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ROBBER FLIES (Diptera: Asilidae) OF THE PHILIPPINE ISLANDS

By **Harold Oldroyd**[1]

CONTENTS

Abstract: The Asilidae of the Philippine Islands are reviewed after a study of recently collected material. Keys are given to tribes, genera and species. The number of genera is 28, and of species 100; one genus and 37 species are described as new. Illustrations include genitalic drawings of species. The relationships of the Asilidae of the Philippine Islands among the islands, and with adjoining areas, are discussed, and it is concluded that there is no present evidence of any endemic fauna.

I. INTRODUCTION

The present study arose indirectly out of participation in the compilation of a Catalog of Diptera of the Oriental Region, initiated and edited from Hawaii by Dr M. D. Delfinado and Dr D. Elmo Hardy. I was invited to name a small collection of Asilidae from the Philippine Islands, but by the time of despatch the numbers had grown to over 2000 specimens. This must be much the biggest assembly of Asilidae from these islands so far available for study, and it seemed to present an opportunity to review

1. British Museum (Natural History), London, England.

what is known of the genera and species which occur there, and to see if they threw any light on the relationships of the species to those of adjacent areas.

I am deeply grateful to Dr Delfinado, who arranged for all this material to be sent to me; to the authorities of the Bernice P. Bishop Museum, Honolulu, for giving their permission; to authorities of the Field Museum of Natural History, Chicago, whose smaller collection of about 100 specimens formed the nucleus, or catalyst, from which the larger project grew; and to the Research Council of the University of Hawaii for making a grant towards the cost of publication at the request of D. Elmo Hardy.

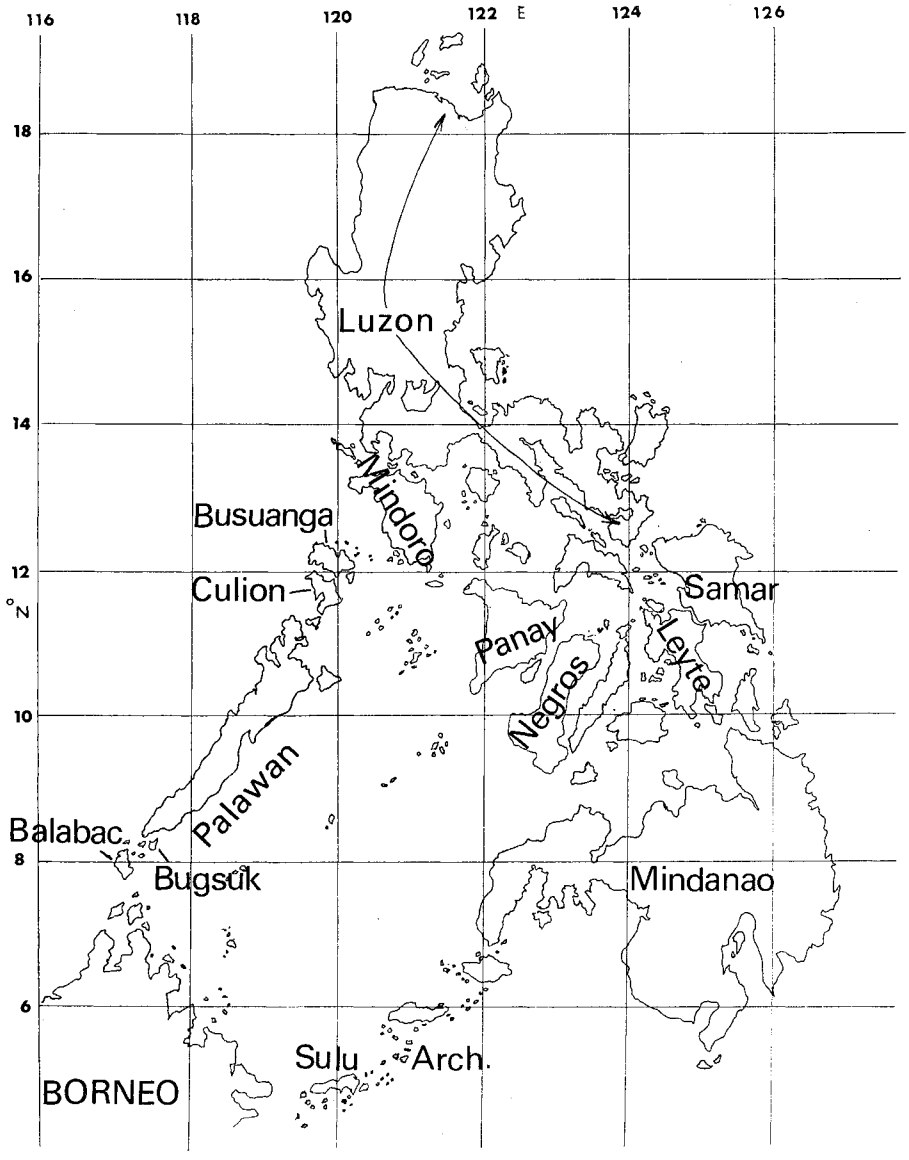
II. ZOOGEOGRAPHICAL RELATIONSHIPS OF THE PHILIPPINE ISLANDS

The Oriental Region is the most fragmented of the six major zoogeographical regions. The others are essentially continental masses, with their adjacent islands but the Oriental Region comprises the Indian subcontinent, with its abrupt mountain barrier to the north; southern China, forming an indefinite boundary with the Palaearctic Region; the complex peninsula of Indochina and Malaysia; several large islands, and hundreds of small tropical islands, separated from each other by varying distances of open sea.

Collecting from such an area has been spasmodic, and irregularly distributed over the area. This is not a peculiarity of the Oriental Region, of course, but the geographical nature of the Region makes this problem more acute there. The Asilidae of the Philippine Islands were first reviewed by Osten Sacken (1882), after a study of the Diptera collected by Dr Carl Semper during five years' residence. Osten Sacken described or recorded a total of 17 species of Asilidae, which he distributed among 11 genera. No indication was given of precise localities within the islands. Mario Bezzi was an author whose many faunistic studies included *Studies in Philippine Diptera* (1913, 1917), and added ten new species or new records to Osten Sacken's list. The only other author to give more than passing reference to the Asilidae of the Philippine Islands was Frey (1923), who reviewed the species of *Promachus*, with a key, but no figures.

The present material is extensive enough to give some clue to the relationships of the Philippine species with those of surrounding areas, and the outcome can be stated succinctly. No evidence has been found of any endemic fauna. The previously described species were mostly first described from Java, Sumatra, Borneo or Celebes, with a few from Indochina. There are close links with the Asilidae from Taiwan that were described by Hermann and Becker from H. Sauter's Formosa-Ausbeute, indicating that the fauna of the Philippines forms a continuous link among all the island groups.

Similarly the detailed distribution between the different islands of the Philippines shows no significant pattern, after allowing a certain 'weighting' for the fact that Luzon has long been the most actively settled island, and one would therefore expect a preponderance of Luzon records. The collections reviewed in the present paper are nearly all fairly recent, within the last five or six years and perhaps nowadays collectors tend to go to the islands other than Luzon. There seems to be no obvious difference between the species occurring in Luzon and Mindanao. The only suggestion of a limited distribution is that a few species will be seen to be recorded only from Palawan and neighbouring islands; Balabac, Sulu and Negros, in particular. Leyte has one or two interesting species, but collecting there has been insufficient to show whether there is



Map 1. The Philippine Islands.

any significance in this. These facts might be interpreted as indicating species in process of spreading north-east from Borneo, but much more evidence is needed before any firm conclusions can be drawn.

COLLECTING LOCALITIES WITHIN THE PHILIPPINES

To avoid the repetition of detailed localities reference should be made to the following numbered list. There are almost endless variations in citation of height, in precise dates, and in additional details, such as 'in light trap', so that in circumstances where these details are important they should be checked from the specimen itself in the Bishop Museum or the Field Museum, Chicago. The numbered citation is intended only to indicate the approximate locality.

A. Localities in the material from the Bernice P. Bishop Museum, Honolulu

LUZON

1. Mountain Province, Abatan, Bugias, 60 km S of Bontoc, 1800–200 m. Various dates around V–VI.1964. Some in light trap. *H. M. Torrevillas*
2. Mountain Province, Ifugao, Mayoyao, 1000–1500 m, 4.VII.1966. *H. M. Torrevillas*
3. Mountain Province, Ifugao, Mayoyao, 1200–1500 m, 19–21.VII.1966. *H. M. Torrevillas*
4. Ifugao Province, Jacmal, Bunhian, 24 km E of Mayoyao, 800–1000 m, 7–8.IV.1967. *H. M. Torrevillas*
5. 26 km SW of Baguio, 6.X.1945. *H. E. Milliron*
6. Camarines Sur, Mt Iriga, 500 m, 31.III.1962. *H. M. Torrevillas*
7. Camarines Sur, Mt Iriga, 500–600m, 19.IV.1962. *H. M. Torrevillas*
8. Camarines Sur, Mt Isarog, 20 km E of Naga, 500–600 m, 7.IV.1963. *H. M. Torrevillas*
9. Camarines Sur, Mt Isarog, 20 km E of Naga, 500–600 m, 9.IV.1963. Light trap. *H. M. Torrevillas.*
10. Camarines Sur, Mt Isarog, 20 km E of Naga, 1000–1500 m, 23.IV.1963. *H. M. Torrevillas*
11. Camarines Sur, Mt Isarog, 750–1000 m, 1.VI.1963. *H. M. Torrevillas*
12. Camarines Sur, Mt Isarog, 750 m, 16–18.V.1963. *H. M. Torrevillas*
13. Camarines Sur, Mt Isarog, 21–22.V.1963. *H. M. Torrevillas*
14. Camarines Sur, Mt Isarog, Pili, 600 m, 4.IV.1965. *H. M. Torrevillas*
15. Camarines Sur, Mt Isarog, Pili, 600–800 m, 10.IV.1965. Some in light trap, *H. M Torrevillas*
16. Camarines Sur, Mt Isarog, Pili, 800 m, 27.IV.1965. *H. M. Torrevillas*
17. Camarines Sur, Mt Isarog, 800–900 m, 2.V.1965. *H. M. Torrevillas*
18. Albay Province, Mt Mayon, 16 km NW of Lagaspi, 900 m, 11.V.1962. *H. M. Torrevillas*
19. Rizal, Mt Montalban, Wa-Wa Dam, 150–200 m, 6.III.1965. *H M. Torrevillas*
20. Albay Province, Libon Caquscos, 200 m, 15.V.1965. *H. M. Torrevillas*

20.5 Albay Province, Santa Domingo, 26.IV.1968. *M. D. Delfinado*

21. Los Baños, IV.1917. *F. X. Williams*
22. Los Baños, III.–VI. 1925. *Pemberton* collection
23. Los Baños, 19–20.IX.1959. *L. W. Quate*

23.5 Los Baños, Calamba, 26.IV.1929. *Van Zwaluenberg*

24. Mt Makiling, 17.IX.1959. *C. M. Yoshimoto*

24.5 20 miles S. Baguio, 2.X.1945. *H. E. Milliron*

25. Laguna, Mt Makiling, 17.III.1960. *T. C. Maa*

26. Mt Makiling, VII.16.30. *F. C. Hadden & C. G. Ladrera*
26.5 Mt Makiling, 11.IV.1968. *D. E. Hardy & M. D. Delfinado*
27. Dalton Pass, 915 m Nueva Vizcaya, 9-10.IV.1968. *D. E. Hardy*

LEYTE

28. Mahaplag, 11.VII.1964. Light trap. *M. D. Delfinado*
29. Various localities, listed under species concerned. Coll. *W. V. F.*

MINDANAO

29.5 Lanao, 4.8 km E. of Dansalan, 750 m, 11.VI.1958. *H. E. Milliron*
30. Lanao, Lake Lanao, Gurain Mts, 1380 m, 16.VI.1958. *H. E. Milliron*
31. Lanao, Butig Mts., 4-6 km N of Butig, 900m, 19-21.VI.1958. *H. E. Milliron*
32. Zamboanga del Norte, Masawn, trail to Mt Malindang, 1290 m, 5.VIII.1958. Rain forest. *H. E. Milliron*
32.5 Zamboanga del Sur, Molave, 50 km NNW, 500 m, 19-20.X.1959. *C. M. Yoshimoto*
32.7 Zamboanga del Sur, Milbuk, 9-10.VIII.1958. *H. E. Milliron*
33. Misamis Occ., tributary of Clavin R. 1260 m, 14-18.VII.1858. In Jungle. *H. E. Milliron*
34. Zamboanga del Norte, 11km E of Sindangan. 20.VII.1958. *H. E. Milliron*
35. Surigao, L. Mainit, 23.XI-1.XII.1959. *C. M. Yoshimoto*
36. Zamboanga del Norte, Manucan, 8 km S, 420 m, 12.X.1959. In grasses. *L. W. Quate*
37. Bukidnon, 1480 m, Mt Katanglad, 27-31.X.1959. *C. M. Yoshimoto*
38. Agusan, San Francisco, 10 km SE, 15.XI.1959. *C. M. Yoshimoto*
38.5 Agusan Esperanza. 4-11.XI.1959. *C. M. Yoshimoto*
39. Agusan, Los Arcos, 19-23.XI.1959. *C. M. Yoshimoto*
40. Agusan, San Francisco, 10 km SE, 13.XI.1959. *L. W. Quate & C. M. Yoshimoto*
40.5 Misamis Or., Davao, Genitlan, 8 km NW of Apo, 690 m, 17.VIII.1958. *H. E. Milliron*
41. Misamis Or., Balason, 4-5.IV.1960. *H. M. Torrevillas*
42. Misamis Or., Minalwang, 1050 m, 24.III-4.VI.1961. *H. M. Torrevillas*
43. Misamis Or., Minabanan, 1050-1200 m, 5-9.IV.1961. *H. M. Torrevillas*
44. Mt Empagatao, 1050-1200 m, 19-30.IV.1961. *H. M. Torrevillas*
45. Mt Empagatao, 25.IV.1961. *H. M. Torrevillas*
46. Misamis Or., Mt Pomalthi, 20 km W, Gingoog City, 800-1000 m, 30.IV.1963, *H. M. Torrevillas*
46.5 Misamis Or., Mt Balatukan, 15 km SW of Gingoog, 1000-2000 m, 1.V.1960. *H. M. Torrevillas*
47. Misamis Or., Hindangon, 20 km S of Gingoog, 600-700 m, 20-26.IV.1967. *H. M. Torrevillas*
47.5 Misamis Or., Mt Kibungol, 20 km SE Gingoog, 800 m, 9-18.II.1960. *W. Toit*
48. Mt View Colleges, 15 km NW Valencia, 2200 ft., Bukidnon, 22-23.IV.1968. *M. D. Delfinado*
49. Dalwansan, Bukidnon, 23.IV.1968, 2000 ft., *D. E. Hardy & M. D. Delfinado*
49.5 Malabalay, Forest Stn. Bukidnon, 23.IV.1968. *D. E. Hardy*

SULU ARCHIPELAGO

50. Siasi Is., 8.II.1957. *Y. Kondo*
51. Jolo Is., Talipao, 15-30 m, 31.VIII.1958. Grass foothills and jungle clearing. *H. E.*

Milliron

52. Jolo Is., 8–10 km S. of Inglibi, 120 m 1.IX.1958. Woods along stream. *H. E. Milliron*
53. Jolo Is., nr base of Mt Dahao, 150 m in wood. *H. E. Milliron*

NEGROS OR.

54. Calo, 19.III.1957. *Y. Kondo*
54.5 Sibulan, 30.IX.1959. *C. M. Yoshimoto*
55. Maite R. near Valencia 300 m, 8.VI.1958. *H. E. Milliron*
56. Mt Talinas, 900–1000 m, 9.VI.1958. *H. M. Torrevillas*
56.5 Mt Talinas, 400 m, 7–11.VI.1958. *H. E. Milliron*
57. Dumaguete, 390 m, 26.VII.1958. Light trap. *H. E. Milliron*
58. Palimpinon, Olcoy R. 28.VII.1958. *H. E. Milliron*
59. Dumaguete City, 26–29.X.1959. *L. W. Quate & C. M. Yoshimoto*
59.5 Dumaguete City, 16.III.1957. *Y. Kondo*
60. L. Balinsasayao, 1–7.X.1959. *L. W. Quate*
61. Bayawan, Basay, 14–17.XII.1959. *L. W. Quate*
62. Mt. Talinas, 1000 m, 29–31XII.1960. *H. M. Torrevillas*
63. Valencia, 3050 m, 2.VI.1961. *H. M. Torrevillas*

CULION Is.

64. 6 km W. of Culion, 10.VI.1962. Malaise trap. *H. Holtmann*

BUSUANGA Is.

65. 4 km N. San Nicholas, 27.V.1962. *H. Holtmann*

BUGSUK Is.

66. Bugsuk, sandy beach, 28.IV.1962. *H. Holtmann*

PALAWAN

67. 16 km SE of Tarumpitao Pt., 360 m, 20.V.1958. In jungle. *H. E. Milliron*
68. Eran Point, 8 km SW of Tarumpitao Pt., 31.XII.59–4.I.60. *L. W. Quate*
68.5 Mt Beaufort, 17.IV1968. *M. D. Delfinado*
69. 3 km NE of Tinabog, 11.V.1962. *H. Holtmann*
70. Agr. Expt. Stn. 11.2 km S. Puerto Princessa, 15–17.IV.1968. *D. E. Hardy*
71. Tarumpitao Point, 16.V.1958. *H. E. Milliron*
71.5 Punta Baha, 26.V.1958. *H. E. Milliron*
72. Mouth of Malabangan River, 25.V.1958. In jungle. *H. E. Milliron*
73. Sulu Is., SW of Palawan, Batu-Batu. 20–21.II.1957. *Y. Kondo*

BALABAC Is.

76. Parig, 4.III.1957. *Y. Kondo*
77. 10 km S. Balabac, secondary forest, 23.IV.1962. *H. Holtmann & W. Sanguila*

B. *Localities in the material from the Field Museum, Chicago, Zoological Expedition 1946–47*

80. LUZON. Mountain Province, Mt Data, elev. 7200 ft., pine forest, 23.IV.1946. *H. Hoogstraal & D. Heyneman*
81. LUZON. Mountain Province, Mt Data, 3.V.1946? collector.

82. LUZON. Los Banos, Laguna, 300 ft., VI.1947. *F. G. Werner*
83. LUZON. Laguna Province, Los Banos. 31.V–5.VI.1947. second growth, elev. 100–1500'. *F. G. Werner*
84. LUZON. Abra Prov., Massisiat. elev. 3500', 17.V.1946. *H. Hoogstraal*
85. LUZON. Laguna, Mt Makiling. elev. 1500–3000', 1.VI.1947. *F. G. Werner*
86. MINDANAO. Davao Prov., Meran, E. slope of Mt Apo, 6000 ft. 8.XI.1945. *H. Hoogstraal*
87. MINDANAO. Davao Prov., Maco, Tagum, sea level. X.1946. *H. Hoogstraal*
88. MINDANAO. E. slope of Mt McKinley. Davao Province, 22.IX.1946. *H. Hoogstraal.* VIII.1946. *F. G. Werner*
89. MINDANAO. Davao Prov., Lake Linan, N. slope Mt Apo, El. 7900 ft. 5.XI.1946. mossy forest. *H. Hoogstraal*
90. MINDANAO. Davao City, near sea level 10.V.1946. *H. Hoogstraal.*
91. MINDANAO. Cotabato Province, Bugasan, Parang. sea level, original forest. 10. XII.1946. *F. G. Werner*
92. MINDANAO. Cotabato Province, Burungkot, Upi, elev. 1500ft. 1.1–9.1947 *F. G. Werner*
93. MINDANAO. Cotabato Province, 50 km. N. of Parang. elev. 500 ft. .6.XII.1946. *H. Hoogstraal*
93.5 MINDANAO. Cotabato Province, Cornel, Buayan, 20.XII.1946. *H. Hoogstraal*
94. MINDANAO. Lalabuah, Inifao. 15.V.1946. dipterocarp forest. *H. Hoogstraal*
95. PALAWAN. Puerto Princessa, sea level, second growth forest, tall grass at edge of forest. *F. G. Werner*
96. PALAWAN. Palawan Province, Puerto Princessa, Babuyan 16–20.III.1947. second growth forest, near sea level. *F. G. Werner*
97. PALAWAN. Panacan, Aborlan, near sea level, second growth. 19.IV.1947. *H. Hoogstraal*
98. PALAWAN. Tigoplan R., Brooke's Point, 180 ft elev 29.IV.1947. second growth. *F. G. Werner*
99. PALAWAN. Brooke's Point, sea level. 24.IV.1947. *M. Celestino*
100. PALAWAN. Brooke's Point, near sea level. Bonobono 16.V.1947. tip *Pandanus* leaf, ? collector.
101. CALAMIANES group. Busuanga, Dimangiang, sea level. III.1947. *H. Hoogstraal*
102. BALABAC group. Balabac, sea level. 15.V.1947. *H. Hoogstraal*

ABBREVIATIONS

The following abbreviations are used for museums in which types are located.

