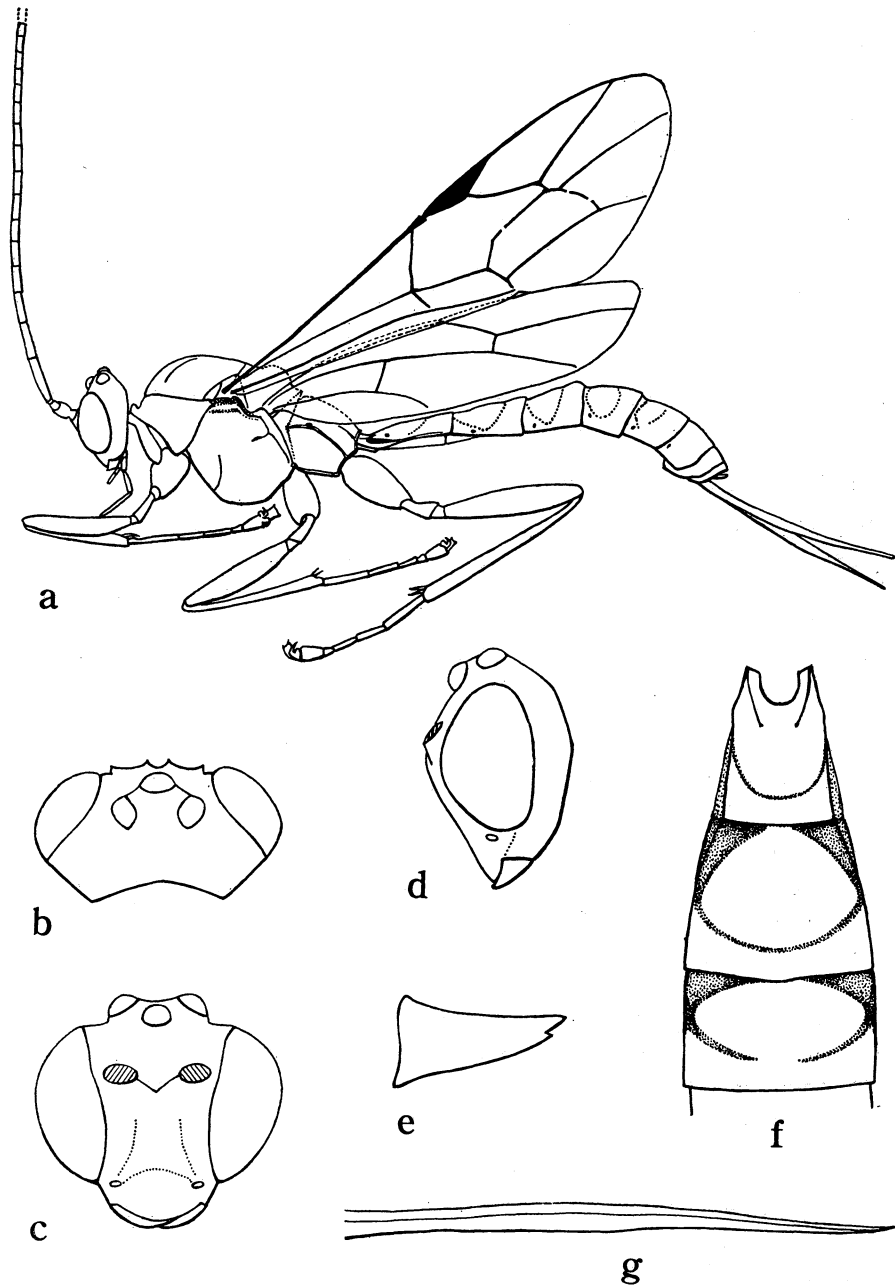


Fig. 1. *Eriostethus pulcherrimus* Morley. a, side view of whole insect; b, dorsal view of head; c, front view of head; d, side view of head; e, mandible; f, dorsal view of tergites 1-3; g, ovipositor.

brown, veins dark brown; tergite 1 yellowish white except for brown spot on basal 0.4; tergite 2 yellowish white but brownish on basal 0.4 of rhomboidal area, (a small specimen has tergite 2 almost entirely black except for white apical band and basal corners of tergite); the rest of tergites black with apical margin of each banded white, apical bands equal in length on tergites 3-6; sternites yellow except for a dark sclerotized band on sternite 1 and a dark oval spot on each side of sternites 2-5; subgenital plate black; ovipositor reddish brown except for reddish yellow apical 1/3.

♂: Unknown.

SPECIMENS EXAMINED: 2 ♀♀, Kuranda, N. Queensland, Australia, 330 m, 21. VI-24. VII. 1913, R. E. Turner (BMNH); ♀, Queensland, Australia, 1909, Mackay (BMNH); ♀, Moree, N. S. Wales, Australia, 20. IV. 1918, W. W. F. (MANILA). All determined by J. F. Perkins as this species.