BMNH = British Museum (Natural History), London, England
BPB = Bernice P. Bishop Museum, Honolulu, Hawaii
DEI = Deutsches Entomologisches Institut, Berlin-Eberswalde, DDR
HDO = Hope Department of Entomology, Oxford, England
HF = Zoological Museum, Helsinki, Finland
MP = Muséum N. d'Histoire Naturelle, Paris, France
NHMW = Naturhistorisches Museum, Wien, Austria

NRS = Naturhistoriska Riksmuseum, Stockholm, Sweden
RML = Rijksmuseum van natuurlijke Historie, Leiden, Nederland
UMT = University Museum, Turin, Italy
ZMA = Zoölogisch Museum, Amsterdam, Nederland

Key to tribes of Asilidae occurring in the Philippine Islands

(from Oldroyd, 1963: 4)

1. Marginal cell of the wing open (fig. 17) 2
   Marginal cell of the wing closed (fig. 19) 6
2. Pulvilli absent. Third antennal segment short, ovoid, with a long bristle-like arista. Very narrow, elongate flies, with a prehensile hind tarsus ..... **LEPTOGASTERINI**
   Pulvilli nearly always present; if they are absent, then the third antennal segment is well developed, with a short apical style. Flies of varied shape, but usually stoutly built.....3
3. Prosternum isolated and surrounded by membrane. Female with ninth tergite divided into two spine-bearing plates (acanthophorites) ..... **SAROPOGONINI**
   Prosternum complete, with little or no membranous area 4
4. Vertex more or less saddle-shaped, or at least eyes much further apart at vertex than they are at antennae. Dusty gray flies of sand-living habitus ..... **STICHOPOGONINI**
   Vertex not saddle-shaped; if eyes are widely separated above, then they are also widely separated at antennae 5
5. Flies with small face and frons, and very large eyes (fig. 54) ..... **XENOMYZINI**
   Head and eyes not of this shape ..... some **LAPHRIINI** ('Laphystiini')
6. Antennae blunt, third segment club-shaped, with only a tiny apical style. Mesopleuron often with bristles before base of wing 7
   Antennae with a slender arista, sometimes feathered (fig. 99, 105)..... 8
7. Vein M_3 straight, and parallel with outer margin of discal cell, often in line with it (fig. 19, 20). Small flies, resembling sawflies ..... **ATOMOSIINI**
   Vein M_3 curved, not parallel with outer margin of discal cell, and far from being in line with it, except in *Orthogonis* ..... **LAPHRIINI**
8. Arista of antennae feathered..... **OMMATIINI**
   Arista of antennae bare ..... **ASILINI**

Tribe LEPTOGASTERINI

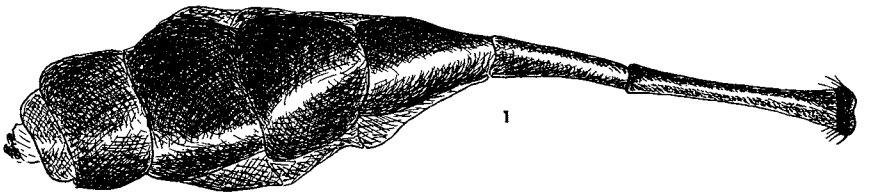
Frey (1937: 38) comments on the difficulty of recognising species of Leptogasterini because of the scarcity of good material, the lack of good series and the failure of the older authors — including even Hermann — to mention details of chaetotaxy and wing venation, which might have been diagnostic.

Frey himself put all the Oriental Leptogasterini into the one genus *Leptogaster*, which he then split into a number of subgenera. These vary in distinctness, and it seems desirable to me to raise some of them to generic rank. The following key indicates this change of status, with the addition of *Euscelidia*, an African genus not hitherto recognised in the Oriental Region.

Key to Oriental genera and subgenera of Leptogasterini

1. Anal cell of the wing closed and stalked. Mostly large, brightly colored flies, often with

clavate abdomen 2
Anal cell of the wing open. Mostly small, slender flies; if bigger, then generally fragile, and not brightly colored 4
2. Hind femora strongly feathered, and hind tibiae bristly ..... Genus **Ophionomima** Enderlein
Hind femora not feathered ..... Genus **Ammophilomima** Enderlein ... 3
3. Hind tibiae with a row of strong dorsal bristles. Hind femora often with a ventral tuft of hairs (fig. 14) ..... Subgenus **Lagynogaster** Hermann
Hind tibiae with not more than one or two dorsal bristles. Hind femora rarely with a ventral tuft of hairs. ..... Subgenus **Ammophilomima** Enderlein, s. str.
4. Prothorax with a bifid process arising between the twin processes of the mesonotum. Empodium reduced or absent ..... Genus **Euscelidia** Westwood
Prothorax without any process between the twin processes of the mesonotum. Empodium generally well developed ..... Genus **Leptogaster** Meigen ... 5
5. Third antennal segment four times as long as broad. Hind tibiae with a row of distinct bristles ..... Subgenus **Mosoleptogaster** Frey
Third antennal segment much shorter. Hind tibiae with not more than one or two dorsal bristles ..... Subgenus **Leptogaster** Meigen, s. str.



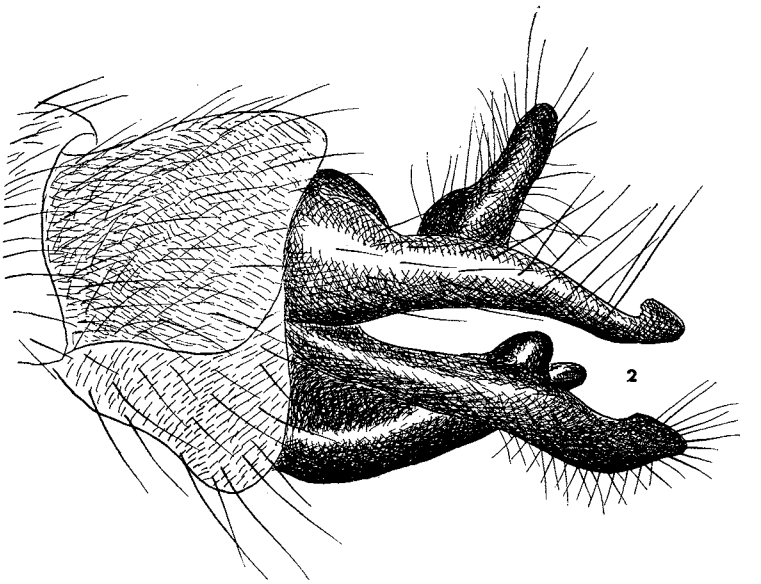


Fig. 1-2. 1, *Lagynogaster boettcheri* Frey, ♀ abdomen (head to right); 2, *Leptogaster convergens* Frey, ♂ genitalia.

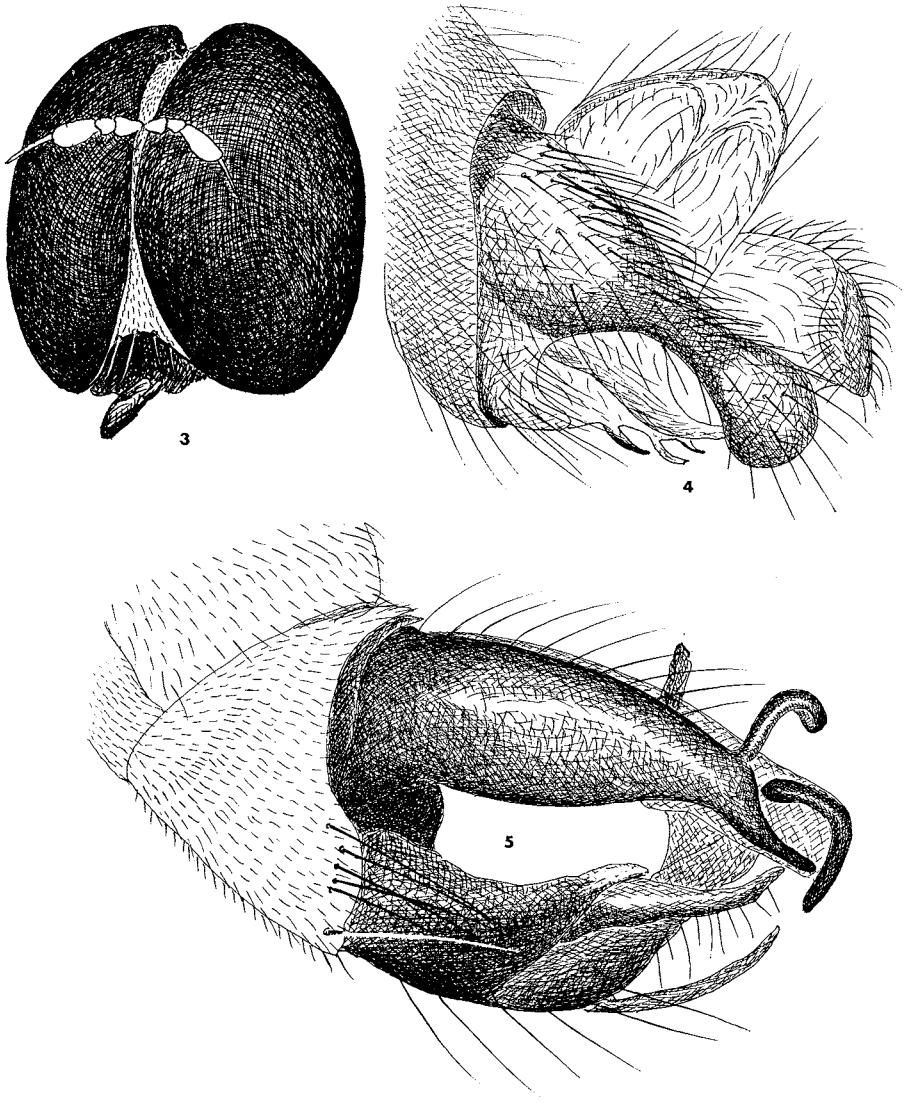


Fig. 3–5. 3, *Leptogaster cilipes* Frey, head of ♂ : 4, 5, ♂ genitalia : 4, *Leptogaster tomentosa* n. sp. 5, *Leptogaster palawanensis* n. sp.

Genus **Euscelidia** Westwood

Euscelidia Westwood, 1849 : 232. Type-species : *Euscelidia rapax* Westwood, 1849, monotypic.

The diagnostic feature of this genus is the existence of a median process arising ver-

tically from the pronotum, between the usual paired processes of the mesonotum; it is a little difficult to be sure that this is absent, but when it is present it is easily seen. Besides lacking pulvilli, like other Leptogasterini, *Euscelidia* has the empodium reduced or absent, and often the hind femur is swollen and hairy.

Euscelidia is best known from the Ethiopian Region, especially from the northern and eastern savannas. One or two species have been recorded from the southern Palaearctic, but so far none from the Oriental Region. *Leptogaster simplex* Bigot, from Ceylon, has

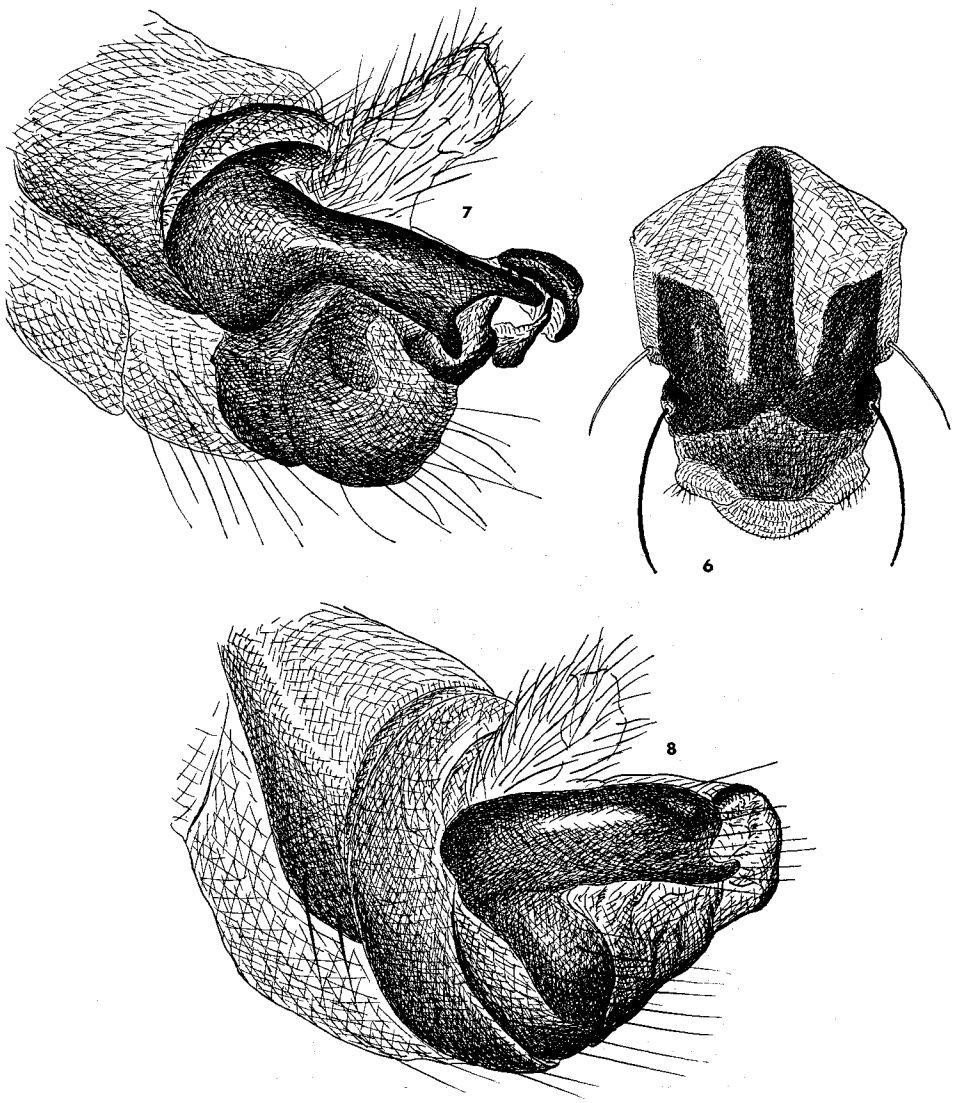


Fig. 6-8. 6, *Leptogaster trimaculata* de Meijere, dorsum of thorax: 7, 8, ♂ genitalia: 7, *Leptogaster crassitarsis* Frey; 8, *Leptogaster cilipes* Frey.

a curious double pronotal process, not like that of the African species, and the empodium is quite long. Three species from the Philippines, however, have a pronotal process similar to that of the Ethiopian *Euscelidia*, as well as a reduced empodium.

KEY TO PHILIPPINE SPECIES OF EUSCELIDIA

1. A yellow species, with few indications of any dark pattern, though there is a faint red-brown ring on the long, slender hind femora. Radial fork very long, fully as long as stem of radial sector. Fore and middle basitarsi with long spines as shown in fig. 11... 2
   A black species, with all-black thorax and heavily patterned legs; hind femora with slender yellow stalk and black knob. Radial fork short, less than half as long as stem of radial sector. Fore and middle basitarsi without the particular long bristles shown in fig. 11, though each tarsomere has a pair of bristles ..... **rapacoides**, n. sp.
2. Male genitalia as in fig. 9, upper forceps each divided into two elongate processes. Hind femora very elongate, reaching back to end of third abdominal segment, scarcely swollen apically; hind basitarus distinctly longer than other four tarsomeres together. Mesonotum elongate, more than twice as long as broad..... **piliensis**, n. sp.
   Male genitalia as in fig. 10, upper forceps not divided into processes, but curved horizontally, and hooklike. Hind femora shorter, extending only to end of second abdominal segment, and distinctly clubbed. Hind basitarsus not as long as other four tarsomeres together. Mesonotum more square. ..... **setifer** (Frey)

Euscelidia setifer (Frey) Fig. 10, 15.

Leptogaster setifer Frey, 1937: 42.

The specific name of this species refers to the exceptionally prominent ventral bristles (one pair) on the basitarsus of the fore and middle legs. Two species in the present collection have this feature, but they are abundantly distinct, with male genitalia widely different. These of fig. 11 agree with the description given by Frey: *Hypopygium relativ klein, gelblich, letzteres Sternit etwas blasenförmig; Forzeps schmal triangulär, an der Spitze klauenformig ziliert; unterer Anhang schmal stabförmig. Penis fein haarförmig.* In addition there are a number of other differences, listed in the key, which enable females to be identified.

Head: Eyes almost meeting just above antennae, diverging towards mouthmargin; an area of large facets facing forwards. Frons only slightly divergent, barely enclosing ocellar tubercle. Occiput covered with thick whitish tomentum and very sparse yellowish bristles. Antennae as in fig. 15, second segment subglobular, third cylindrical, longer than first two segments together; arista shorter than third segment; third segment and arista a little darker than rest. Proboscis and palpi yellow, with yellow hairs. Mystax composed of four yellow bristles.

Thorax: In dorsal view more square than that of *piliensis*, sp. n., brown or yellow-brown in ground color, covered with thin brown tomentum, and with obscure traces of three dark stripes. Humeri and postalar calli yellow. Pleura yellow with whitish tomentum.

Abdomen: Elongate, cylindrical, reddish yellow, with yellow bands on segmentations. Male genitalia as in fig. 10; upper forceps narrow, and curved inwards at tips, hooklike.