Dr. J. F. Perkins of the British Museum (Nat. Hist.) was kind enough to examine the type and send notes on it.

**Eriostethus nigropictus** Baltazar, n. sp.      Fig. 8.

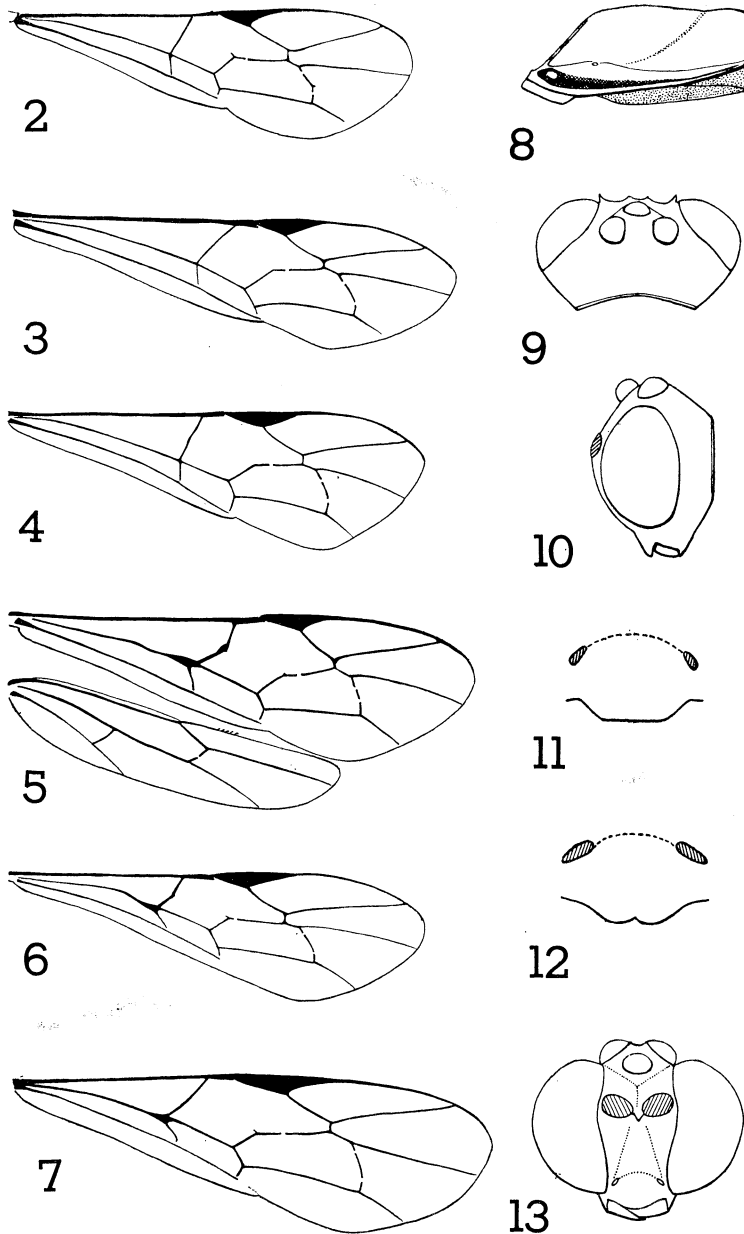
♀: Fore wing 7-8 mm long. Similar in many respects to *pulcherrimus*: occipital carina absent, areolet absent, nervellus not broken. Differs in having the head entirely black except for yellow mouth parts and apical margin of clypeus; antenna and ovipositor sheath black; thorax black except for the reddish yellow area on each side which includes the ventral 0.7 of pronotum, tegula and upper 1/2 of mesopleurum; mid leg entirely black except for yellowish apical 1/3 of femur; tergite 1 yellowish white except for dark triangular depressed area at base; tergite 2 with rhomboidal area black, lateral and apical margins yellowish white; tergite 8 black; ovipositor reddish black except for yellowish apical 0.2. Face about 1.2× as long as wide; antenna with 32 segments; tergite 1 in profile with a pyramidal elevation near base (fig. 8).

♂: Unknown.

Holotype ♀ (LEIDEN), Neth. Ind.-Amer., New Guinea Exped., 2600 m, moss forest camp, 24. X. 1938, L. J. Toxopeus. Paratype ♀, same data as type except 31. X-5. XI. 1938 (MANILA).

**Eriostethus carinatus** Baltazar, n. sp.      Figs. 2, 9 & 10.

♀: Fore wing 7 mm long. The main difference of this species from the 2 species of *Eriostethus* is the presence of occipital carina. Other differences are mentioned in the key to species. Face 1.4× as long as wide; interspace between eye and lateral ocellus equal to 1/2 diameter of ocellus; occipital carina present and entire but not raised (figs. 9 & 10); malar space equal to basal width of mandible; antenna with 32 segments; wing venation as in fig. 2: abscissa 2 of cubitus 1.5× as long as intercubitus; recurrent vein 2 crooked with a stub above 2nd bulla; hamuli 5; thorax and propodeum as in *pulcherrimus*; tergites smooth and shiny with dorsal appearance of tergites 1-3 similar to fig. 1f, tergite 1 about 1.6× as long as apical width; tergite 2 about 0.8 as long as apical width; tergites 3-6 transverse, about 0.6 as long as apical width, tergite 3-4 widest, gradually narrowing beyond 4th, lateral swelling on tergites 3-5 distinct but less so on 5th; tergite 7 about 0.8 as long as preceding; tergite 8 small, about 0.2 as long as preceding; ovipositor sheath



Figs. 2-13. 2, *Eriostethus carinatus*, n. sp., fore wing; 3, *Millironia perkinsi*, n. sp., fore wing; 4, *M. rufa* (Uchida), fore wing; 5, *M. nodata*, n. sp., fore and hind wings; 6, *M. krombeini*, n. sp., fore wing; 7, *M. bifasciata*, n. sp., fore wing; 8, *Eriostethus nigropictus*, n. sp., side view of tergite 1; 9, *E. carinatus*, n. sp., dorsal view of head; 10, *E. carinatus*, n. sp., side view of head; 11, *Millironia perkinsi*, n. sp., clypeus; 12, *M. rufa* (Uchida), clypeus; 13, *M. bifasciata*, n. sp., front view of head.

about 1/3 as long as fore wing.

Head yellow except for brown ocellar triangle and upper 0.8 of face, antenna dark brown; pronotum, mesoscutum, tegula and anterior 0.2 of mesopleurum reddish yellow, the rest of thorax and propodeum black; fore leg reddish yellow except for dark brown trochanters and tarsal segments; mid and hind legs dark brown to black; tergites black except for yellowish white side of tergite 1, triangular spot on basal corner of tergite 2, and apical bands on tergites 1-7; white apical band longest on tergite 1, subequal in length on tergites 2-5, shortest on 7th; sternite 1, lateral sclerotized oval spot on tergites 2-5, and subgenital plate black, membranous areas yellow; ovipositor sheath brown, ovipositor reddish brown; wings brown with stigma and veins dark brown.

♂: Unknown.

Holotype ♀ (BMNH), Victoria, Australia, 1912, C. French.

#### Genus *Millironia* Baltazar, n. gen.

The new genus may be characterized as follows: Head small (fig. 14a), shiny and impunctate; face squarish or longer than wide, of equal width as frons (figs. 13 & 14d); malar space equal to or less than basal width of mandible; mandible (fig. 14c) triangular with 2 teeth, lower tooth small; clypeus convex and apically rounded or emarginate, clypeal foveae usually situated above ventral margin of eye; eyes large and emarginate near antennal sockets, ocellar triangle very prominent with ocelli large, lateral ocellus almost touching orbit of eye; vertex abruptly declivous behind ocelli; temple flat; occipital carina entire and reflexed (as in *Hymenoepimeces* Viereck and *Acrotaphus* Townes). Thorax and propodeum very similar to that of *Eriostethus*: pronotum elongate and without epomia nor a pocket-like structure (present in *Hymenoepimeces*) on the neck region; prepectal carina present (lacking in *Hymenoepimeces*); wing venation as in figs. 3-7 & 14a: areolet absent, abscissa 2 of cubitus 1.5-2× as long as intercubitus, ramellus present, basal vein with or without a bend at middle, median vein thickened and usually sinuate beyond middle, usually junction of basal vein, medius, and nervulus knotted (figs. 5-7); nervellus entire as in *Eriostethus* (nervellus broken in *Acrotaphus* and *Hymenoepimeces*); last tarsal segment enlarged with tarsal claw simple in ♂ (fig. 14g), with a basal lobe in ♀ (14f); propodeum with pleural carina present on apical 0.2-0.5; abdomen shiny and impunctate, hairy beyond tergite 3; tergite 1 from 1.5-2× as long as apical width, with a median furrow at middle of tergite (fig. 14h); tergites 2-5 with an enclosed rhombic area whose sides are swollen; ovipositor sheath 0.3-0.4 as long as fore wing; ovipositor more or less straight and slightly thickened near middle (fig. 14i).

The generic name is in honor of Dr. H. E. Milliron, now with the Department of Agriculture at Ottawa, Canada, who collected for the Bishop Museum in 1958. He captured in a light trap the 2 species of *Millironia* from the Philippines with both sexes represented.

Type of genus: *Millironia trifasciata* Baltazar, n. sp.