Legs: Moderately slender, but not so elongate as those of *piliensis*, n. sp., fig. 11. Hind femora reaching back only to hind margin of second segment, and with a distinct swelling of apical half. Hind basitarsi not quite as long as total length of other four tarsomeres. Ventral bristles of tarsi exceptionally long, especially on fore and middle tarsi, where basitarsus

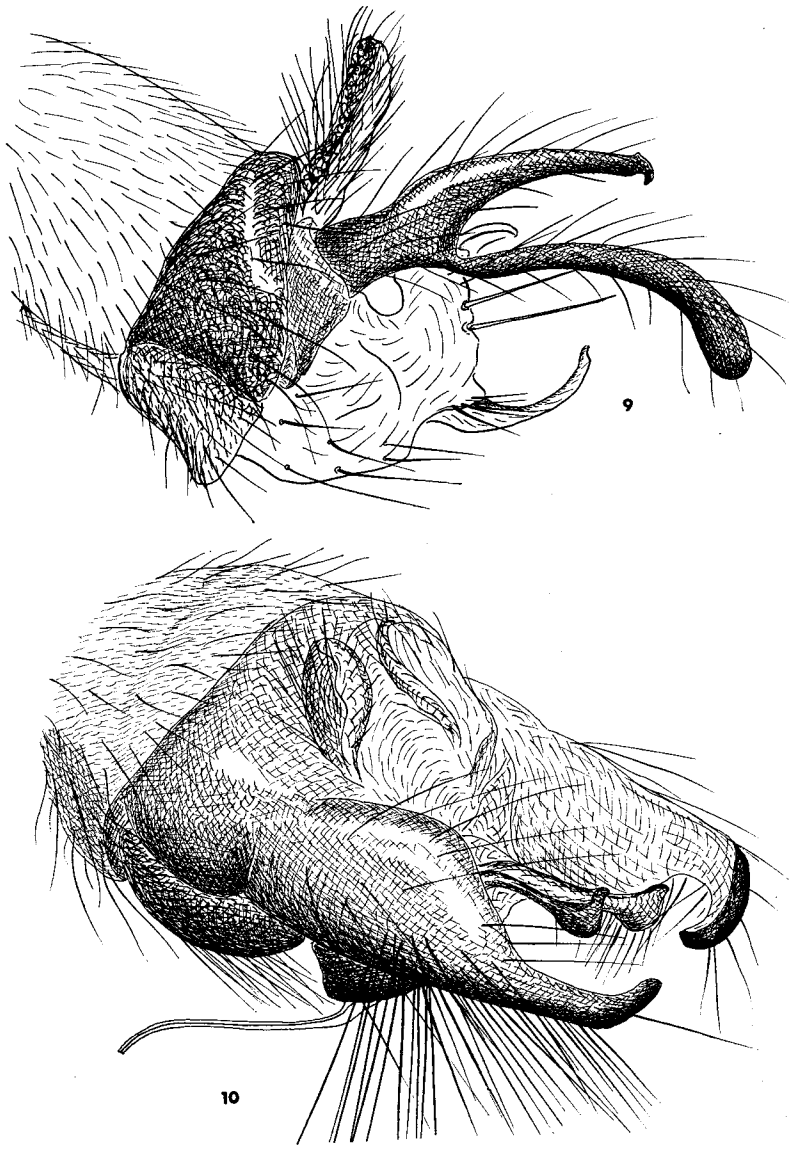


Fig. 9, 10. ♂ genitalia: 9, *Euscelidia piliensis* n. sp.; 10, *Euscelidia setifer* (Frey).

has a long pair as in fig. (in both sexes). Legs yellow in color, fore and middle legs, and bases of hind femora, paler than rest. Claws very long, slender, black; empodium vestigial.

Wings: Venation as in fig. 18. Note long radial fork, much longer than discal cell. Wing tinted faintly and uniformly brown, with no stigma. Halteres with very elongate yellow stalk, and reddish knob.

Length of body 13 mm; of wing 8 mm.

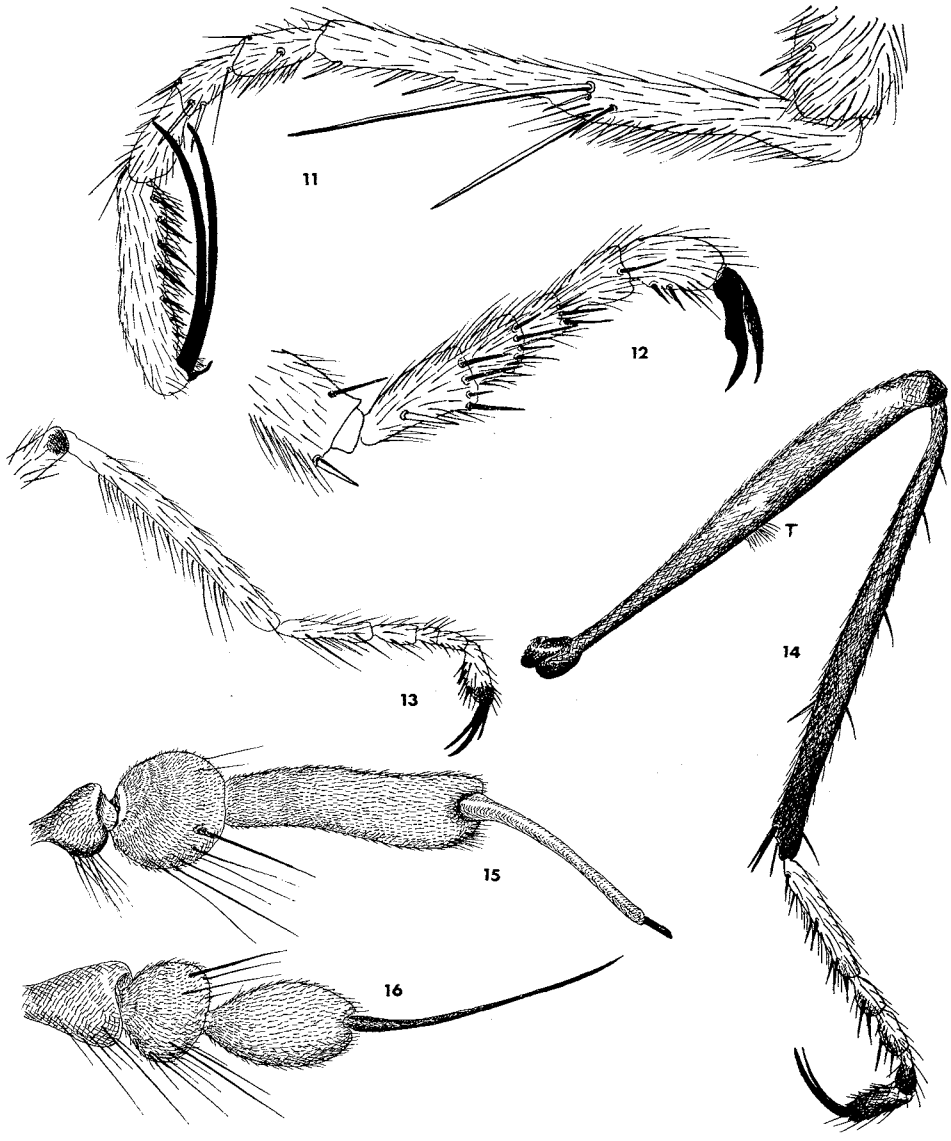


Fig. 11-16. 11-14, details of leg-structure: 11, *Euscelidia piliensis* n. sp., fore tarsus (cf. with *setifer* (Frey)) ; 12, *Leptogaster crassicarsis* Frey, hind tarsus ; 13, *Leptogaster cilipes* Frey, fore leg ; 14, *Ammophilomima boettcheri* Frey, hind leg ; note ventral tuft, T. 15, 16, antennae : 15, *Euscelidia setifer* (Frey) ; 16, *Euscelidia piliensis* n. sp.

HOLOTYPE in HF.

TYPE LOCALITY. Siargao I., Dapa.

MATERIAL SEEN. LUZON: 7, 16.

Euscelidia piliensis Oldroyd, new species Fig. 9, 11, 16, 18.

Closely similar to *setifer* Frey, but distinguished by the details set out in the key to species.

Head: Eyes almost touching below antennae, with a well defined area of large facets. Vertex only slightly widened. Vertex and occiput black, covered with golden tomentum. Antennae (fig. 16) yellow, with yellow hairs; arista black-brown; third segment short oval, scarcely bigger than sum of first two segments. Proboscis and palpi yellow with yellow hairs. Mystax consisting of about four yellowish bristles only.

Thorax: Mesonotum reddish brown, with traces of three dark brown stripes anteriorly. Thickly covered with whitish tomentum, which is thicker laterally, especially behind humeri, and on postalar calli. Bristles few, yellow, only supra-alars prominent. Pleura uniformly reddish yellow, with whitish tomentum; only anterior spiracle outlined in black.

Abdomen: Long and slender, reddish brown, each segment with a yellowish hind margin and a brown disc. Male genitalia as in fig. 9. with upper forceps curved and hooklike. Female abdomen ending in a bare, shining brown segment, the 8th tergite.

Legs: Long and very slender, hind femora only moderately and progressively swollen in apical half. Mostly yellow-brown, including tarsi; hind legs rather darker. All femora slightly more brownish, and all knees narrowly black-brown on joints only. Basitarsi of fore and middle legs, in both sexes, with a pair of long, very strong, yellow bristles (fig. 11).

Wings: Faintly and almost uniformly tinted with yellow, tip a little grayish; no stigma. Radial fork longer than discal cell (cf. *rapacoides*, n. sp.)

Length of body 14 mm; of wing 11 mm.

HOLOTYPE in BPB (BISHOP 9668).

TYPE LOCALITY. LUZON, Camarines Sur, Mt Isarog, Pili, 600 m, 15.IV.1965 (H. M. Torrevillas).

MATERIAL SEEN. LUZON: 14 (paratypes).

Euscelidia rapacoides Oldroyd, new species Fig. 17.

Of more compact build and darker coloring the other two Philippine species, more nearly resembling the typical *Euscelidia rapax* Westwood of the Ethiopian Region. The only two available specimens are both badly broken in the abdomen, so that sexual differences, if any, cannot be ascertained.

Head: Eyes not closely approximated, at their nearest separated by width of antennal bases. Face diverging towards mouthmargin, covered with thick whitish tomentum, and a shallow mystax of numerous silky pale yellowish hairs. Frons divergent, with whitish tomentum. Occiput strongly convex, cushion-shaped, covered with white tomentum and sparse white hairs. Antennae black with black hairs; third segment narrower than that of *setifer* Frey, but similar in proportionate length. Proboscis and palpi black with white hairs.

Thorax: Moderately elongate, with a prominent hump anteriorly. Black, shining through thin

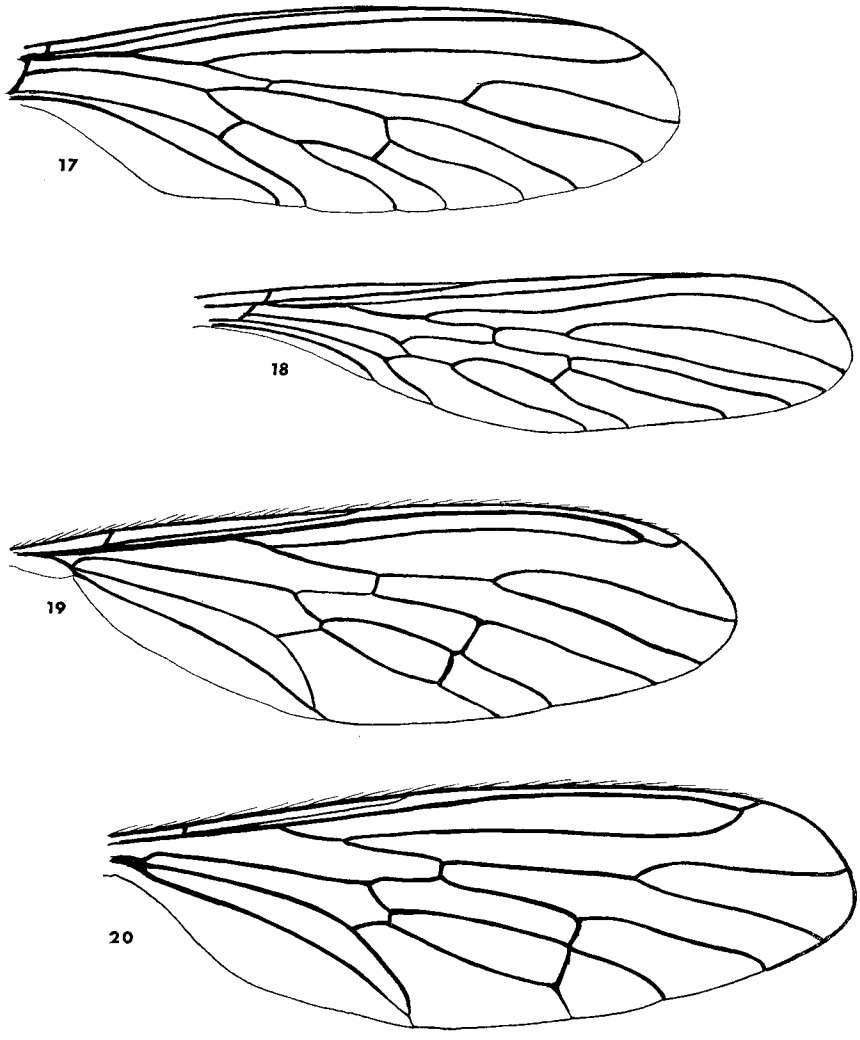


Fig. 17–20. Wings. 17, *Euscelidia rapacoides* n. sp.; 18, *Euscelidia piliensis* n. sp.; 19, *Opocapsis dioctrioides* (Walker); 20, *Anoplothyrea javana* (de Meijere).

white tomentum, with only faint indications of bare stripes. Strong notopleural and supra-alar bristles white. Scutellum similarly colored, with pale yellowish hairs, but no strong bristles. Pleural similar, with a thick tuft of white hairs on mesopleuron and anterior sternopleuron.

Abdomen: Black, covered with mostly white tomentum, but each segment has a large brown spot on disc. Hairs laterally and ventrally more yellowish. [No information on genitalia in either sex]

Legs: Coxae like pleura. Legs otherwise strongly patterned in yellow and black-brown; basal half of femora, tibiae and basitarsi yellow, rest black. Hind femora reaching to end of second segment, distinctly clubbed. Fore and middle tarsi have same bristles as in fig. 11, but

they are not so long, nor so conspicuous.

Wings: (fig. 17). Radial fork short and broad, not longer than discal cell. Wings lightly but distinctly stained brown, with no stigma.

Length of body (estimated) 8 mm; of wing 7 mm.

HOLOTYPE in BPB (BISHOP 9669).

TYPE LOCALITY. Luzon: Mountain Province, Abatan, Buguias, 60 km S. of Bontoc, 1800-2000 m, 27.V.1962 (H. M. Torrevillas).

MATERIAL SEEN. (one paratype). LUZON: 1.

Genus **Ammophilomima** Enderlein

Ammophilomima Enderlein, 1914: 155. Type-species: *A. imitatrix* Enderlein, 1914, by original designation.

Lagynogaster Hermann, 1917: 12. Type-species: *L. fuliginosa* Hermann, 1917, by original designation.

Ammophilomima was described from Africa, and *Lagynogaster* from Formosa (Taiwan), but workers in both regions have considered the two genera to be inseparable. The possession of a small comb, or tuft of fine hairs postero-ventrally on the hind femora (fig. 14) is normally characteristic of *Lagynogaster*, but Frey (1937: 39) emphasizes in his key that this is not absolutely reliable. Frey admits *Ammophilomima* s. str. and *Lagynogaster* as subgenera, basing the distinction on the fewer bristles dorsally on the hind tibiae of *Ammophilomima* s. str.

Three species are recorded from the Philippines: *A* (*A.*) *nubilipennis* Frey, 1937; *A.* (*L.*). *boettcheri* Frey, 1937; and *A.* (*L.*) *princeps* (Osten Sacken), 1882. They may be separated as follows:

KEY TO PHILIPPINE SPECIES OF AMMOPHILOMIMA
(after Frey, 1937)

1. Hind tibiae with a row of several distinct bristles dorsally (fig. 14). .....
   Hind femora with a small tuft of hairs posteroventrally (fig. 14; easily overlooked !) ... . Subgenus **Lagynogaster**...2
   Hind tibiae without any bristles dorsally. Hind femora without posteroventral tuft .... Subgenus **Ammophilomima**
   Wings with a dark cloud on foremargin ..... **nubilipennis** Frey
2. Thorax shining black, legs reddish brown. Wings heavily stained brown. ....**princeps** (Osten Sacken)
   Thorax mainly reddish yellow. Legs shining reddish yellow, very narrowly black at knees. Wings tinged yellowish, subcostal cell dark brown from tip of Sc to tip of R_1 ....**boettcheri** Frey

Ammophilomima (Ammophilomima) nubilipennis Frey

Leptogaster (Ammophilomima) nubilipennis Frey, 1937: 47.

Head: "Occiput with gray tomentum, postocular hairs whitish. Frons and face with gray-brown tomentum. Vertex only slightly hollowed out. Mystax with numerous (c. 25) fine,

yellowish white bristles. Proboscis shining black. Antennae completely black: third segment shining black, about twice as long as the two basal segments together; arista thick, distally indistinctly thicker, about as long as third segment, with short, narrow, apical style."

Thorax: "Shining black; mesonotum laterally and posteriorly, together with scutellum and pleura, with thick gray tomentum and pale hairs. Presutural and supra-alar bristles yellowish white."

Abdomen: "Somewhat thickened apically, not especially long, black-brown, each segment with one basal and one apical ash-gray crossband."

Legs: "Coxae black, with gray tomentum. Legs reddish yellow, knees black. Middle and hind femora with a brown ring before tip. Tarsi black-brown, all basitarsi reddish yellow, except at tip. Hind tibiae externally [=dorsally] almost without bristles; ventrally with two yellow bristles. Middle tibiae with two short and one long white touch-hairs. Fore tibiae distally with about four short, white touch-hairs. Basitarsi with whitish bristles ventrally, the other tarsomeres with black bristles. Empodium very short."

Wings: "Small, hyaline, with an ill-defined brownish cloud on fore margin, enclosing a weak, brownish stigma. Radial fork about as long as its stalk, slightly divergent towards tip of wing. Small crossvein before middle of discal cell. Third posterior cell divergent towards wing margin. Anal cell closed and stalked. Halteres reddish yellow."

Length of body 9 mm; of wing 9 mm.

HOLOTYPE in HF.

TYPE LOCALITY. MASBATE: Aroroy, August 1917 (G. Boettcher).

MATERIAL SEEN. NIL.

Ammophilomima (Lagynogaster) princeps (Osten Sacken)

Leptogaster princeps Osten Sacken, 1882: 102.

"♀ Black, shining, with metallic bluish or purplish reflexions, especially on the abdomen; legs more or less reddish; wings brown with violet reflexions"

Head: Face silvery, except immediately above the mouth, where it is shining black; front and vertex black, shining; occiput grayish silvery; antennae reddish brown, second joint yellowish.

Thorax: "Mesonotum black, shining, with a very slight bluish opalescence; a border of a light grayish, not very dense pollen runs above the dorsopleural suture and also covers the scutellum and metanotum; pleurae subopaque, brownish pollinose"

Abdomen: "Black, shining, with distinct bluish or purplish reflexions, some reddish shades on the ventral side vary in extent in different specimens"

Legs: "... more or less dark brown, with a very slight metallic purplish reflexion; hind tibiae more or less reddish, as also the end of the hind femora, where the reddish sometimes reaches beyond the middle."

Wings: "Brown, with purplish reflexions; proximal end of the second posterior cell but very little nearer the root of the wing than the proximal ends of the second submarginal and third posterior cells; contact of the fifth posterior cell with the discal cell very short; anal cell closed, petiolate at the tip"

SYNTYPES (3) in DEI.

TYPE LOCALITY. "Philippine Islands" (Carl Semper).

OTHER PHILIPPINE RECORDS. LUZON: Laguna, Mt Banahao (Bezzi).

MATERIAL SEEN. NIL.

Ammophilomima (Lagynogaster) boettcheri Frey Fig. 14.

Ammophilomima (Lagynogaster) boettcheri Frey, 1937: 49.

Distinguished at once by the reddish thorax, since the other two species from the Philippines have the mesonotum shining black.

Head: Eyes moderately close together, crowding against bases of antennae. Large facets in front are few in number, and not clearly differentiated from others. Face dark red-brown, with brassy tomentum, and mystax of 6-8 weak yellow bristles. Frons not divergent, nearly parallel-sided at width of ocellar tubercle, also with brassy tomentum. Occiput with yellowish tomentum, a row of yellow post occipital bristles, and rather numerous soft yellow hairs. Antennae with elongate third segment, more than twice as long as first two segments together, and an arista of similar length. First two segments a little dusky ventrally, and arista black-brown. Proboscis and palpi red-black, with pale hairs.