#### KEY TO SPECIES OF MILLIRONIA

1. Medius straight or without a bend beyond middle, without a knot at junction of basal vein and nervulus, basal vein straight (figs. 3 & 4); tergite 2 as long as or slightly longer than apical width; hamuli 4 or 6 ..... 2

- Medius with a bend beyond middle or much thickened, junction of basal vein and nervulus knotted, basal vein with an outward bend at middle (figs. 5-7 & 14a); tergite 2 usually longer than apical width; hamuli 5 or 6 ..... 4
2. Discoideus with abscissa 2 equal to abscissa 3 (fig. 4); abscissa 2 of cubitus 1.5× as long as intercubitus; clypeus emarginate apically; head and thorax yellow; wings clear; hamuli 4. (Japan) ..... **rufa**
- Discoideus with abscissa 2 about 2× as long as abscissa 3 (fig. 3); abscissa 2 of cubitus 2× as long as intercubitus; clypeal margin entire; head and thorax yellow or reddish brown; wings infusate; hamuli 4 or 6.....3
3. Clypeus truncate apically (fig. 11); hamuli 4; mesoscutum reddish brown with 2 dark longitudinal stripes; tergites 3-5 transverse or shorter than apical width; tergites 2-4 each with a dark band on apical margin. (Australia)..... **perkinsi**
- Clypeus convex apically; hamuli 6; mesoscutum entirely yellow; tergites 3-5 elongate, as long as or longer than apical width; only tergites 2 & 3 with a dark apical band that is interrupted at middle. (Samoa) ..... **samoana**
4. Mesoscutum yellow with 2 or 3 black stripes, hind femur black; outer rim of lateral ocellus not touching eye..... 5
- Mesoscutum entirely yellow, hind femur yellow; outer rim of lateral ocellus almost touching eye, ocellar triangle very prominent ..... 6
5. Mesoscutum with 3 black stripes; clypeus emarginate apically (fig. 14d), more pronounced in ♂; hamuli 6; medius bent beyond middle and slightly swollen at junction of basal and nervulus (fig. 14a); tergite 1 about 1.5× as long as apical width; face squarish. (Philippines)..... **trifasciata**
- Mesoscutum with 2 black stripes; clypeus convex apically; hamuli 5; medius straight and much swollen at junction of basal and nervulus (fig. 7); tergite 1 about 2× as long as apical width; face elongate, about 1.3× as long as ventral width (fig. 13). (India)..... **bifasciata**
6. Middle of basal vein with a node (fig. 5); abscissa 2 of cubitus 2× as long as intercubitus; face squarish. (Philippines)..... **nodata**
- Middle of basal vein not swollen (fig. 6); abscissa 2 of cubitus about 1.5× as long as intercubitus; face elongate, about 1.5× as long as wide. (New Guinea)... **krombeini**

**Millironia trifasciata** Baltazar, n. sp. Fig. 14a-i.

♀: Fore wing 9 mm long. Head impunctate and shiny; face flat, squarish, with a longitudinal groove above each clypeal fovea; clypeus flattish with basal clypeal groove impressed, apical margin weakly emarginate (fig. 14d); malar space about 0.57 basal width of mandible; mandible with its lower tooth small, 0.5 as long as upper tooth (fig. 14e); eye slightly emarginate opposite antennal socket; ocellar triangle occupying entire top of head (fig. 14b), lateral ocellus protruding above level of eye and distant from eye by a space equal to 0.2 diameter of middle ocellus; vertex abruptly sloping behind ocellus; temple flat; occipital carina reflexed and prominent as posterior rim of head (fig. 14c); antenna with 34 flagellar segments. Thorax impunctate and shiny; pronotal collar elongate with a deep transverse groove dorsally, epomia absent; notaulus hardly discernible; prepectal carina distant from mesopleural margin and ending dorsally near middle of mesopleurum in level with mesopleural pit (fig. 14a); scutellum somewhat conical; propodeum with



mesopleural carina present on apical 1/2, propodeal spiracle small, circular and situated on basal 0.3 of propodeum; all legs with tarsal segment 1 about 0.4 as long as entire length of tarsus, segment 2 about 0.6 as long as 1, segment 3 about 0.6 as long as 2, segment 4 smallest and only 1/2 as long as 3, segment 5 enlarged and as long as 3, tarsal claw bent at right angle and with a basal lobe (fig. 14f); wings as in fig. 14a: basal vein not straight but with a kink at middle and forming a 75° angle with subcosta, areolet absent, abscissa 2 of cubitus 2× as long as intercubitus, nervellus not broken, hamuli 6. Tergites shiny and impunctate with sparsely scattered hairs beyond tergite 3; tergite 1 about 1.5× as long as apical width, glymma present, lateral carina present at spiracle level, 2 dorsal carinae present on basal 0.3, a U-shaped groove on apical 0.3 and a midlongitudinal groove at center of tergite (fig. 14h); tergite 2 slightly shorter than preceding, slightly longer than apical width with a rhombic area at center bounded by oblique grooves; tergite 3, 0.9 as long as apical width, a trifle shorter and wider than preceding; tergite 4 subequal in width and 0.8 as long as 3; tergite 5 subequal in size to 4, without oblique grooves, 2 weak lateral swellings discernible; tergite 6 transverse, about 0.6 as long and 0.9 as wide as 5, with lateral swellings hardly discernible; tergite 7 about 0.6 as long as 6, and 1/2 as long as apical width; tergite 8 telescoped within 7th; ovipositor sheath about 0.4 as long as fore wing or about 3.8× as long as apical depth of abdomen; ovipositor slightly enlarged at middle, apex tapered acutely (fig. 14i), ventral valve of ovipositor with 9 teeth at apex.

Yellow and black, wings clear. Head yellow except for black mandibular teeth and posterior border of head but band interrupted dorsally; antenna entirely black except for yellow radicle of scape; pronotum black except for yellow collar; propleurum yellow with a large black spot on distal 1/2; mesopleurum brownish black with splashes of yellow on subalar tubercle, prepectus and a ventral transverse stripe; metapleurum black with distal 1/2 brownish yellow; mesoscutum yellow, each lobe with a black longitudinal stripe; tegula, scutellum and metanotum yellow; propodeum brownish yellow with 2 large black blotches on basal 1/2; fore and mid legs entirely yellow except for dark last tarsal segment; hind leg black from coxa to femur and dark brown from tibia to tarsus except for yellowish areas on apical 0.2 of coxa, trochanter 2, and joint of femur and tibia; tibial spurs brown; tergites 1–3 mostly yellow except for black apical bands on tergites 2–3 and 2 big black spots on lateral swellings, spot smallest on tergite 1, larger on tergite 2 and largest on tergite 3, the spot on tergite 3 about 2× that on tergite 1, tergite 2 with a small black spot behind the big one; tergites 4–8 mostly black except for yellow lateral stripes on tergites 4–6, preapical transverse band on tergites 4 & 5, and apical transverse band on tergites 6 & 7; cercus yellow; ovipositor sheath dark brown except for yellowish tip; ovipositor reddish black except for reddish yellow on distal 1/3; sternites yellow except for dark brown subgenital plate.

♂: Fore wing 6 mm long. Similar to the ♀ except for smaller size and lighter coloration: dark spot near dorsal part of occipital carina small; pronotum mostly yellow except for posterior 1/2; mesopleurum, metapleurum, propodeum, hind coxa and tergite 1 entirely yellow; tergite 4 mostly yellow except for 2 black spots on lateral swellings and black apical transverse band. Differs from the ♀ in the absence of a basal lobe on tarsal claws (fig. 14g); emargination on clypeal margin more pronounced than in ♀; antenna with 30 flagellar segments and only 5 hamuli present; only 7 tergites visible with sides of tergites 3 & 4 parallel, wider apically on tergites 1 & 2, and narrower apically on tergites 5–7; tergite 1 about 1.5× as long as apical width; tergite 2 squarish; tergites 3 & 4 subequal in

size, about 0.85 as long as apical width; tergite 5 about 0.85 as long as preceding, 0.85 as long as apical width; tergite 6 about 0.8 as long as preceding, 0.8 as long as apical