Thorax: Mesonotum reddish yellow translucent, with three fairly distinct, but ill-defined longitudinal black stripes. Laterally and posteriorly, as well as on pleura, with thick yellowish tomentum, and with more or less distinct brown stripes on notopleuron, and from metapleuron to middle coxa. Notopleural and supra-alar bristles black.

Abdomen: Wasp-like, constricted to a narrow cylinder for first three segments, then abruptly broadening into an oval shape in dorsal view. Shining dark red-black, with segmentations tomented orange, broader at each side. Uniformly covered with rather long, fine, yellow hairs. Venter reddish at sides, with a median red-black stripe.

Legs: Mainly reddish yellow, only trochanters and a narrow rim at each knee being black. Fore and middle femora, and hind tibiae and tarsi, red-brown; hind femora moderately clavate, light brown, with a yellow spot at tip (fig. 14), and with a small but distinct tuft of yellow hairs posteroventrally in middle of length. Empodium about half as long as claws.

Wings: Rather elongate and narrow. Anal cell closed and stalked. Radial vein forking beyond apex of discal cell. Radial vein forking beyond apex of discal cell. Wing membrane largely stained yellow, fore margin from Sc to tip of R_1 heavily browned, with dense microtrichiae.

Length of body 16 mm; of wing 12 mm.

HOLOTYPE in HF.

TYPE LOCALITY. LUZON: Mt Banahao, June 1914 (G. Boettcher).

MATERIAL SEEN. LUZON: 12, 16.

Genus **Leptogaster** Meigen

Leptogaster Meigen, 1803: 269. Type-species: *Asilus tipuloides* Fabricius, 1775 (*cylindricus* Degeer, 1776, not *tipuloides* L., 1758=*Empis tessellata* L.), monotypic.

The genus *Leptogaster* is a difficult problem for several reasons. The name is one of the oldest, and, like *Asilus*, and *Laphria*, has been given to many species that have subsequently been removed to other genera. The flies themselves are frail, elusive creatures, living among grasses, and, though sometimes common enough, are not to be found in great numbers like craneflies. They do not catch the eye of the collector in the same way as the bigger robberflies, and usually turn up in mixed sweepings, often wet and bedraggled. Hence one can only repeat the comment made by Frey, and already mentioned, that available material of this genus is too fragmentary, and too badly preser-

ved, to make an adequate study possible.

I have therefore dealt only with the species that are present in the collections before me. In addition to those keyed below, the following have been recorded from the Philippine Islands:

basilaris Coquillett, 1898: 311.
fuscatipennis Frey, 1937: 46.
trifasciata de Meijere, 1913: 38.

Frey (1937) divided his *Leptogaster* into two subgenera: *Mesoleptogaster*, combining a row of obvious bristles on the hind tibiae with an elongate third antenna segment, and *Leptogaster* s. str. with neither of these characters. I do not find this distinction practicable. Certainly some species have strong hind tibial bristles, but their occurrence is not consistently associated with a longer third antennal segment. I have therefore not subdivided *Leptogaster* in this way.

KEY TO THE PHILIPPINE SPECIES OF LEPTOGASTER KNOWN TO ME

1. R_{4+5} forking well beyond end of discal cell, and radial fork strongly convergent towards wing margin. R_{2+3} sometimes ending beyond tip of R_5 2
   R_{4+5} forking at or before end of discal cell, radial fork not strongly convergent. R_{2+3} ending before tip of R_5 5
2. Thorax and abdomen almost entirely tomented 3
   Thorax and abdomen extensively bare, shining black, or striped yellow and black 4
3. Mesonotum handsomely marked, yellowish at sides, with bifid brown median stripe, and two narrow stripes of shining black anteriorly. Pleura anterodorsally with white tomentum and thick white hairs; posteroventrally more brownish, with inconspicuous hairs. Male genitalia as in fig. 4 ..... **tomentosa**, n. sp.
   Mesonotum and pleura without conspicous pattern. Male genitalia as in fig. 5; upper forceps with long, forked, apical processes ..... **palawanensis**, n. sp.
4. Mesonotum entirely shining black. Legs very long and slender, hind femora not swollen into a knob ..... **convergens**, Frey
   Mesonotum with large, yellow humeral triangles (fig. 6). Hind femora with slender stalk and subapical knob, which is yellow with a brown band. ..... **trimaculata** de Meijere
5. Basitarsi short, not longer than sum of next *two* segments (fig. 12). Hind tibiae strongly clavate. Male genitalia fig. 7 ..... **crassitarsis** Frey
   Basitarsi as long as next *three* segments. Hind tibiae not strongly clavate. Fore tibiae very slender, with a row of fine bristles ventrally. Male genitalia as in fig. 8 ..... **cilipes** Frey

Leptogaster crassitarsis Frey Fig. 7.

Leptogaster crassitarsis Frey, 1937: 43.

Fig. 12 shows how apt is the name of this species, with the basitarsus of each leg conspicuously shorter than in most species except possibly *palawanensis*, sp. n.

Head: Eyes separated by width of one antenna. Face strongly divergent, with white tomentum and about eight white bristles in mystax. Frons U-shaped, vertex only slightly wider than ocellar tubercle. Occiput with gray or whitish tomentum and short, weak, white postoccipital bristles. Antennae yellow, third segment dusky towards tip, arista black. Palpi and proboscis reddish, blackish apically, hairs yellow.

Thorax: Mesonotum rather elongate, about twice as long as broad, almost entirely tomented, and handsomely patterned: yellowish at sides, brown on disc, with a divided dark brown median stripe, which is usually flanked by narrow black stripes anteriorly, and perhaps posteriorly. A noticeable feature of pattern is a median whitish stripe which is conspicuous just before scutellum. Scutellum gray. Pleura anterodorsally with thick whitish tomentum and long hairs; posteroventrally more brownish and without conspicuous hairs.

Abdomen: Dorsum fully tomented dark brown, more yellowish laterally, and each segment posteriorly with a broad yellow ring. Venter similar, more obscurely patterned.

Legs: Notable for their sturdiness, and for the relatively short basitarsus on all legs. Fore coxae yellow, others more grayish. Legs mostly yellow, femora with a brown ring, and tibiae brownish in basal half; this is particularly pronounced on hind legs, where femora have a narrow stem and swollen club, and tibiae are stout and strongly clavate. Tarsi yellow, becoming more orange apically.

Wings: Unpatterned, but faintly smoky, and distinctly clouded at tips of R_{2+3} and R_{4+5}. Radial fork long, branching just before apex of discal cell. Halteres with yellow stem and reddish brown knob.

Length of body variable, 7-12 mm; of wing 5-8 mm.

SYNTYPES in HF.

TYPE LOCALITY. SAMAR: Catbalogan, April 1915 (G. Boettcher).

MATERIAL SEEN. LUZON: 19, 26. 5. PALAWAN: 70, 95. BALABAC: 75.

Leptogaster cilipes Frey Fig. 3, 8, 13.

Leptogaster cilipes Frey, 1937: 43.

Apart from the ciliated fore tibiae shown in fig. 13, this species is recognised by the distinctively marked thorax.

Head: Eyes practically touching below antennae (fig. 3). Face remaining narrow, diverging only just above mouthmargin, with yellowish tomentum and a mystax of four white bristles. Antennae yellow, with yellow hairs; third segment about as long as first two together; arista black. Frons only narrowly U-shaped, actually touching ocellar tubercle, with yellow tomentum. Occiput with gray tomentum and very short, inconspicuous yellow hairs along eyemargin.

Thorax: Mesonotum black, with large humeral and smaller postalar yellow patches; black showing through thin brown tomentum. Scutellum blackish with brown tomentum. Pleura anterodorsally yellow, with rather long, pale hairs; posteroventrally more dusky, hairs inconspicuous.

Abdomen: Very narrow, segments 2-4 cylindrical and elongate, rest forming a laterally flattened club. First segment yellow, otherwise dorsum black-brown, weakly shining through thin brown tomentum. Middle of second segment, and fore margins of others, with a broad yellow ring. Male genitalia as in fig. 8.

Legs: All coxae yellow. Fore and middle femora light brownish, yellow at base and tip; hind femora with very narrow yellow stalk and clubbed tip, which is yellow-brown with a distinct dark brown band round base of club (no its middle). Fore tibiae (fig. 13) and tarsi yellowish; hind tibiae with two distinct dark brown rings. Hind tarsi yellow-brown, last segment darker.

Wings: Slightly smoky, a little clouded a tip. Radial fork long, beginning just before apex

of discal cell. Halteres with yellow stalk and reddish brown knob.

Length of body 7-12 mm; of wing 6 mm.

SYNTYPES. 2 ♀ in HF.

TYPE LOCALITY. N. Mindanao, Surigao, Aug. 1916 (G. Boettcher).

MATERIAL SEEN. LUZON: 1, 5, 6, 16. MINDANAO: 36, 49, 86, 88, 89, CULION: 64.

Leptogaster convergens Frey Fig. 2.

Leptogaster (*Mesoleptogaster*) *convergens* Frey, 1937: 45.

Recognised by the shining black mesonotum, with reddish yellow humeri and postalar calli, and the convergent radial fork.

Head: Face and frons black with thin gray tomentum. Mystax very sparse, almost non-existent, white. Antennae red basally, becoming progressively darker towards tip. Arista little longer than third segment, slightly flattened apically. Postoccipital hairs weak, whitish. Proboscis and palpi brown, with yellowish hairs.

Thorax: Mesonotum polished, shining black, gray only at extreme sides. Humeri and postalar calli reddish yellow. Scutellum black, with gray tomentum and rather rugose appearance. Bristles, including two marginal scutellars, weak, whitish or blackish. Pleura black with gray tomentum.

Abdomen: Dorsum black, shining through thin gray tomentum, especially basally. Clothing hairs weak, black on disc, whitish laterally. Male genitalia as in fig. 2.

Legs: Mostly obscurely yellow-brown, clearer yellow posteriorly on fore and middle femora and tibiae and basitarsi; and at base and near apex of hind femora.

Wings: Hyaline, except for darkened tip to marginal cell, which constitutes a narrow stigma; radial fork strongly convergent.

Length of body 9 mm; of wing 7 mm.

HOLOTYPE in HF.

TYPE LOCALITY. MINDANAO: Mumungan, III.1915 (G. Boettcher).

MATERIAL SEEN. LUZON: 19, 26. 5.

Leptogaster tomentosa Oldroyd, new species Fig. 4.

Distinguished among the species with convergent radial fork, such as *convergens* Frey, by the pattern of the mesonotum and pleura.

Head: Eyes separated by breadth of two antennae. Face smoothly divergent, with white tomentum and a mystax of four pale yellowish bristles. Frons scarcely divergent, tomentum distinctly more yellow than that of frons. Occiput with gray tomentum, and abundant, but weak, pale hairs round orbital margin. Antennae mainly orange: first segment and arista more brown; third segment narrow, as long as first two combined; hairs mixed yellow and black, proboscis and palpi black, with pale hairs.

Thorax: Mesonotum black, but almost entirely covered with dense tomentum, leaving only a pair of short, narrow, shining black stripes anteriorly, which unite below forward hump of mesonotum. Laterally to each of these stripes is a broad stripe of brown tomentum, extending full length. Scutellum with gray tomentum and only fine, pale marginal hairs. Pleura with a

conspicuous diagonal dark band running from base of wing to fore and middle coxae; above and below this band with thick whitish tomentum and longish white hairs.

Abdomen: Heavily tomented. Each segment with a dark brown center spot, pale bands anterior and posterior to this, and a dull black basal band; on the long second segment this basal band occupies about one-third of the length. Male genitalia yellow, of distinctive shape (fig. 4).

Legs: Fore and middle pairs with translucent brown femora and paler tibiae and tarsi. Hind legs with femora clavate, but not abruptly swollen into a knob as in many species; yellow-brown, with a brown spot on thicker part anteriorly, and a longitudinal brown stripe posteriorly. Hind tibiae long, very slightly clavate, yellow-brown, with a posterior brown stripe that extends all round at tip. Hind tarsi slender and tapering, brown, with basitarsus paler.

Wings: Hyaline, rather iridescent, radial fork noticeably short and tapering.

Length of body 12–14 mm; of wing 9 mm.

HOLOTYPE in BPB (BISHOP 9670).

TYPE LOCALITY. MINDANAO: Dalwansan, Bukidnon, 1800 m, 23.IV.1968 (M. D. Delfinado).

MATERIAL SEEN. Mindanao: 49.

Leptogaster trimaculata de Meijere Fig. 6.

Leptogaster trimaculata de Meijere, 1913: 36.

This species is recognised at once by the pattern of the thorax. The mesonotum is bare and shining black, with a pair of very large orange triangles extending back from the humeral region. This pattern can be interpreted as "Thoraxrücken rotgelb, die glänzend schwarzen striemen zusammenfliessend" (Frey, 1937: 40).

Head: Anterior facets of eyes usually big, each about four times the area of one of the smaller facets. Eyes separated by only width of one antenna. Face strongly divergent, covered with pale yellow tomentum, mystax of four pale yellowish bristles. Frons U-shaped, width in middle about twice that of ocellar tubercle, and at vertex little more than this; tomentum pale yellow. Occiput with white tomentum and a row of rather isolated, yellow post-occipital bristles. Antennae with first two segments yellow, with black and yellow hairs; third segment and arista black-brown, each rather longer than first two segments together. Proboscis and palpi mahogany-brown with black hairs.

Thorax: (fig. 6). Pronotum and anterior face of mesonotum, a broad notopleural and supra-alar area, and the backward slope behind the suture, all with white tomentum. Disc of mesonotum, including most of prescutum, bare and shining; a pattern of three black stripes, fused posteriorly, contrast strongly with large orange humeral triangles. Scutellum with thick white tomentum. Presutural bristles yellow, supra-alars brownish or black. Pleura with thick white tomentum and stiff yellowish hairs anteriorly on mesopleuron and sternopleuron; a vertical band below wing-base is indistinctly more brownish.

Abdomen: Black-brown with yellowish segmentations, dully shining through thin tomentum. Abdomen incomplete in all three specimens available.

Legs: Yellow-brown. Fore and middle femora darker brown anteriorly. Hind femora with narrow stalk and only moderately swollen knob. Stalk and a very small knob dark brown. Tip of hind tibiae, and basitarsi, and all other tarsomeres, dark brown.

Length of body (estimated) 10 mm; of wing 6 mm.

HOLOTYPE in ZMA.

TYPE LOCALITY. Java, Semarang.

MATERIAL SEEN. MINDANAO: 41, 86.

Leptogaster palawanensis Oldroyd, new species Fig. 5.

The male is distinguished by the genitalia (fig. 5), the upper forceps being forked at the tip, with long processes. The tarsi are rather thick and short, recalling those of *crassitarsis* (fig. 12), though slightly less so.

Head: Eyes practically touching, with a small area of anterior facets very much enlarged. Face and frons diverging smoothly. Mystax of 4-6 weak whitish bristles. Antennae with first two segments bright yellow, third segment and arista black, each about as long as first two segments together. Proboscis and palpi yellowish brown with pale hairs.

Thorax: Mesonotum uniformly covered with ashy tomentum, brownish on disc, gray towards margins. Scutellum and pleura gray. No distinct pattern.

Abdomen: Cylindrical, only slightly clavate at tip. Dull, tomented, chocolate-brown with yellow band posteriorly on each segment; no band in *middle* of second segment.

Legs: Coxae yellow in ground color, with whitish tomentum. Fore and middle legs with bases of femora, tips of tibiae, and first four tarsomeres pale yellow, rest yellow-brown. Hind femora with long, thin yellow stalk and small knob, with brown band in middle, and also with a row of evenly spaced short bristles ventrally. Tibiae stout, clavate, yellow in basal half, brown apically. Tarsi fairly stout, yellow basally, becoming darker apically.

Wings: Wings with a thin, uniform covering of microtrichiae, becoming faintly smoky towards tip. Radial fork branching beyond tip of discal cell, and distinctly convergent. Halteres with yellow stalk and black knob.

Length of body 7-11 mm; of wing 5-7 mm.

SYNTYPES (5) in BPB (BISHOP 9671). Although the genitalia and general pattern are distinctive, no single specimen is complete enough to be made the holotype.

TYPE LOCALITY. PALAWAN: 3 km NE of Tinebog, 7.V.1962 (H. Holtmann).

MATERIAL SEEN. PALAWAN: 69.

Tribe ATOMOSIINI

These are small flies, rather like sawflies in general appearance. As a tribe they are easily recognised by the wing-venation, with M_3 parallel to, and often in line with, the outer end of the discal cell (fig. 19, 20). This occurs in a few genera in other tribes (see *Orthogonis* and *Laloides* (*Anisosis*), pp. 244, 249) but these are much bigger flies, not to be confused with Atomosiini once the latter have been seen.

The genera of Atomosiini are not easy to define. Hermann (1912: 21-206), in a paper nominally concerned with S. American Asilidae, in fact made a comprehensive world survey of this group, and figured many of the striking variations of head and antennae that occur. Like all Hermann's work, this was basically very sound, but Atomosiini are seldom numerous in collections, and it is difficult to assess what range of variation can be expected within one genus. A glance through Hull's monograph

(1962: 362–419) shows that many genera have only one or two described species, and many are monotypic. Only *Atomosia* has any substantial number of species, and this is of doubtful significance, since few of them have been critically studied.

No Atomosiini have hitherto been recorded from the Philippine Islands, but the present collections contain two species. These are quite distinct specifically, and are at present placed in different genera, but in the present state of knowledge of Oriental Atomosiini it is not possible to say whether or not this generic difference is valid.

Key to genera and species of Atomosiini in Philippines

1. R_{4+5} forks level with end of discal cell (fig. 19). Mesonotum shining steel-blue, postalar callosities yellow; pleura, including coxae, banded. Abdomen metallic steel-blue, coarsely punctate, with large yellow triangle at each side of first five tergites. Face with white scales..... **Opocapsis dioctrioides** (Walker)

   R_{4+5} forks beyond end of discal cell (fig. 20). Mesonotum shining black, but more or less obscured by short brown tomentum. Pleura silvery anteriorly and on coxae, brownish elsewhere, but not sharply defined. Abdomen shining black, punctate, more or less covered with brown tomentum. Face with velvety white tomentum, but no scales. ..... **Anoplothyrea javana** (de Meijere)

Genus **Opocapsis** Hull

Opocapsis Hull, 1958: 252. Type-species: *Laphria dioctrioides* Walker, 1860, by original designation.

In the original account of his genus *Cenochromyia*, Hermann (1912: 116) included *Laphria dioctrioides* Walker, on the strength of specimens lent to him by Professor Poulton, from Oxford, but this is not, in my opinion, correct. *Cenochromyia* is at present best restricted to a small group of tiny, yellow Asilidae from the New Guinea area. Hermann went on to suggest that *Laphria bipars* Walker and *L. tripars* Walker also belonged in *Cenochromyia* and in consequence of this Hull's concept of *Cenochromyia* hovers uncertainly between the tribes Laphriini and Atomosiini. Hull's list of species of *Cenochromyia* contains two that properly belong there — *guttata* Hermann and *xanthogaster* Hermann, and two that do not — *bipars* Walker and *tripars* Walker.

Hull's reason for erecting a new genus for *Laphria dioctrioides* Walker was that the unique type specimen in the British Museum has only four posterior cells in the wing, the vein M_3 being completely absent in both wings. Several specimens from the Philippine Islands, however, have normal venation; moreover the venation of the type specimen is quite normal in other respects, and it seems evident that the absence of M_3 is an individual deformity.

Opocapsis dioctrioides (Walker) Fig. 19.