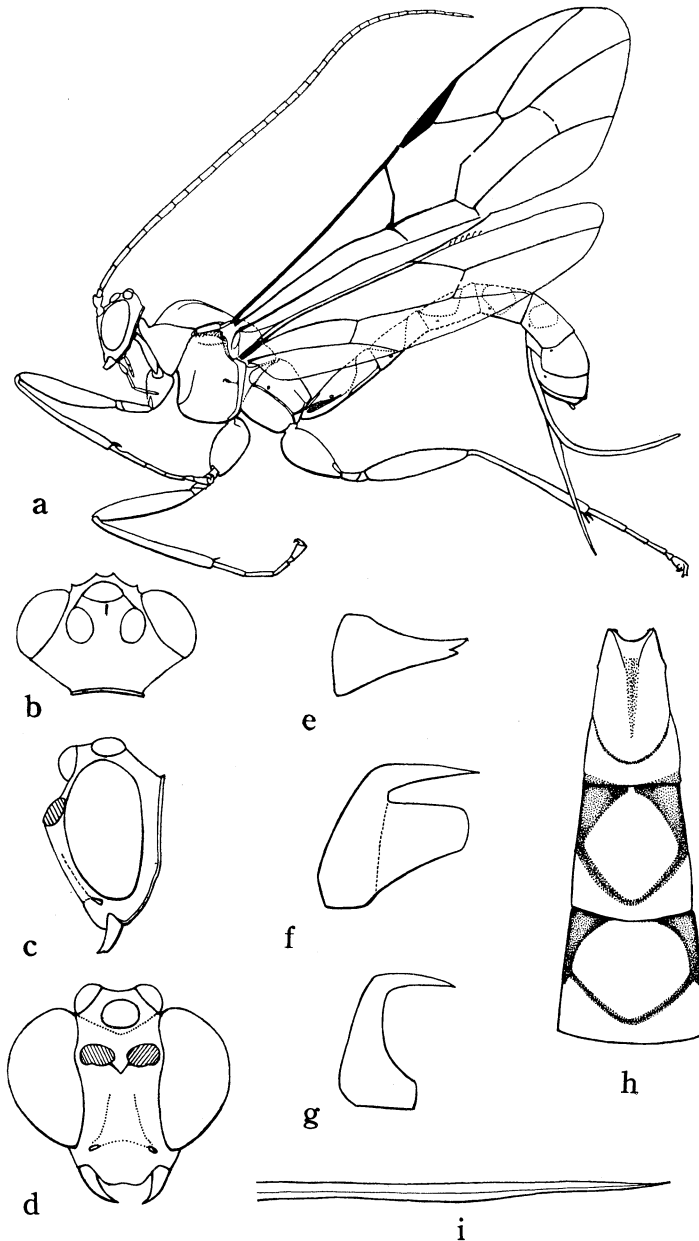


Fig. 14. *Millironia trifasciata*, n. sp. a, side view of whole insect; b, dorsal view of head; c, side view of head; d, front view of head; e, mandible; f, tarsal claw of ♀; g, tarsal claw of ♂; h, dorsal view of tergites 1-3; i, ovipositor.

width; tergite 7,  $1/2$  as long as 6, length subequal to apical width.

Holotype ♀ (BISHOP 3619), Lemesahan, Zamboanga del Sur, Mindanao, Philippines, 600 m, light trap, 7. IX. 1958, H. E. Milliron. Allotype ♂, same data as type (BISHOP).

**Millironia bifasciata** Baltazar, n. sp. Figs. 7 & 13.

♀: Fore wing 8–9 mm long. Similar to ♀ of *trifasciata* except for the following: Face about  $1.3\times$  as long as ventral width (fig. 13); clypeus convex with apical margin entire; malar space about  $1/3$  basal width of mandible; antenna with 34 flagellar segments; propodeum with pleural carina present on apical 0.3; basal vein with a weak kink at middle and slant thus forming a  $45^\circ$  angle with subcosta, medius straight and thickened near middle, junction of basal vein and nervulus swollen, abscissa 2 of cubitus  $2\times$  as long as intercubitus (fig. 7); hamuli 5; tergite 1 about  $2\times$  as long as apical width; tergite 2 about  $1.35\times$  as long as apical width, rhombic area as in tergites 3 & 4, without a median groove; tergite 3 about  $1.13\times$  as long as apical width; tergite 4 quadrate; tergites 5 & 6 transverse, without lateral swellings, tergite 5 about  $2/3$  as long as 4, tergite 6 about 0.7 as long as 5; ovipositor sheath about 0.3 as long as fore wing.

Head and thorax yellow except for 2 longitudinal dark brown stripes on mesoscutum, 1 on each lateral lobe (type with 2 large brownish spots on mesosternum that converge towards prepectal carina thus forming an inverted-V); antenna black except for brown scape and pedicel; fore and mid legs yellow except for dark last tarsal segment, claws and pulvilli; hind leg black except for yellow coxa and trochanters; tergite 1 yellow; tergite 2 mostly yellow except for 2 diffused brown spots on rhomboidal area and apical margin; tergites 3–8 brownish black except for yellowish white lateral margins of each tergite, preapical band on tergites 3–5, apical band on tergites 6–8; ovipositor reddish brown with yellowish tip, ovipositor sheath dark brown; sternites yellow except for dark subgenital plate; wings yellowish with veins dark brown except for yellowish stigma, enlarged node at the junction of basal vein and nervulus, and veins on basal  $1/5$  of both wings.

♂: Unknown.

Holotype ♀ (OTTAWA), Anamalai Hills, Cinchone, India, 1080 m, V.1957, P. S. Nathan. Paratype ♀, same data as type (MANILA).

**Millironia nodata** Baltazar, n. sp. Fig. 5.

♀: Fore wing 8 mm long. The main differences between this species and *trifasciata* are mentioned in the key to species. Other differences may be mentioned: antenna with 35 flagellar segments; malar space  $1/3$  basal width of mandible; hamuli 5; tergite 1 about  $1.7\times$  as long as apical width; tergite 2 equal in length to preceding,  $1.25\times$  as long as apical width; tergite 3 squarish, equal in width to, but 0.8 as long as 2, sides of enclosed rhombic area swollen; tergite 4 almost the same in size and appearance as tergite 3 but slightly shorter; tergite 5 subequal in width to, and 0.9 as long as 4; tergite 6 transverse with no swelling nor grooves; tergite 7 about  $1/4$  as long, and 0.85 as wide as 6; ovipositor sheath about 0.35 as long as fore wing or about  $3\times$  as long as apical depth of abdomen; ovipositor similar to fig. 14i, with 7 teeth on apex of ventral valve.

Yellow and black, wings clear. Head, thorax, tergite 1, and all legs entirely yellow except for dark brown antenna, hind femur and hind tarsus; tergites 2–4 yellow except for

black apical margin of each tergite (black apical margin interrupted at middle in tergite 4) and 2 large spots on lateral swellings of rhombic area; tergite 5 black on basal 3/4, lateral and apical bands yellowish white; tergites 6 & 7 black on basal 1/2, distal 1/2 and side band yellowish white, area below yellow lateral band yellowish black on tergite 7; all sternites yellow; subgenital plate brownish black.