Laphria dioctrioides Walker, 1860: 106.
Cenochromyia dioctroides Hermann, 1912: 116.
Opocapsis dioctroides (Walker). Hull, 1962: 397.

Head: Face very narrow, less than one tenth of total head-width, covered with silky tomentum and silvery scales, more obvious in male. Mystax consisting of about four long white

hairs, and others extend upwards in center of face. Frons not much widened, and deeply excavated at vertex; velvety black, with two long, conspicuous black ocellar bristles. Eye facets larger anteriorly, becoming smaller laterally, but without a clearly defined boundary between large and small facets. Occiput covered with thin white tomentum, postoccipital bristles yellowish, few and strong, set far back from eyemargin. Beard sparse, yellowish. Proboscis very short and straight, black; palpi black with yellowish hairs. First two antennal segments black, first twice as long as second; no specimen with third antennal segment intact is available.

Thorax: Mesonotum bare, shining steel-blue, only postalar calli yellow. Bristles sparse, black, lateral bristles longer and more conspicuous. Scutellum bare, steel-blue, with white tomentum narrowly round rim. A pair of black marginal bristles, close together, and often broken off, but then large pits can be seen. Pleura banded: pronotum, propleuron and anterior part of mesopleuron densely covered with white tomentum; posterior part of mesopleuron and a vestigial band below wing base chocolate-brown; hypopleuron (mesopleuron) white. A mesopleural bristle, and a tuft before halteres, black. Postnotum ('metanotum') with black tomentum and a small metanotal tuft of yellowish hairs on each side.

Abomen: Dorsally steel-blue, with coarse punctures, each of which bears a yellow hair. Segments 2-6 each with a yellow triangle in anterior corner of each side, and each segment with at least one strong yellow bristle pointing laterally. Venter yellow, with fine yellow hairs, partly enclosed by tergites which are strongly curved round ventrally. Male and female genitalia partly enclosed by tergites, but not entirely concealed.

Legs: Coxae covered with white tomentum, but in ground color fore coxa are yellow and others black. Fore and middle legs entirely yellow, faint brown color only in middle of anterior face of femora, and on last tarsal segment. Hind legs with femora swollen, and dark brown in middle, with base and tip yellow; tibiae strong and rather clavate, dark brown; tarsi brown. All legs with long, slender black bristles on all segments, including tarsi.

Wings: Not remarkable — absence of M_3 in the type seems to be an individual peculiarity. R_{4+5} forks about opposite the crossed veins at end of discal cell instead of well beyond this point, as in *Anoplothyrea javana.*

Length of body 6 mm; of wing 5 mm.

HOLOTYPE in BMNH.

TYPE LOCALITY. CELEBES: Makassar.

MATERIAL SEEN. LUZON: 7, 14, 18, 22, 25. MINDANAO: 42.

Genus **Anoplothyrea** de Meijere

Anoplothyrea de Meijere 1914: 56. Type-species: *Clariola javana* de Meijere, by original designation.

de Meijere originally described *javana* in the genus *Clariola* Kertész, but subsequently erected the new genus *Anoplothyrea* for it, while stressing its close similarity to *Cenochromyia* and *Epaphroditus.* His comments merely emphasise the fact that among Atomosiini it is difficult to say where generic limits should be drawn and which characters are of generic rather than of specific significance.

Anoplothyrea javana (de Meijere) Fig. 20.

Clariola javana de Meijere, 1911, *Tijdschr. Ent.* **54**: 308.

Anoplothyrea javana de Meijere, 1914, *Tijdschr. Ent.* **56** suppl.: 56.

Anoplothyrea javana has many similarities to *Opocapsis dioctrioides*, notably the very narrow face, but differs materially in body coloring as well as in the wing venation. (fig. 19, 20), and in the lack of any strong marginal scutellar bristles.

Head: Face very narrow, only about one-twelfth to one-fifteenth of total head width, diverging a little towards mouthmargin, and frons noticeably divergent above antennae. Face with white tomentum and pale yellowish hairs, fine and numerous in mystax — which, however, is still confined to mouthmargin — and sparse above this; no facial scales (cf *Opocapsis dioctrioides*). Frons dark brown with coppery tomentum. Vertex much more deeply excavated than in *Cenochromyia*, and ocellar tubercle (with two longer bristles) far below level of tops of eyes. Occiput brown with thin whitish tomentum, a denser white streak immediately behind vertex. No strong postoccipital bristles, and only a few weak yellowish hairs. Beard yellowish; proboscis and palpi dark brown with yellowish hairs. Antennae black-brown with black hairs; first segment about 1½ times as long as second; third as long as first, with dorsal spine well removed from tip.

Thorax: Mesonotum shining black, but not bare; uniformly covered with short brown pile. No bristles except at sides, where they are inconspicuous. Scutellum similar, no bristles, but short pile and longer marginal hairs. Pleura black-brown, with white tomentum, which is more whitish anteriorly, and darker brown beneath wings, but not conspicuously striped as in *Opocapsis dioctrioides*.

Abdomen: Dorsally shining black, without any yellow pattern. Tergites punctate, with a fine yellow hair in each puncture. No strong lateral bristles. Venter yellow with yellow hairs and partly enclosed by strongly curved tergites, which also obscure, but do not entirely conceal the genitalia.

Legs: Coxae with tomentum like pleura, but not conspicuously white. Fore and middle legs yellow, apical half of femora and all tarsi only a little more brown. All segments, but especially tibiae, with very long hairs, mixed yellow and brown. Hind legs darker, mahogany brown, with bases and tips of femora yellowish. Hairs yellow, bristles mixed yellow and brown; femora and tibiae ventrally with a fringe of yellow hairs.

Wings: Venation as in fig. 20; note position of fork of R_{4+5}. Wing lightly but uniformly browned by covering of microtrichiae.

Length of body 5 mm; of wing 5 mm.

HOLOTYPE in ZMA.

TYPE LOCALITIES. JAVA: several localities.

MATERIAL SEEN. LUZON: 18, 27. MINDANAO: 37, 44, 46.

Tribe LAPHRIINI

These include the largest and most conspicuous Asilidae from the Philippine Islands, as well as some of the most difficult taxonomic problems. Although *Laphria sensu latissimo* occurs throughout the world, from the tropics to high latitudes, a minority of species are truly congeneric with the type species the Palaearctic *Asilus gibbosus* Linnaeus, 1758.

Some segregates are defined on clear structural characters, particularly of the proboscis and palpi. Hull (1962: 349) erected a new tribe *Andrenosomini* for those with the palpi flattened and leaf-like, and the proboscis also dorsoventrally flattened, curved and shovel-

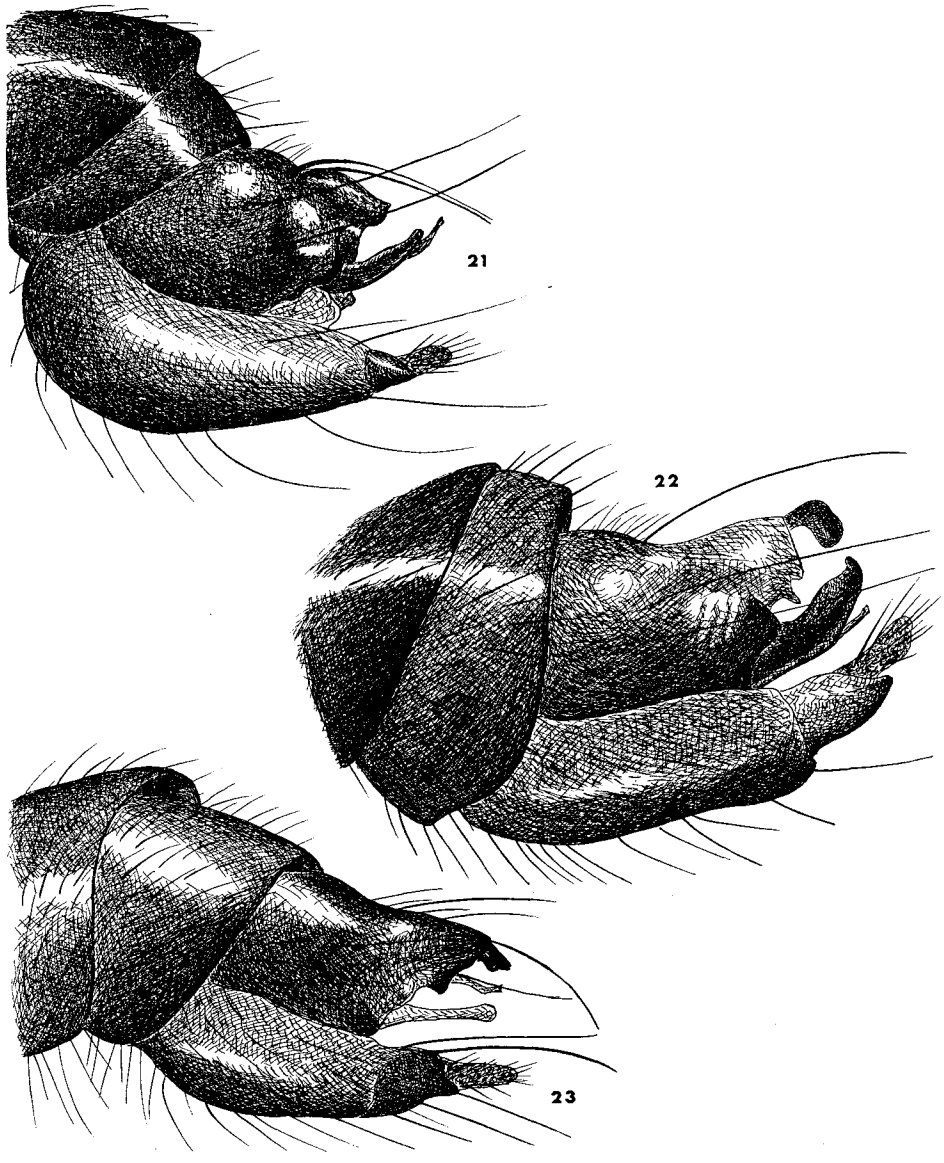


Fig. 21-23. ♂ genitalia of *Maira* spp. 21, *hispidella* Wulp; 22, *aenea* (Fabricius); 23, *aurifacies* (Macquart).

like. These structures are striking enough but they unite genera of widely different overall appearance, and they are foreshadowed to some extent in species that are not generally classed as Andrenosomini. Hull himself is a little obscure about *Orthogonis*, one of the genera with which we are concerned in this paper. He writes: (1962: 330) "These flies present a strong general similarity in appearance to *Maira* Schiner, but are

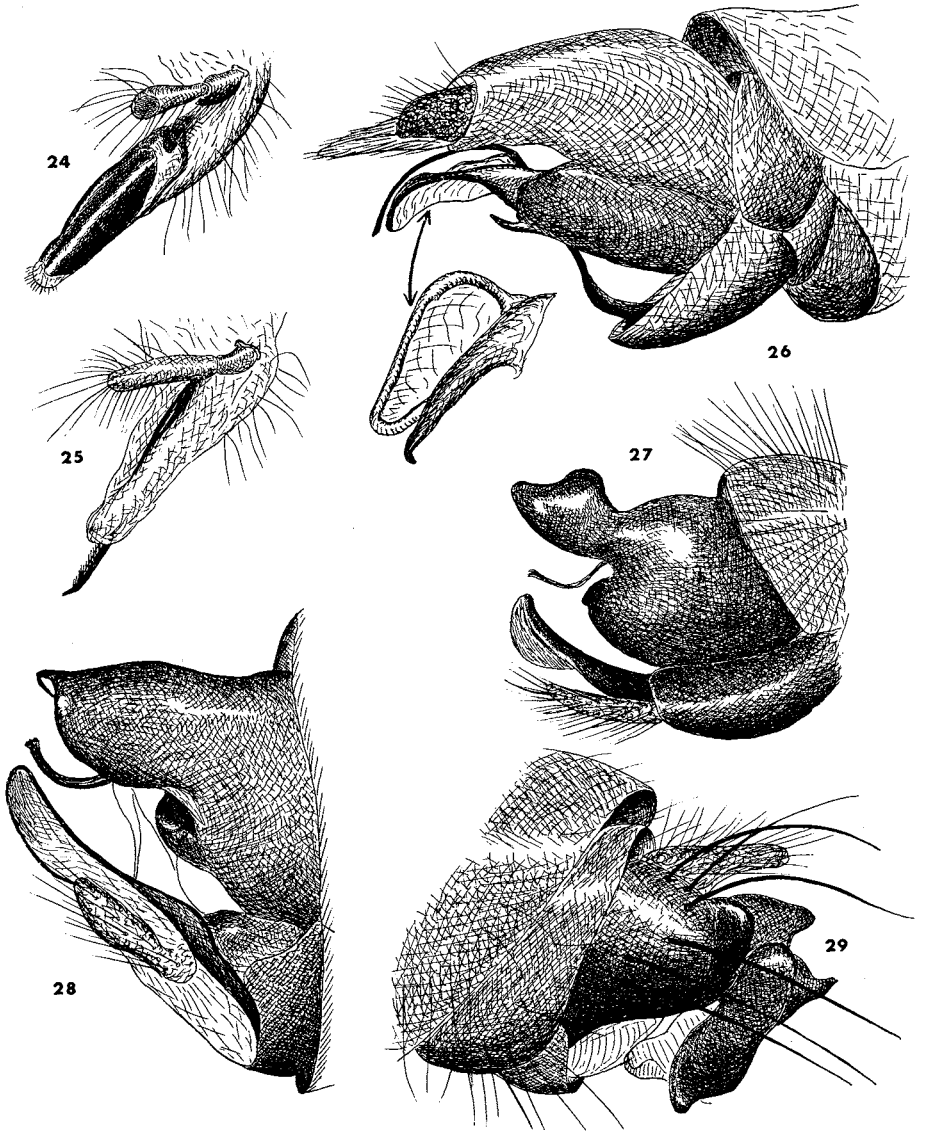


Fig. 24–29. 24, 25, proboscis of *Laloides* spp.: 24, *phalaris* (Osten Sacken); 25, *pseudolus* (Osten Sacken). Fig. 26–29. ♂ genitalia. 26, *Laloides phalaris* (Osten Sacken). Inset, broader clasper of *Laloides pseudolus* (Osten Sacken); 27, *Orthogonis scapularis* (Wiedemann); 28, *Orthogonis obliquistriga* (Walker); 29, *Pogonosoma cyanogaster* Bezzi.

unrelated, belonging instead to the Andrenosomini" though he himself deals with *Orthogonis* among the Laphriini (1962: 330), and the palpi are in fact cylindrical.

I consider that the status of Andrenosomini is not assured enough to separate them

tribally from Laphriini, though the leaflike palpi certainly enable these genera to be segregated in a key. The shape of the proboscis is a primary characteristic of Laphriini, with a sharp distinction between those in which the proboscis is laterally flattened, like a paperknife on edge (fig. 35) and those in which it is triangular in section (fig. 34). The former includes furry species which belong to *Laphria* Meigen s. str.; species covered with recumbent pile which are currently segregated as *Choerades* Walker (*Epholkiolaphria* Hermann); and metallic blue-green species of *Maira* Schiner. Though many species can be assigned with confidence to one or other of these, it is very difficult to point out any really diagnostic differences between them.

In the Philippines the species divide between *Choerades* and *Maira*. *Maira* is doubly unsatisfactory, in that it is not only impossible to define the genus, but it is also very difficult to distinguish one species from another except from the male genitalia.

Pagidolaphria is a name for a group of very large, hairy species that are a conspicuous feature of the Oriental asilid fauna. *Laphria horrida* Walker, from Sumatra, is: a characteristic and well-named member of this group. Once again it is easy to segregate a few species, but others merge gradually into *Laphria sensu lat.* I think it is better not to attempt to allocate any of the Philippine species to *Pagidolaphria*.

Key to genera of Laphrini occurring in the Philippines

1. Proboscis laterally flattened, like a paperknife on edge (fig. 35) 2
   Proboscis triangular in cross-section, shorter and more pointed, sometimes curved upwards (fig. 34, 60) 3
2. Mesonotum as well as abdomen bare, metallic green, blue or purple..... **Maira** Schiner
   Mesonotum not metallic, though sometimes abdomen is partly so..... **Choerades** Walker (**Epholkiolaphria** Hermann)
3. Palpi flattened, leaflike, or scroll-like. Proboscis flattened underneath, and turned up to a blunt point, or a bifid tip 4
   Palpi not so flattened. Proboscis not like this 5
4. Three submarginal cells (fig. 32, 33)..... **Pogonosoma** Rondani
   Only two submarginal cells (fig. 31) ..... **Andrenosoma** Rondani
5. Metanotal callosities bare. Veins at tip of disca cell forming a +(fig. 30) ..... **Orthogonis** Hermann
   Metanotal callosities hairy. Veins at tip of discal cell not forming a cross, vein M_4 usually curved..... 6
6. Medium-sized (15 mm) yellow and black species. ..... **Laloides** nom. n. (**Anisosis** Hermann)
7. Small black and gray species..... **Aphistina** gen. n.

Genus **Aphistina** new genus

Type-species: *Laphria partita* Walker, 1857 [not 1860], by present designation.

Walker described two species with the name *Laphria partita:* one, from Borneo, in 1857, and another from Makassar, Celebes, in 1860. Bezzi (1917: 127) renamed the latter *partialis*, but it is also a synonym of *Choerades philippinensis* Enderlein, 1914, see below.

The unique type of *Laphria partita* Walker, 1857, which is in the British Museum, is one of a small group of obscure species that do not fit into any of the accepted genera of Laphriini, and since a single specimen of this group, but a different species, is present

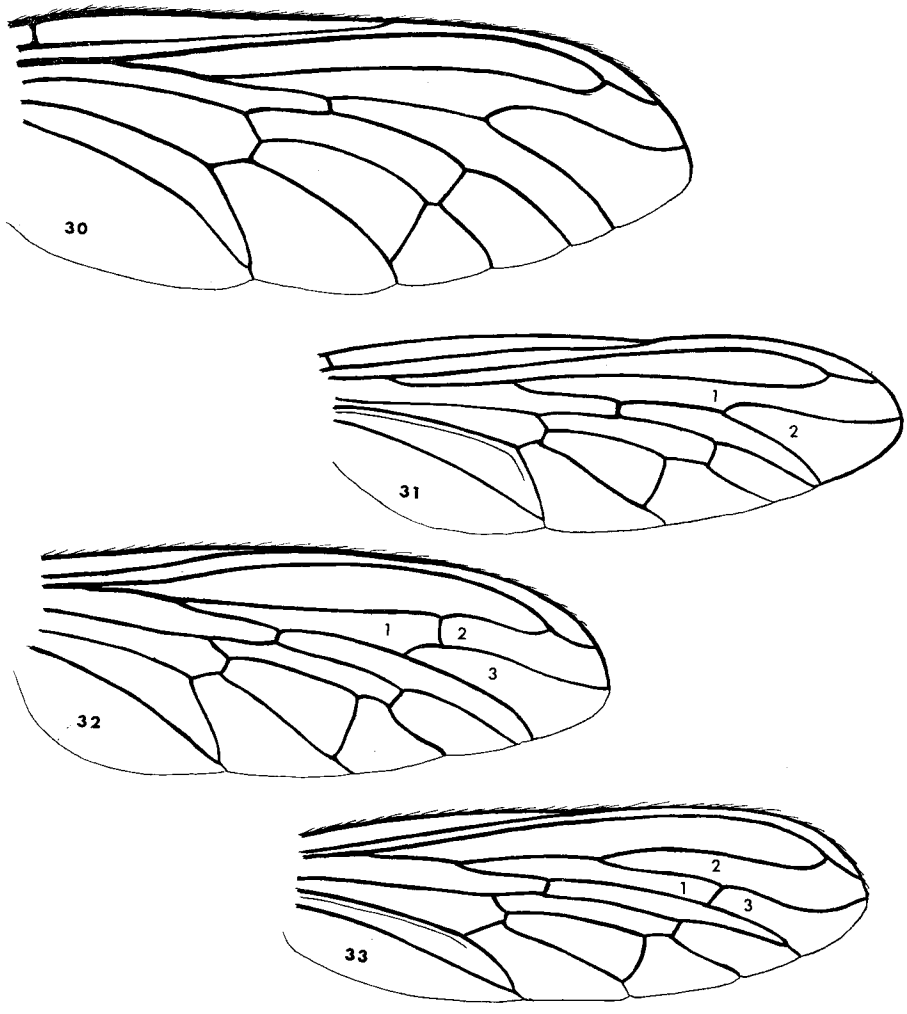


Fig. 30-33. Wings: 30, *Orthogonis scapularis* (Wiedemann), wing color omitted; 31, *Andrenosoma irigensis* n. sp.; 32, *Pogonosoma cyanogaster* Bezzi; 33, *Pogonosoma basifera* (Walker). Numbers 1-3=submarginal cells.

in the collections from the Philippine Islands, it seems a good opportunity to give them a generic name.