♂: Fore wing 6 mm long. Similar to the ♀ except for smaller size, absence of a basal lobe on tarsal claws, and antennal flagellum with only 32 segments. Very similar in size, color, and general appearance to the ♂ of *M. trifasciata* except that head and thorax are entirely yellow; enlarged middle of basal vein and juncture of medius, basal vein and nervulus very conspicuous (fig. 5); tergite 1 about 1.7× its apical width.

Holotype ♀ (BISHOP 3620), 3.2 km NW of Milbuk, Zamboanga del Sur, Mindanao, Philippines, 150 m, in light trap in jungle, 4. VIII. 1958, H. E. Milliron. Allotype ♂, Lemesahan, Zamboanga del Sur, Mindanao, Philippines, 600 m, 7. IX. 1958, in light trap, Milliron (BISHOP).

**Millironia krombeini** Baltazar, n. sp. Fig. 6.

♀: Fore wing 6–7 mm long. Similar to *bifasciata* and *perkinsi* in having the face elongate and clypeal foveae situated far above ventral margin of eye; wing venation (fig. 6) similar to that of *nodata* (fig. 5) except that basal vein is not swollen at middle and abscissa 2 of cubitus about 1.3× as long as intercubitus. Face 1.5× as long as wide; clypeal margin convex; malar space small, about 1/3 as long as basal width of mandible; tergite 1 about 1.9× as long as apical width; tergite 2 subequal in length to 1, about 1.25× as long as apical width; tergite 3 about 1.1× as long as apical width, 0.85 as long as tergite 2, with sides parallel and as wide as apical width of 2nd; tergites 4 & 5 widest, equal in size, about 0.9 as long as apical width, 0.9 as long and 1.1× as wide as tergite 3; rhomboidal area present on tergites 2–4, 2 lateral swellings present on tergites 5 & 6; tergite 6 about 2/3 as long as preceding and narrower at apex, transverse, 2/3 as long as apical width; tergite 7 transverse, 1/2 as long as tergite 6, 1/2 as long as apical width; tergite 8 about 1/2 as long as tergite 7; ovipositor sheath about 0.35 as long as fore wing.

Head, thorax and legs brownish yellow except for the following brown parts: 5th tarsal segments, distal 0.2 of hind femur, hind tibia and hind tarsus; antenna brown except for yellowish scape, pedicel and flagellar segments 1 & 2; tergite 1 brownish yellow except for yellowish white apical band; the rest of tergites black with yellowish white sides and preapical band on tergites 2–4 and apical bands on tergites 5–8; ovipositor sheath black, ovipositor reddish brown; wings clear, yellowish with veins dark brown except for yellowish veins on basal 0.15 of wings.

♂: Unknown.

Holotype ♀ (TOWNES), Nadzab, Markham, R. Val., New Guinea, VI.1944, K. V. Krombein. Paratype ♀, same data as type (MANILA).

The specific name is in honor of Mr. Karl V. Krombein of the U. S. National Museum, Washington, D. C.

**Millironia samoana** (Fullaway), n. comb.

*Eugalta samoana* Fullaway, 1938, Proc. Hawn. Ent. Soc. 10: 52 (Type: ♀, Safune on Savaii, Samoa Is., 600 m (BISHOP).—Baltazar, 1955, Philip. J. Sci. 90: 155 (cited and placed

in tribe Polysphinctini).

*Eriostethus samoana* Townes, *et al.* 1961, Cat. & Recl. Indo-Australian Ichneumonidae, p. 26 (listed, n. comb.).

♀: "10 mm. in length, wing expanse 21 mm., ovipositor 4.5 mm. long, antennae 36-segmented" (Fullaway). The original description gives a general picture of the species but is not sufficient for differentiating it from species closely resembling it. Supplementary to Fullaway's description are the following: Fore wing 8.8 mm long; occipital carina present and prominent; face squarish, about 0.85 as long as wide; clypeus convex apically; malar space nearly equal to basal width of mandible; wings hyaline but brownish; basal vein straight, without an enlargement at its junction with nervulus and medius; medius thickened and straight beyond middle; abscissa 2 of cubitus about 2× as long as intercubitus; tergite 1 about 2× its apical width; tergites 2-4 longer than apical width; tergite 2 as long as preceding, about 1.25× as long as its apical width; tergite 3 & 4 subequal in size, about 0.85 as long as tergite 2, about 1.1× as long as its apical width; tergite 5 almost quadrate, slightly shorter than apical width; tergites 6-8 transverse, tergite 6 about 0.7 as long as tergite 5 and length 0.7 its apical width; tergite 7 about 1/2 the length of tergite 6; tergite 8 short, as long as tergite 7. Only tergites 2 & 3 have a dark band on apical margin but is interrupted at middle.

The above characteristics were furnished by Dr. Carl Yoshimoto of the Bishop Museum at Honolulu who kindly examined the type for me.