GENERAL CHARACTERISTICS. Rather small, stoutly built flies, with a clavate abdomen, looking like Atomosiini, but without either the venational peculiarity of crossed veins at the apex of the discal cell, or the sclerotized postmetacoxal area to which Hull (1962: 369) attaches importance. They are unusual among Laphriini in having the metanotal slopes hairy.

Head as in fig. 59. Third antennal segment spindle-shaped. Proboscis triangular in cross-section, rather short, and directed obliquely downwards. Palpi small, second segment pointed. Face plane, mystax confined to lower third, with two strong bristles in mid face.

Thorax: Mesopleuron with two strong bristles behind wing-base. Mesonotum and scutellum

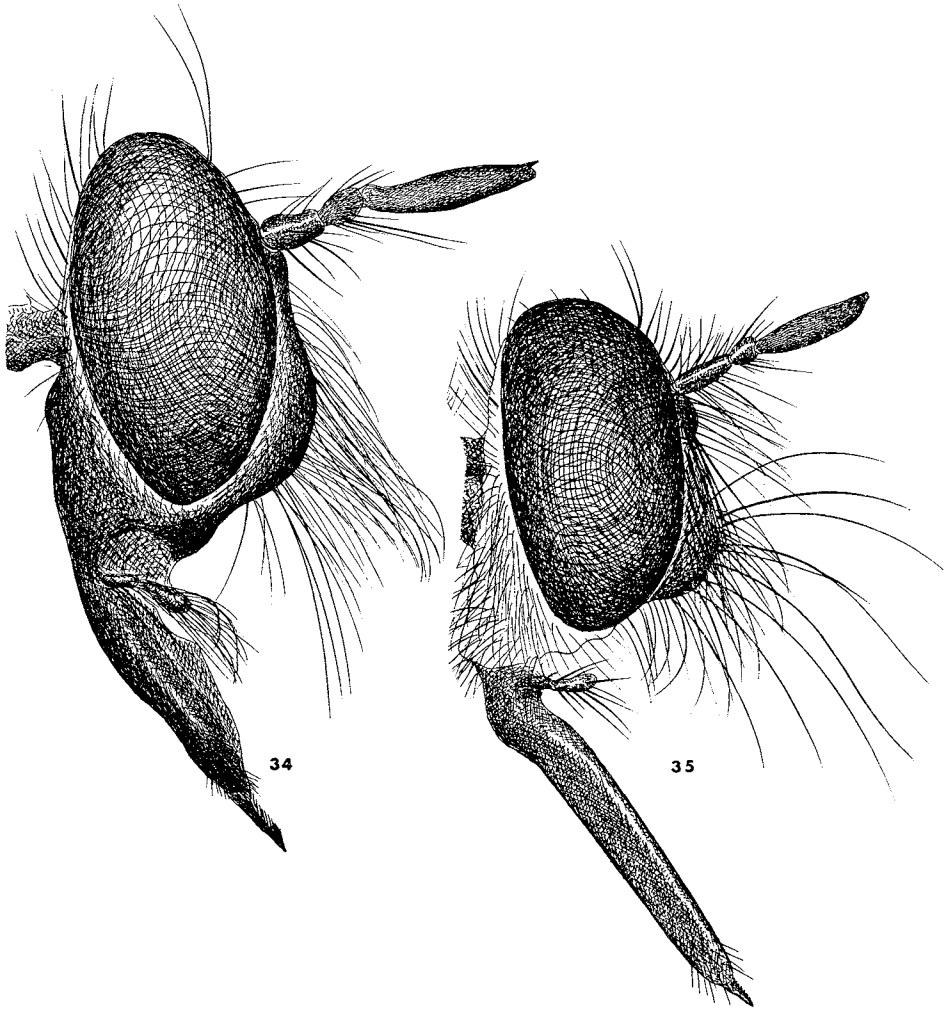


Fig. 34, 35. Heads in profile: 34, *Orthogonis*; 35, *Choerades*. Note difference in shape of proboscis.

covered with short hairs, and with strong bristles laterally; marginal scutellars numerous (6-8), widely spaced. Metanotal slopes with weak but distinct hairs.

Abdomen: Rather broad, and slightly clavate, with 2-3 strong discal bristles on each segment.

Legs: Not remarkable, but bristles of tibiae are isolated, and very long and strong.

Wings: Rather narrow and elongate. Fourth posterior cell very pointed, vein M_3 in no way parallel to apical margin of discal margin of discal cell (cf Atomosiini).

The genus may include one or two other obscure species that have not been recognised again since they were described by Walker, but material is at present inadequate for a

review of them. The one species from the Philippine Islands is distinct from all of them.

Aphistina balabacensis Oldroyd, new species

Very close to *A. partita* Walker, and distinguished chiefly by having the legs all black instead of being predominantly yellow.

Head: Shape as in *partita* (fig. 59). Frons and face with yellowish tomentum; frons with a single row of about four short black bristles along each eyemargin; face with sparse yellow hairs, not gathered into bands, but with two long yellow median bristles. Mystax compact, yellow bristles on epistoma only, with a few yellow hairs immediately above them. Antennae with first segment 1½ times as long as second, blackish, with yellow hair; second segment dull orange with black hairs [third segment missing]. Proboscis and palpi black with yellow hairs. Long bristles of vertex and upper occiput black, lower occipital bristles yellow, beard pale yellowish.

Thorax: Black, entirely covered with tomentum. Mesonotum with brassy tomentum and short black hairs, longer bristles in supra-alar and postalar positions. Humeri with dark brown tomentum and weak yellow bristles. Scutellum with brassy tomentum, yellow clothing hairs, and four black marginals. Pleura with dense yellow tomentum and yellow hairs and bristles; one strong mesopleural and a complex row of six yellow metapleurals.

Abdomen: Compact, distinctly clavate, broadest at fourth and fifth segments; blue-black, dully shining through very thin yellow tomentum, which is more distinct laterally. Clothing hairs short, yellow, not appreciably longer at sides. 2-3 strong yellow discal bristles on each side. Venter dully tomented, but almost bare of hairs.

Legs: Black, only knees and extreme bases of femora orange. Hairs and bristles yellow; outer faces of tibiae with 2-3 very long, conspicuous yellow bristles.

Wings: Uniformly pale grayish. Venation not remarkable. M_3 curved, not parallel to, nor opposite, crossvein *m*. Halteres with orange stalk and yellow knob.

Length of body 7 mm; of wing 7 mm.

HOLOTYPE in BPB (BISHOP 9672).

TYPE LOCALITY. BALABAC I., 10 km S of Balabac, 24.IV.1962 in Malaise trap (H. Holtmann).

MATERIAL SEEN. BALABAC I.: 76.

Genus **Choerades** Walker

Choerades Walker, 1851: 109. Type-species: *Laphria vulcanus* Wiedemann, 1828, as *Choerades aurigena* Walker, 1851, monotypic.

Epholkiolaphria, Hermann, 1914: 89. Type-species: *Laphria egregia* Wulp, 1898, by original designation.

Pagidolaphria Hermann, 1914: 85. Type-species: *Laphria gigas* Macquart, 1838, by original designation.

Saliomima Enderlein, 1914: 243. Type-species: *Laphria reinwardtii* Wiedemann, 1828, by original designation.

Reasons have been given above for assigning all the Philippine 'Laphria' to *Choerades*, a matter of convenience. This is not to maintain that *Pagidolaphra*, erected by

Hermann as a *Verwandtschaftskreis*, or group of related species, should disappear as wholly synonymous with *Choerades*. This problem can be solved only by a study of species from the entire Oriental Region.

One of the most constant features of *Choerades* is the presence on the gonopod of the hypandrium of a pair, or a cluster, of bristles as shown in fig. 36–42. Rotation of the genitalia is a characteristic of male Laphriini, and the commonest position is exactly inverted, with the undivided, boat-shaped epandrium apparently ventral, and the complex hypandrium apparently dorsal, as in the drawings. Some rotation apparently takes place during pairing, and males may be preserved with the genitalia in any position of rotation, so that when comparing different specimens even of the same species it is essential to make sure that they are being examined from the correct angle.

The Oriental Region is rich in species of *Choerades*, including many described very inadequately by Walker from the collections of A. R. Wallace and other nineteenth century collectors. As previous authors — Osten Sacken, Hermann, Bezzi — have noted, there is considerable individual variation in the distribution and color of the thick pile of the abdomen and scutellum, and possibly even in the genitalia. A monographic study of the *Choerades* of the whole Region would be need before the correct synonymy could be worked out. The names used in the present paper must be regarded as provisional.

Key to the Philippine species of Choerades

1. Species patterned in yellow and black, generally bigger, and with legs entirely yellow, or occasionally with a short black stripe 2
   Black species, generally middle sized or small, and with at least femora black; usually legs all black. 4
2. Wings yellow, with tip and hind margin black. Abdomen densely covered with yellow hair on all segments, giving a plain or banded appearance according to direction of light ..... **alternans** Wiedemann
   Wings entirely black, or with colorless basal area only 3
3. Abdomen yellow-banded; hairs of first two tergites often silvery, at least in part ..... **vulcanus** Wiedemann
   Abdomen predominantly black, but one or two basal segments, as well as scutellum with thick hairs that are usually silvery, sometimes yellow, occasionally black ..... **leucoprocta** Wiedemann
4. Abdomen orange in ground color, at least on middle segments. ..... **unifascia** Walker
   Abdomen black or metallic blue-black in ground color, sometimes covered with yellow pile 5
5. Femora black, tibiae and basitarsi yellow. Mesonotum with abundant yellow hair ..... **comptissima** Walker
   Legs entirely black 6
6. Dorsum of abdomen covered with dense golden yellow tomentum, sometimes leaving sixth segment bare ..... **hobelias** n. sp.
   Dorsum of abdomen with only very sparse yellow hairs, if any 7
7. Abdomen short, not more than twice length of thorax, rather bulbous, distinctly constricted basally ..... **conopoides** n. sp.
   Abdomen three or more times as long as thorax, cylindrical, not obviously constricted basally 8
8. Wings either entirely black, or only a little of basal cells clear. Legs slender, almost

without long hairs..... **hobeliae** n. sp.
Legs with basal, anal and axillary cells almost or quite clear. Legs with many long hairs..... 9
9. Abdomen bare, metallic violet, clothed with rather long, sparse hairs (not pile), mostly white. Male genitalia rather globular (fig. 40). Proboscis and third antennal segment both elongate. ..... **peristalsis** n. sp.
Abdomen black, clothed densely with short black hairs. Male genitalia not globular (fig. 36, 39). Proboscis and third antennal segment not elongate. ..... **dimidiata** Macquart

Choerades alternans (Wiedemann) Fig. 38.

Laphria alternans Wiedemann, 1818: 511.
Smeryngolaphria alternans Wiedemann. Hermann, 1914: 111.
Laphria fervens Walker, 1855: 554. **n. syn.**
Laphria saeva Walker, 1855: 554. **n. syn.**

I apply this name to the single Philippine species which is larger and yellow, with yellow wings blackened at tip, and to a lesser extent along the hind margin. This species is widespread in Java, Sumatra, Malaya and nearby regions.

Head: Hairs and bristles entirely yellow. Antennae, proboscis and palpi mainly black, but sometimes first two antennal segments partly or wholly orange.

Thorax: Mesonotum in ground color with black and orange pattern; large rectangular humeral patches, transverse suture and a narrow posterior margin; tomentum and clothing hairs black in a broad median stripe, yellow laterally, and when in good condition often giving the effect of broad lateral yellow stripes. Scutellum with yellow clothing hairs and orange marginal bristles, sometimes darker basally. Pleura boldly patterned in yellow and black, giving the effect of three vertical yellow stripes.

Abdomen: Dorsum black, with abundant recumbent yellow pile, which is sparser at base of each segment, and so gives the effect of narrow black bands. Venter black with sparse yellow hairs.

Legs: Coxae with yellow tomentum. Trochanters black. Femora and tibiae entirely orange, or hind femora partially darkened; tarsi becoming darker apically.

Wings: Membrane and veins yellow, except for a dark band as broad as radial fork, and running round hind margin as far as alula. Halteres orange.

Length: Variable; typically rather large (*Pagidolaphria*), around 23 mm body length and 20 mm wing length, but small specimens occur.

HOLOTYPES. *alternans* RML; *scaeva, fervens* BMNH.

TYPE LOCALITIES. *alternans* Java; *scaeva, fervens* Sumatra.

MATERIAL SEEN. LUZON: 12, 13, 16. MINDANAO: 31, 42, 88.

OTHER PHILIPPINE RECORDS. MINDANAO: Dapitan (Bezzi, 1917: 125).

Choerades conopoides Oldroyd, new species

Distinguished from all the other Philippine species by the short, inflated, waisted abdomen, more like a conopid or a hymenopteran than an asilid.

Head: Face black, with thin brassy tomentum, obscured by a dense cluster of yellow scaly

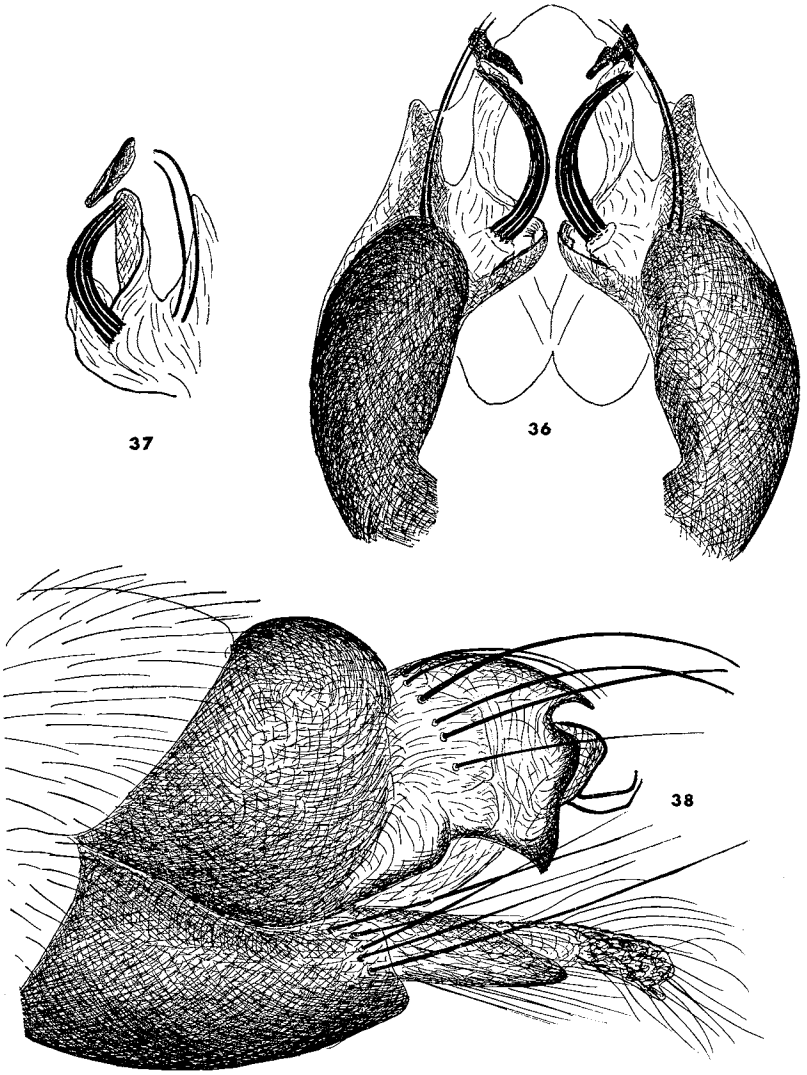


Fig. 36-38. *Choerades*, ♂ genitalia: 36, *dimidiata* (Macquart); 37, a variant; 38, *alternans* (Wiedemann)

hairs between tubercle and antennae. Mystax of about a dozen black bristles, flanked ventrally by yellow hairs. Frons with brown tomentum and black hairs. Occiput with gray tomentum; hairs and bristles black dorsally, beard whitish. Antennae black, standing on a distinct tubercle, first segment cylindrical, thin, three times as long as second segment. Proboscis and palpi black. Hairs mainly white, some black on palpi.

Thorax: Black with brown tomentum and an indistinct pattern consisting mainly of a triangular humeral patch on each side. Hairs and bristles black. Scutellum similar, with a marginal row of numerous fine black hairs. Pleura black, with a covering of yellow tomentum,

densest on propleuron and mesopleuron. Mesopleura with two black bristles, otherwise rest of hairs yellow, except for a few black hairs dorsally on mesopleuron.

Abdomen: Only about half as long again as thorax, distinctly clavate: narrowest at second segment, then expanding into a distinctly inflated region, broadest at fifth segment. Dorsum black, short clothing hairs either black or dull yellow on first four segments. Venter with brown tomentum and short yellow clothing hairs.

Legs: Black, strong, hind femora strongly inflated, flat ventrally. Clothed with rather long and moderately abundant yellow hairs. Middle tibiae with a conspicuous and unusual row of fine, long, black bristles.

Wings: Smoky brown, clearer in basal cells. First posterior cell narrowed or closed. Halteres dull red.

Length of body 11 mm; of wing 9 mm.

HOLOTYPE in BPB (BISHOP 9673).

TYPE LOCALITY. LUZON: Manatan Province, Abatan, Bugias, 60 km S of Bontoc, 1800-2000 m, 4-7.V.1964 (H. M. Torrevillas).

MATERIAL SEEN. LUZON: 1, 11.

Choerades comptissima Walker

Laphria comptissima Walker, 1857: 113.

A small, slim species, with cylindrical abdomen, easily recognised among the Philippine species by the bicolored legs: femora black, fore and middle tibiae and basitarsi orange, hind tibiae orange at base.

Head: Face black with brassy tomentum and dense yellow scaly hairs between tubercle and antennae. Mystax composed mainly of sparse black bristles, with yellow hairs ventrally. Hairs below and around antennal sockets yellow, but two long ocellar bristles black. Frons and occiput black with brassy tomentum and mainly yellow hairs and bristles, though a few occipital bristles are black. Beard yellow. Antennae black, with mixed black and yellow hairs. Proboscis and palpi black with yellow hairs.

Thorax: Mesonotum black, almost uniformly covered with yellow tomentum and yellow hairs, but supra-alar and postalar bristles black. Scutellum similar, with numerous fine yellow marginal hairs. Pleura similar, hairs and bristles yellow, including mesopleural bristles.

Abdomen: Dorsum bare, shining black, each segment with brassy tomentum narrowly at base, and in a large posterolateral triangle on each side, clothed with rather sparse, but long and prominent, yellow hairs. Venter similar.

Legs: Hind femora strongly swollen, flat ventrally. Femora all shining black. Fore and middle tibiae, and first four tarsomeres, entirely orange; hind tibiae orange on basal third, rest obscurely darkened; hind basitarsus orange, other tarsomeres darker.