♂: Unknown.

**Millironia perkinsi** Baltazar, n. sp. Figs. 3 & 11.

♀: Fore wing 7 mm long. Face elongate, 1.4× as long as wide; clypeal foveae situated far above ventral margin of eye; clypeal margin truncate (fig. 11); malar space 0.8 as long as basal width of mandible; wing venation (fig. 3) similar to *samoana* in having medius and basal veins straight and junction of these veins not enlarged; abscissa 2 of cubitus 2× as long as intercubitus; hamuli 4; pleural carina on propodeum present on apical 0.3; tergite 1 about 1.8× as long as apical width, with a midlongitudinal furrow at middle; tergite 2 as long as preceding, length equal to apical width, rhomboidal area present; tergites 3-8 transverse, tergite 3 widest, about 0.7 as long as apical width, with 2 lateral swellings; tergite 4 similar in size and appearance to tergite 3 but slightly narrower; tergite 5 about 0.7 as long as apical width, about 0.8 as long as tergite 4, with 2 weak lateral swellings on basal 1/2; tergite 6 about 0.7 as long as apical width, about 2/3 as long as preceding, no lateral swellings discernible; tergite 7 about 1/2 as long as apical width, and 1/2 as long as tergite 6; tergite 8 about 0.8 as long as tergite 7; ovipositor sheath about 0.38 as long as fore wing.

Head yellow, thorax and propodeum reddish brown except for 2 dark stripes on yellowish brown mesoscutum; fore and mid legs reddish brown from coxa to femur, yellowish from tibia to tarsal segment 4, and last tarsal segment brown; hind leg black from coxa to femur, the rest dark brown; tergite 1 reddish brown except for ivory sides and apical band, *i. e.*, distal 0.18 of tergite; tergites 2-8 black except for ivory bands on apical margins, tergites 2-4 with ivory band preapical, tergites 5-8 with ivory bands apical, ivory band on tergites 5 & 6 about 1/2 as long as tergite; tergite 2 with sides yellowish white; sternites yellow except for blackish basal band on sternite 1 and sclerotized oval spot on

sides of sternites 2-4; subgenital plate blackish; ovipositor sheath dark brown; ovipositor reddish brown; wings clear but brownish, veins dark brown except for yellowish base.

♂: Unknown.

Holotype ♀ (LONDON), Kuranda, N. Queensland, Australia, 21.VI-2.VII.1913, R. E. Turner; antennae missing.

The specific name is dedicated to Dr. J. F. Perkins of the British Museum (Nat. Hist.).

**Millironia rufa** (Uchida), n. comb. Figs. 4 & 12.

*Polysphincta rufa* Uchida, 1932, Ins. Matsum. 6: 155 (Type: ♀, Kyoto, Japan (Sapporo); Yamashiro, Kyoto & Mt. Takao, Tokyo, Japan.; figs.).

*Hymenoepimeces rufus* Uchida, 1941, Ins. Matsum. 15: 118 (n. comb., dist.-Honshu, Kyoto & Osaka, Japan).

♀: Fore wing 8 mm long. Among the species of *Millironia* studied this one has a different wing venation, fig. 4: subdiscoideus arises from middle of discoideus (below the middle in other species), therefore abscissa 2 & 3 are equal in length; basal vein slightly curved inwards at middle and its lower end perpendicular to medius; medius not thickened and junction of medius, discoideus, basal vein and nervulus not enlarged (knotted in several species of *Millironia*). Some of the characters worth noting are as follows: Clypeus emarginate (fig. 12); face squarish; malar space 2/3 basal width of mandible; pleural carina of propodeum present on apical 1/3 of propodeum; hamuli 4; tergite 1 about 1.7× as long as apical width; tergite 2 about 1.15 as long as apical width, about 0.9 as long as tergite 1; tergites 3-4 quadrate, subequal in size but tergite 4 slightly shorter and wider apically than preceding; rhomboidal area distinctly defined on tergites 2 & 3, less so on tergite 4; tergite 5 about 0.9 as long as apical width, about 0.9 as long as tergite 4, with 2 lateral swellings on basal 1/2; tergite 6 about 0.6 as long as apical width, about 0.6 as long as tergite 5; tergites 7 & 8 transverse, about 1/2 as long as tergite 6 & 7, respectively; ovipositor sheath about 0.37 as long as fore wing.

Head, thorax, propodeum, petiole and legs yellow except for brownish hind femur and hind tarsus; antenna dark brown; tergites 2-8 black except for yellowish sides of each tergite, preapical band on tergites 2-4 and apical band on tergites 5-8 yellowish white; ovipositor reddish brown except for yellowish basal band and apical 1/4; wings hyaline with a yellowish tinge, veins dark brown except for yellowish base.

Uchida reports this species as parasitic on spiders.

♂: Unknown.

SPECIMEN EXAMINED: ♀, Japan, I. Sugitani (TOWNES), labeled homotype by Townes, 1954.