Wings: Heavily infuscated, with dark microtrichiae on apical half and in anal cell, but basal and costal cells, and basal half of marginal cell, clear. Halteres dark red.

Length of body 15 mm; of wing 13 mm.

HOLOTYPE in BMNH.

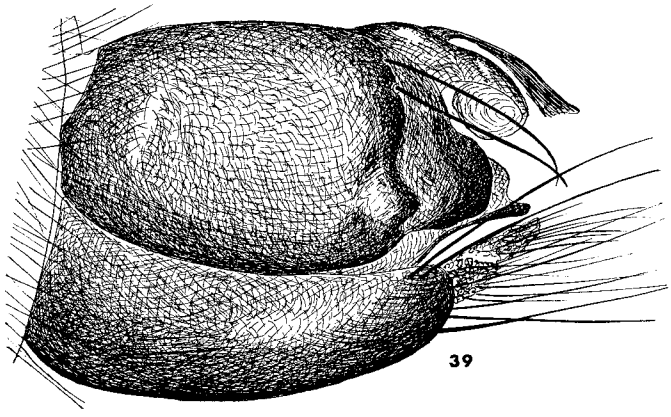
TYPE LOCALITY. BORNEO.

MATERIAL SEEN. PALAWAN: 69.

Choerades dimidiata Macquart

Laphria dimidiata Macquart, 1846 : 72.
Laphria taphius Walker, 1849 : 380.

This is the commonest species of *Choerades* in the islands, with a wide distribution in the Far East. There is considerable variation in size, with a possible division into two groups, and it is not unlikely that future work may cause this species to be split into two or more. For the present, however, it is best regarded as a single species with no striking differences in male genitalia (fig. 36, 40).



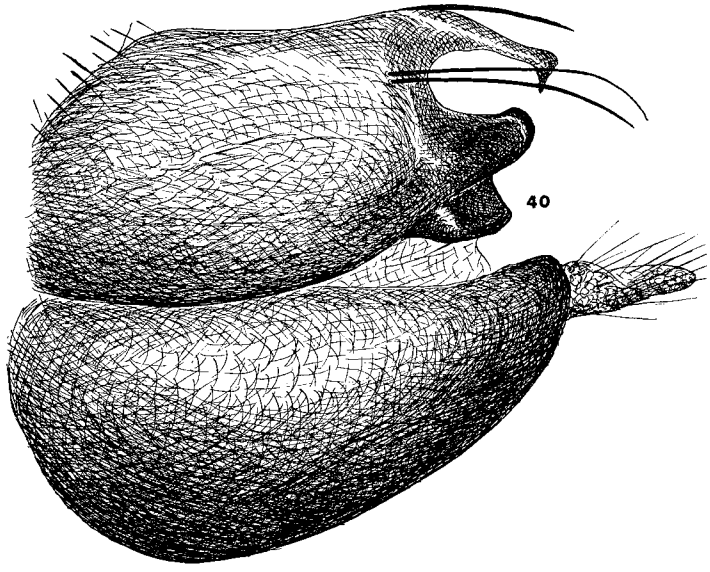


Fig. 39, 40. *Choerades*, ♂ genitalia : 39, *dimidiata* (Macquart), small form ; 40, *peristalsis* n. sp.

The name *dimidiata* clearly refers to the dimidiate wings: ie divided into two halves, an infuscated apex and a clear base. This is true of several other species, and what is here regarded as *dimidiata* is distinguished chiefly by lacking any of the characteristic features of the others! This is a further reason for suspecting the existence of a complex.

The type specimen of *Laphria taphius* Walker is the broken specimen from "Phil. Is." and not the second specimen labelled "68.4" (ie ex W. W. Saunders collection), which was properly removed to *Pogonosoma* by Ricardo, and belongs to *Pogonosoma cyanogaster* Bezzi.

Head: Face black with brassy tomentum and yellow scaly hairs above facial tubercle. Antennal tubercle rather small, bearing mostly black hairs below antennae. Mystax black, relatively dense. Frons with brown tomentum and black hairs. Occiput with gray tomentum and abundant black hairs. Antennae black with black hairs. Proboscis and palpi with black hairs, beard white.

Thorax: Mesonotum black with brown tomentum and black clothing hairs: a rather fugitive pattern of white tomentum in humeral and posthumeral spots, transverse suture, lateral and posterior margins. Scutellum black with short black clothing hairs and fine black marginal bristles. Pleura black-brown with two (not three!) vertical white stripes reaching fore and middle coxae; hind coxae black-brown. Mesopleuron with two or three strong black bristles; metapleural tuft black.

Abdomen: Dorsum black with brown tomentum and short, black clothing hairs. Venter similar, black hairs longer. Male genitalia as fig. 36, 40.

Legs: Black, rather slim. Long hairs in about equal mixture of black and white.

Wings: Black-brown on apical half, basal half, clear, up to base of discal cell. Halteres with dull reddish brown knob.

Length of body 17 mm; of wing 17 mm.

HOLOTYPE of *dimidiata* in HDO; *taphius* in BMNH.

TYPE LOCALITIES. *dimidiata* Manila; *taphius* "Philippine Is."

MATERIAL SEEN. LUZON: 4, 6, 16, 22, 25, 27, 83. MINDANAO: 34.5, 38.5, 39, 40, 41, 42, 44. LEYTE: 29. NEGROS OR. 58.

OTHER PHILIPPINE RECORDS. "The common species" (Osten Sacken, 1882).

LUZON: Mt Maquiling, Laguna, Malinao, Tayabas. MINDANAO: Butuan, Dapitan (Bezzi, 1916: 124).

Choerades hobelias Oldroyd, new species

Another small, slim species, with cylindrical abdomen, distinguished from the others by the lack of long hairs on the legs, the almost wholly dark wings, and the covering of recumbent, bright yellow hairs on the entire dorsum of the abdomen of the male.

Head: Face obscured by an exceptionally dense mass of golden scaly hairs, with a tuft of yellow hairs (♂) or sparse white hairs (♀) beneath the antennae, mystax composed of six or eight black bristles. Frons and occiput with chocolate-brown tomentum and black hairs and bristles. Antennae, proboscis and palpi black with black hairs, even at base of proboscis.

Thorax: Mesonotum black with very thin brown tomentum, and clothed with very short and very sparse yellow hairs. A large yellow humeral patch, and a small yellow notopleural triangle

just before black supra-alar bristles. Scutellum black, wrinkled, with yellow hairs longer than those of mesonotum, but with only insignificant, yellow, marginal hairs. Pleura chocolate-brown with two (not three!) vertical bands of white tomentum: thus fore and middle coxae are white tomented, but hind coxae are chocolate-brown. Mesopleural hairs fine and white, with one black bristle; metapleural tuft mainly black.

Abdomen: Dorsum with metallic ground color in male almost obliterated by a very dense covering of recumbent yellow hairs; discal bristles also yellow; concealed seventh tergite, and genitalia, black. Dorsum of female with short black clothing hairs only. Venter red-brown with long yellow hairs.

Legs: Dark mahogany-brown and only sparsely hairy, quite without the long hairs of some species. Clothing hairs short, mainly black, some yellow, especially anteriorly on fore femora.

Wings: Smoky brown, hardly at all paler basally. Halteres with large, whitish knob.

Length of body 15 mm; of wing 12 mm.

HOLOTYPE in BPB (BISHOP 9674).

TYPE LOCALITY. LUZON: Camarines Sur, Mt Isarog, Pili, 800 m, 27.IV.1965. Light trap (H. M. Torrevillas).

MATERIAL SEEN. LUZON: 7, 11, 16, 17, 22, 26.5, 27. MINDANAO: 38, 46.5,

Choerades leucoprocta (Wiedemann)

Laphria leucoprocta Wiedemann, 1828: 517.

This distinctive species is easily recognised by the predominantly black color, with snow-white pile on the scutellum and first abdominal tergite. The specific name *leucoprocta* is misleading if one thinks of 'procta' as the anus, but presumably Wiedemann used it in the classical sense of 'the prow'. His description is clear.

There is some individual variation, both in the silvery pile (a common variation is to have this replaced by yellow) and in the accentuation of the yellow lateral stripes of the mesonotum. Silvery pubescence seems to be more frequent in males.

Head: Face with yellow tomentum, golden, hairs, and orange bristles. Frons with chocolate-brown tomentum and black ocellar bristles. Occiput with thin yellow tomentum and yellow hairs, but occipital bristles fine and back. Antennae black, with hairs mainly black, a few orange. Proboscis and palpi black, with yellow hairs.

Thorax: Mesonotum black, with brown tomentum and black hairs, and a pattern of yellow patches with yellow hairs; normally these are limited to a spot on or behind humeri and one above wing-base, but this varies considerably. Some specimens have yellow hairs forming broad lateral stripes and traces of narrow, paired median stripes, especially anteriorly. Scutellum typically with dense silvery white pile, but this may be yellow, or sometimes black. Scutellar margin with numerous black hairs. Pleura chocolate-brown, with large yellow areas on propleuron and mesopleuron. Mesopleuron with a single black bristle; metapleural tuft of long, black hairs.

Abdomen: Predominantly black, with brown tomentum and short black hairs. First segment typically with dense silvery white hairs, but these may be yellow or black. Venter black with black hairs.

Legs: Externally orange, with orange hairs and bristles, including pulvilli and bases of claws.

Wings: Almost uniformly smoky brown, with an indefinite pale area basally. Halteres orange.

Length of body 20 mm; of wing 15 mm.

HOLOTYPE in RML.

TYPE LOCALITY. Java.

MATERIAL SEEN. LUZON: 3, 6, 16, 21, 26.

OTHER PHILIPPINE RECORDS. LUZON: Los Baños & Mt Maquiling (Bezzi, 1917: 124).

Choerades philippinensis Enderlein

Laphria partita Walker, 1860: 105, preoccupied by *partita* Walker, 1857=*Aphistina* gen. n., p.230.
Choerades philippinensis Enderlein, 1914: 251, new name.
Epholkiolaphria partialis Bezzi, 1917: 124, new name.

Laphria partita Walker was described from Celebes, and the types are in the BMNH. The only evidence that this species occurs in the Philippine Islands is the statement by Osten Sacken (1882: 109) that Walker himself identified four specimens. Osten Sacken remarks that: he himself had compared these with the specimens from Celebes: "but did not reach any positive conclusion about their identity or diversity" — a non-commital statement, indeed! This species has an abundance of yellow hairs on the first four abdominal tergites and on the mesonotum, and I have not seen any specimens of it from the Philippines myself.

Choerades peristalsis Oldroyd, new species Fig. 40.

An elongate species, with both proboscis and third antennal segment longer than usual. Abdomen large, elongate, shining metallic violet, with long, shaggy white hairs.

Head: Face black with yellow tomentum and whitish or yellowish scales on each side of a prominent tubercle, which bears a mystax of exceptionally long hairs, dorsally black, ventrally yellow. Frons shining on upper part of antennal tubercle, otherwise with brown tomentum in middle, and white laterally. Ventex with a postvertical patch of white velvety tomentum, which glistens strongly in one direction of lighting. Occiput with some brownish and some grayish tomentum, with fine black hairs above and white hairs below, merging into white beard. Antennae very long, third segment nearly twice as long as first two combined, first segment twice as long as second. Hairs black. Antennae stand on a pronounced tubercle, which is yellow tomented with yellow hairs anteriorly and shining brown posteriorly. Proboscis and palpi black with whitish hairs.

Thorax: Mesonotum metallic steel-blue, but mostly overlaid with tomentum of velvety white, which changes in color according to direction of light. In suitable lighting, besides humeral patches, transverse suture and extreme posterior margin all show up white; shifting paired brown stripes can also be seen. Clothing hairs short, erect, black, becoming white posteriorly and on scutellum, which is metallic steel-blue with long, fine, white marginal hairs. Bristles black. Pleura tomented brown, with three vertical whitish stripes, including the three coxae. Mesopleuron with one strong black bristle, and no conspicuous hairs. Metapleural tuft black.

Abdomen: Dorsally shining metallic violet, shading into brown as the light changes. Posterior lateral angles of segments may have a shifting triangle of whitish tomentum. Clothing hairs long, erect, whitish. Discal bristles single, strong, black. Venter brown with black hairs.

Legs: Black, with long hairs that are mostly white.

Wings: Rather faintly infuscated and quite clear basally. Halteres yellow.

Length of body 17 mm; of wing 15 mm.

HOLOTYPE in BPB (BISHOP 9675).

TYPE LOCALITY. LUZON: Camarines Sur, Isarog, 750 - 800 m, 26.V.1963 (H. M. Torrevillas).

MATERIAL SEEN. LUZON: 13.

Choerades unifascia Walker

Laphria unifascia Walker, 1857: 113.

A small, cylindrical species, the only species in the area to have part of the abdomen orange *in ground color.*

Head: Black. Face with thin, brassy tomentum and a dense tuft of scaly yellow hairs above and beside facial tubercle. Otherwise hairs and bristles of face, in mystax and below antennae, black. Occipital bristles numerous and dense, all black; beard yellow. Antennae black with black hairs. Palpi black with black hairs, but proboscis black with yellow hairs at base and tip.

Thorax: Mesonotum black, covered with thin brown tomentum and very short black clothing hairs. Lateral and hind margins with a little yellow tomentum, but black hairs and bristles only. Pleura black, with thin but almost uniform covering of brassy tomentum. Mesopleuron with two black bristles and mixed yellow and black hairs. Metapleural tuft black dorsally, yellow ventrally.

Abdomen: Mainly orange, with only first, part of second, seventh and genital segments black. Clothing hairs mixed black and yellow, yellow mainly laterally and basally. Venter orange with yellow hairs.

Legs: Entirely black, densely covered with long, fine hairs, which are predominantly black on hind legs and mainly yellow on fore and middle tibiae, as well as ventrally on femora.

Wings: Mostly smoky brown, with pale areas basally. Halteres orange.

Length of body 12 mm; of wing 11 mm.

HOLOTYPE in BMNH.

TYPE LOCALITY. BORNEO.

MATERIAL SEEN. PALAWAN: 67, 71.

Choerades vulcanus (Wiedemann) Fig. 42.

Laphria vulcanus Wiedemann, 1828: 514.
Laphria (Epholkiolaphria) vulcanus Wiedemann. Hermann, 1914: 107.
Epholchiolaphria vulcanus Wiedemann. Bezzi, 1917: 124.

Similar in general appearance to *alternans,* but with the wings predominantly black, though clear to a variable extent basally. Sometimes the hairs described below as yellow or orange may be white, especially in mystax and at base of abdomen.

Head: Hairs and bristles yellow. Antennae, proboscis and palpi black.

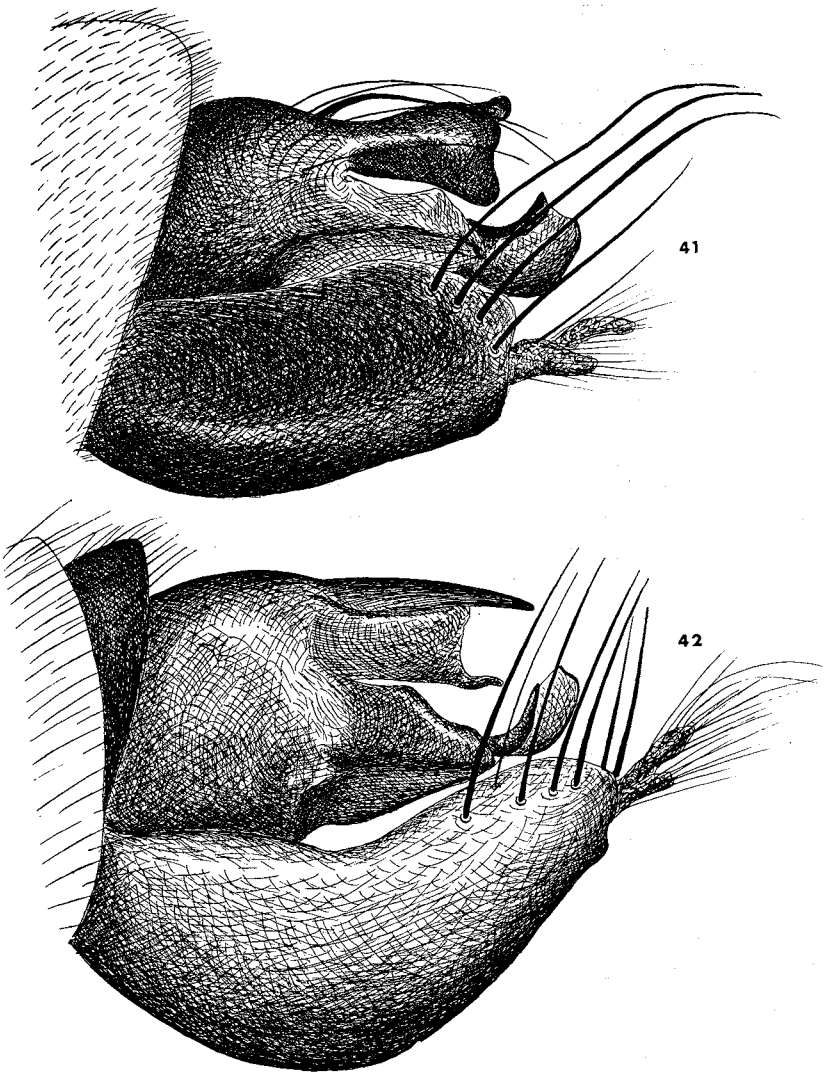


Fig. 41, 42. *Choerades*, ♂ genitalia: 41, *leucoproctus* (Wiedemann); 42, *vulcanus* (Wiedemann).

Thorax: Mesonotum black, with sharply defined yellow pattern; large humeral patch, transverse suture, supra-alar region, extensive lateral margin. Some fine yellow clothing hairs laterally, but no lateral stripe (cf. *alternans*). Pleura black, with three sharply defined vertical yellow bands.

Abdomen: Clearly banded. Each segment is black on basal half, with erect yellow hairs; apical half with yellow tomentum and denser, more recumbent orange pile.

Legs: Yellow, with yellow hairs and bristles.

Wings: Black-brown, clear at extreme base.

Length of body 18 mm; of wing 17 mm.

HOLOTYPE in RML.

TYPE LOCALITY. JAVA.

MATERIAL SEEN. MINDANAO: 42, 92. LUZON: 12.

OTHER PHILIPPINE RECORDS. MINDANAO: Butuan (Bezzi, 1917: 124).

Genus **Hoplistomerus** Macquart

Hoplistomerus Macquart, 1838: 59. Type-species: *Laphria serripes* Fabricius, 1805, monotypic.

Hoplistomerus is a characteristically African genus, founded upon the West African species *Laphria serripes* Fabricius, but Macquart (1846: 71) mysteriously recorded *serripes* also from Manila, commenting at the time that the normal habitat of the species was Guinea. This record was questioned by Wulp (1896: 82) and by Hermann (1920: 179), and it is indeed most unlikely that the same species would occur there, but it is not impossible that *Hoplistomerus* (like *Laxenecera*) has a few Oriental species as well as a larger number of African ones. When I revised the African species in 1940 I recorded a single specimen in the British Museum of an undoubted *Hoplistomerus* from Burma.

Nevertheless the most likely explanation is a mistake in labelling of the specimen in the Marquis de Spinola's collection, recorded by Macquart, 1838.

Genus **Laloides** nom. n.

Anisosis Hermann, 1914: 130. Type-species: *Laphria phalaris* Osten Sacken, 1882, by original designation. Preoccupied by *Anisosis* Deyrolle, 1867, Coleoptera.

As correctly reported by Lal (1960: 58), Bezzi (1917: 125) had drawn attention to the fact that *Anisosis* Hermann, 1914 is preoccupied, but no substititue name has yet been proposed. I therefore now propose the new name *Laloides*, in acknowledgement of the valuable Catalogue of Indian Insects. 29. Asilidae by Rattan Lal.

At first glance similar to the yellow and black *Choerades* that are so prominent in the Oriental Region, *Laloides* is quickly distinguished by the triangular proboscis (as in fig. 34) and the obvious hairs on the metanotal lobes. Vein M_3 is almost straight and parallel to the median crossvein (apical margin of the discal cell).

KEY TO PHILIPPINE SPECIES OF LALOIDES

1. Third antennal segment wholly black, contrasting with orange basal segments. Proboscis black, or nearly so, perhaps a little orange near base. Thorax almost entirely black. Abdomen with black bands more or less distinctly developed. Hind femora usually completely orange..... **phalaris** (Osten Sacken)

   Third antennal segment black only at tip. Proboscis wholly orange. Thorax largely, orange, mesonotum with distinct black stripes. Abdomen orange without black bands. Hind femora ventrally with a small black spot near base..... **pseudolus** (Osten Sacken)

Laloides phalaris (Osten Sacken) Fig. 24, 26.

Laphria phalaris Osten Sacken, 1882: 109.
Anisosis phalaris (Osten Sacken). Bezzi 1917: 125.

A wasp-like fly, with yellow legs and abdomen, and dark thorax.

Head: Frons and face covered with dense yellow tomentum. Between antennae and mystax two double rows of strong yellow bristles. Mystax confined to lower half of face, which is gently prominent; yellow, dense, with stiff bristles in lower half and weaker ones in upper half. Vertex also with yellow hairs and bristles, including two strong yellow ocellars, and several upper postoccipitals. Beard all yellow. Antennae with first two segments subequal, and bright orange with yellow hairs and bristles; third segment strongly contrasting, black, spindle shaped, at least 1½ times as long as first two segments together. Proboscis triangular in section, orange basally and at tip, with black areas. Palpi short, two segments about equally long (fig. 24, 25): orange with yellow hairs.

Thorax: Mesonotum black in ground color, except for humeri, postalar calli, and scutellum, which are orange. Black areas with brown tomentum, leaving bare two narrow, closely adjacent, shining black stripes; the whole, including the stripes, covered with moderately long yellow hairs; yellow tomentum at sides, on orange areas and a little beyond, as well as on transverse suture. Bristles yellow, one or two notopleurals black; scutellum with yellow hairs on disc and 4-6 yellow marginals. Pleura black in ground color with yellow tomentum, and yellow hairs and bristles.

Abdomen: Orange, with yellow hairs and bristles. First, fourth and fifth tergites may be mostly black, with a double black spot on third (as described by Osten Sacken), but extent of black color is very variable. Male genitalia as in fig. 26.

Legs: Entirely bright orange, no more than extreme knees black; hairs and bristles yellow.

Wings: Yellow veins, and membrane lightly stained yellow. Halteres orange.

Length of body 18 mm; of wing 15 mm.

HOLOTYPE in DEI.

TYPE LOCALITY. 'Philippines'.

MATERIAL SEEN. LUZON: 21. MINDANAO: 47.

OTHER PHILIPPINE RECORDS. LUZON: Mt Maquiling (Bezzi, 1917: 125).

Laloides pseudolus (Osten Sacken) Fig. 25-29.

Laphria pseudolus Osten Sacken, 1882: 110.

Osten Sacken said of this species: "N. B. I doubt that the brown spots on the underside of the hind femora are an essential character", yet it does seem that this species is distinct from *phalaris*. The reduced dark areas of thorax and abdomen are quite striking, and the two specimens available to me have the spots underneath the femora just as Osten Sacken describes them.

Head: Frons and face covered with dense yellow tomentum; face clearly divided longitudinally into two tracts, each with a band of yellow bristles. Mystax dense, yellow, stiff bristles below, hairs above. Antennae with two basal segments orange with yellow hairs and bristles (as in *phalaris*), but first segment is 2-3 times as long as rather globular second. Vertex and occiput with tomentum, hairs and bristles all yellow. Second segment of palpi much longer than first (cf *phalaris*) (fig. 25), orange with yellow hairs. Proboscis red or orange, not black to naked

eye as in *phalaris*.

Thorax: More distinctly patterned than *phalaris*: black areas take the form of a narrow, divided median stripe, flanked by short, broad, sublateral stripes across transverse suture. Humeri, postalar calli and lateral and posterior margins orange. Golden tomentum thick on orange areas, sparse over black ground. Mesonotum clothed with short yellow hairs and orange bristles. Scutellum entirely orange with golden tomentum, short yellow hairs and six strong orange marginal bristles. Pleura mainly bright orange, with a black band vertically from anterior spiracle to mid-coxa and back to hind coxa, though the coxae themselves are orange. Mesopleural and metapleural bristles orange.

Abdomen: Dorsum orange, with orange tomentum and orange discal bristles on all segments, though these are sometimes difficult to see. (Male genitalia fig. 26). Venter similar.

Legs: Orange, except for hind knees, which are narrowly black. Hind femora have a small, oval, black patch ventrally about one third of length from base.

Wing: Membrane stained yellow, and microtrichiae fill most cells except basal cells.

Length of body 18 mm; of wing 17 mm.

HOLOTYPE in DEI.

TYPE LOCALITY. 'Philippines'

MATERIAL SEEN. LUZON: 7.

Laloides? sp.

A single female of a larger and more robust species, with well-marked black and yellow abdominal bands. It is closely related to several Oriental species that were described in *Laphria*, and which properly belong in *Laloides: cingulifera* Walker, *soror* Wulp, *pleskei* Becker, *signatipes* Wulp, *justa* Wulp.

The specimen from the Philippines is remarkable for the marking of the legs: all three pairs of femora are orange, with sharply defined black stripe dorsally, which on hind femora extends down anterior face. Black markings of a comparable kind occur in some of the species listed above, but none quite match the Philippine specimen.

Since I have not succeeded in matching this specimen exactly, and as there is obviously considerable variation among an indeterminate number of described species, which mostly still pass under the generic name *Laphria*, it is better to leave this specimen unnamed for the time being.

MATERIAL SEEN. MINDANAO: 46.5.

Genus **Maira** Schiner

Maira Schiner, 1866: 673. Type-species: *Laphria spectabilis* Guérin, 1830, by original designation.

Maira is one of the most difficult genera of Asilidae, consisting of *Choerades*-like species with the dorsum of thorax and abdomen shining metallic green. Such species are abundant throughout the Indo-Malayan region and down to New Guinea, yet no reliable means have yet been found either to define the genus more rigorously, or to separate one species from another. There are differences to be seen in male genitalia (fig. 21–23) but the genus awaits a systematic revision based upon genitalic structure

in males, and possibly also in females. Close comparison reveals details and differences in vestiture, especially in the number of strong bristles, but this may be partly a function of the size of the individual.

As will be seen by comparing fig. 21–23, 36–42, the form of the andrium is almost identical with that of *Choerades*, as indeed is the rest of the structure. It is probable that *Maira* is no more than a collective name for the metallic species of *Choerades*, and that even this distinction is not absolute: ie that species of *Choerades* exhibit all degrees of intermediate development of metallic coloration.

Key to Philippine species of Maira

1. Scutellum strongly convex, basally dull brown, apically shining metallic green, with 4–6 marginal bristles. Metapleural bristles (in front of halteres) predominantly black. Abdominal segments with only a tiny, rectangular white patch in posterior angle..... 2
   Scutellum almost flat, covered with short yellow hairs which emerge from surface corrugations, and with only two strong marginal scutellar bristles. Metapleural bristles (in front of halteres) predominantly yellow. Abdominal segments with an equilateral triangle of white tomentum in each posterior angle. Male genitalia as in fig. 23..... ..... **aurifacies** (Macquart)
2. First antennal segment only 1 ½ times as long as second. Frons narrow, proportion of breadth of frons to distance from antennae to mouthmargin=27/58. Small species. Male genitalia as in fig. 21 ..... **hispidella** Wulp
   First antennal segment more than twice as long as second. Frons broader, proportions 52/75. Large species. Male genitalia as in fig. 22..... **aenea** (Fabricius)

Maira aurifacies (Macquart) Fig. 23.

Laphria aurifacies Macquart, 1848: 22.
Epholchiolaphria aurifacies (Macquart). Bezzi, 1917: 125.

This species seems to be the most abundant species of *Maira* in the Philippine Islands, and is probably the species seen by Osten Sacken (1882: 110): "A small, greenish metallic species, with a golden face. A single specimen". Bezzi (1917: 125) commented that it was "widely spread over the Malay Archipelago, and usually referred to the genus *Maira*" though he himself placed it in the genus *Epholchiolaphria*, without commenting on the fact.

Head: Face and frons densely covered with golden yellow tomentum, and with a double row of dense golden hairs running from antennae to mystax. Mystax black, with one or two yellow hairs. Frons with a single row of long, black hairs along each eyemargin. Two long, strong, black ocellar bristles. Antennae black: first segment just over twice as long as second, with black hairs and bristles. Proboscis and palpi black, palpi with black hairs. Occipital bristles black, beard dense, white.

Thorax: Mesonotum metallic green, sparsely covered with very short black, and even shorter yellow hairs, as well as the usual long black bristly hairs. Humeri, postalar calli and a narrow strip laterally and posteriorly, with a more dense yellow tomentum. Scutellum rather flat, with corrugated surface, and clothed with hairs as mesonotum. Two strong black marginal bristles and several finer ones. Pleura entirely covered with yellowish white tomentum. Hairs mostly yellowish, but metapleural tuft may have a few black hairs dorsally.

Abdomen: Dorsum metallic green, with fine black hairs; on lateral margins yellow hairs and a stout yellow discal bristle on each side of each segment. Each segment has a triangular patch of white tomentum in each posterior angle. Venter covered with dense whitish tomentum and long hairs, which are pale except posteriorly, where they are black. Male genitalia as in fig. 23.

Legs: Shining metallic green, clothed with long hairs and bristles, which are predominantly yellowish, but a number are black, especially on tibiae.

Wings: Mostly brownish gray, but paler in basal half.

Length of body 9-12 mm; of wing 9 mm.

HOLOTYPE in "coll. M. Payen, Tournai, Belgium".

TYPE LOCALITY. MOLUCCAS.

MATERIAL SEEN. LUZON: 6, 16, 26, 5, 27. MINDANAO: 38.5.

OTHER PHILIPPINE RECORDS. LUZON: Los Baños (Bezzi, 1917: 125).

Maira aenea (Fabricius) Fig. 22.

Laphria aenea Fabricius, 1805: 161.

This is a widespread species in the eastern archipelago, and several species by other authors have been synonymised with it, including *Laphria comes* Walker and *Laphria consors* Waler, both described from the Aru Islands. In view of the unsatisfactory state of the taxonomy of *Maira* it is better to suspend judgment on this synonymy for the present and to use the name *aenea* for the widespread species which extends into the Philippines, basing identification upon the rather conspicuous male genitalia (fig. 22).

Head: Frons and face covered with dense golden yellow tomentum and with the thick golden hairs running between antennae and mystax in one broad band, without any space in middle: Mystax black. Antennae black: first segment more than twice as long as second, with black hairs and bristles. Proboscis and palpi black, palpi with black hairs. Upper occipital bristles black, beard white.

Thorax: Mesonotum metallic green, with short black hairs only, no short yellow ones. Brown tomentum along sides and posteriorly, and humeri and supra-alar region with white tomentum. Postalar calli reddish, with three or four strong black bristles. Scutellum strongly convex; base with a lunule of brown tomentum, rest shining metallic green; fine black hairs on disc, and margin with six black bristles. Pleura covered with dense white tomentum. Metapleural bristles all black, only one or two ventral ones white. Mesopleuron with white and black hairs.

Abdomen: Dorsum metallic green, covered with rather long, curled, black hair. Lateral fringes and discal bristles black. Venter bare, shining, with very narrow white hind margins and long black hairs. Male genitalia as in fig. 22.

Legs: Metallic steel blue. Densely covered with long hairs and bristles, which are mainly black on hind legs, and dorsally on others, with silky white hairs ventrally on fore and middle legs.

Wings: Smoky brown, a little paler basally.

Length of body 15-17 mm; of wing 15 mm.

HOLOTYPE in Copenhagen, Denmark.

TYPE LOCALITY. Amboina.

MATERIAL SEEN. PALAWAN: 71, 72, 95. SULU: 74. BUGSUK: 66.

Maira hispidella Wulp Fig. 21.

Maira hispidella Wulp, 1872: 213.

Most clearly distinguished from the other two species recorded from the Philippines by the male genitalia (fig. 21), but the other characters mentioned in the key should enable females to be identified.

Head: Face and frons relatively narrow, covered with golden yellow tomentum; golden hairs between antennae and mystax form two tracts, with a gap between them. Mystax sparse, with long black bristles and only one or two yellow ones. Antennae black with black hairs and bristles; first segment only 1½ times as long as second. Frons with a short row of black bristles along each eyemargin. Upper occiput with black bristles, beard white.

Thorax: Mesonotum metallic steel blue, sides and posterior margin with dull brown tomentum, but no pale areas (cf. *aenea*). Clothing layer of short black hairs, and many fine, longer black hairs, as well as weak bristles. Postalar callus with only one moderately strong bristle. Scutellum strongly convex, with brown tomentum narrowly at base, rest shining steel blue, with black clothing hairs and 4–6 long, black marginal bristles. Pleura with white tomentum, brownish around anterior spiracle. Metapleural hairs black.

Abdomen: Dorsum metallic steel blue, with only very tiny white areas in posterior corners of each segment. Clothing hairs short, black; some longer lateral hairs and some discal bristles, white. Venter with long pale hairs.

Legs: Steel blue, with hairs black except ventrally on fore and middle femora and tibiae.

Wings: Smoky brown, a little paler basally.

Length of body 14 mm; of wing 9 mm.

HOLOTYPE in RML.

TYPE LOCALITIES. Java, Pagowat, Salawatti, Gedeh, Morotai and Halmahera.

MATERIAL SEEN. LUZON: 16. MINDANAO: 91.

Genus **Orthogonis** Hermann

Orthogonis Hermann, 1914: 132. Type-species: *Laphria scapularis* Wiedemann, 1828, by original designation.

In spite of the apparent triviality of the generic character — alignment of the veins at the apex of the discal cell — *Orthogonis* is a well marked Oriental genus, with about eight or ten species. These are very closely similar, with, some sexual dimorphism, and they still need careful revision. A peculiarity of the species known to me is that the mesonotum is dull, covered with rusty brown tomentum, while the scutellum is bare, metallic, and strongly contrasting. Wiedemann (1828: 516) comments on this fact (hence, presumably the name *scapularis*), but attributes it to a seepage of fat.

The Philippine collections contain two species of *Orthogonis*.

KEY TO PHILIPPINE SPECIES OF ORTHOGONIS

1. Pleura and coxae covered with dull, rusty brown tomentum. Posterior angles of abdominal segments with only indistinct triangles of brownish tomentum. Six marginal scutellar bristles. Female with mystax and facial hairs black; male with these hairs densely yellow.....**scapularis** (Wiedemann)

Pleura and coxae with silvery pile, which glistens as the specimens is rotated. Posterior angles of abdominal segments with large and distinct triangles of silvery tomentum. Four marginal scutellar bristles. Female with mystax and facial hairs black; male with only a few white hairs laterally, as well as black mystax ..... **obliquistriga** (Walker)

Orthogonis scapularis (Wiedemann) Fig. 27.

Laphria scapularis Wiedemann, 1828: 516.
Orthogonis scapularis (Wiedemann). Hermann, 1914: 134.

Osten Sacken (1882: 110) first recorded *Laphria scapularis* Wiedemann from the Philippines, and noted that only females had previously been known, while males with reddish golden mystax seemed likely to be the males of *scapularis*. This is indeed the case. *L. scapularis* has been widely recorded from the Oriental Region, but the males without this golden mystax that I have seen have proved to be other species.

Head: Male conspicuous by the golden tomentum, hairs and mystax, contrasting with the black frons; female with thin ashy gray tomentum, black hairs and bristles, and only a few white hairs laterally. Antennae black with black hairs and bristles (first segment with some golden hairs and bristles in males). Occiput with a deep V of velvety shining black, otherwise glistening white. Numerous strong black bristles, far removed from eyemargins as well as stiff black hairs. Beard sparse, mixed black and white. Proboscis and palpi black with black hairs.

Thorax: Mesonotum and pleura black, covered with rusty brown tomentum. Dorsally a contrasting pattern is produced by a silvery patch on each humeral lobe and by the scutellum, which is bare and metallic blue-black, with black discal bristles and six black marginals.

Abdomen: Dorsum shining blue-black, with only small triangles of rusty brown tomentum in hind angles of each segment. Clothing hairs black, though they may appear white by shining in a spotlight. Discal bristles exceptionally strong and numerous, up to four on some segments. Venter with rusty brown tomentum and fine black hairs. Male genitalia, fig. 27.

Legs: All shining blue-black, with hairs and bristles almost entirely black, only a few pale ones on fore and middle legs.

Wings: Dark brown, with indistinctly paler centers to most of the cells. Halteres with brownish stalk and yellow knob.

Length of body 21 mm; of wing 21 mm.

HOLOTYPE in RML.

TYPE LOCALITY. JAVA.

MATERIAL SEEN. LUZON: 11.

OTHER PHILIPPINE RECORDS. LUZON: Mt Maquiling (Bezzi, 1917: 125).

Orthogonis obliquistriga (Walker) Fig. 28.

Laphria obliquistriga Walker, 1861: 264.

Rather surprisingly, Walker himself noted that this species was closely allied to *L scapularis*, but it has not previously been recorded from the Philippine Islands. When seen alongside *scapularis*, *obliquistriga* is seen to be rather smaller, more compact and the abdomen more vividly steel blue, with small, but conspicuous, silvery triangles.

Head: Frons as well as face covered with white tomentum (cf *scapularis*). Mystax sparse, black, continued by a few black hairs and bristles up to antennae, and flanked at sides by fine white hairs. Occiput with a crown of strong black bristles, far removed from eyemargin, and with white hairs, running into a white beard. Antennae, proboscis and palpi all black with black hairs.

Thorax: Mesonotum covered with rusty brown tomentum, but with more silvery white pattern than in *scapularis*; humeral patch is bigger, extending down to beginning of pronotum; and transverse suture, supra-alar area and postalar calli are all silvery white, as well as a posterior strip which encroaches on to base of scutellum; hairs and bristles black. Scutellum, in contrast, is bare, steel blue, with black clothing hairs and four marginal bristles. Pleura, including coxae, silvery white, with a broad brown band on mesopleuron and another beneath wing-base, on pteropleuron. Hairs of mesopleuron and metapleuron black.

Abdomen: Dorsum shining steel blue, or blue-green, according to the light. First four segments each with a large and sharply defined triangular or oval spot in each posterior angle, of matt, silvery white tomentum. Clothing hairs short, black basally and medially on each segment, longer and yellowish over large lateral areas. Discal bristles strong, black, but less numerous than in *scapularis*, not exceeding two, except on first tergite. Venter with rusty brown tomentum and short black hairs. Male genitalia fig. 28.

Legs: Slender, black. Bristles black, but clothing hairs extensively pale yellow, even on tarsi.

Wings: Almost uniformly dark brown. Membrane a little paler only in basal cells, base of marginal, and on radial fork. Halteres reddish.

Length of body 18 mm; of wing 16 mm.

HOLOTYPE in BMNH.

TYPE LOCALITY. Tond, Celebes.

MATERIAL SEEN. SULU: 75.

Genus **Pogonosoma** Rondani

Pogonosoma Rondani, 1856: 160. Type-species: *Asilus maroccanus* Fabricius, 1794, by original designation.

These are really no more than species of *Andrenosoma* with three submarginal cells, but as this feature is easily seen, the genus has a practical convenience. It should be noted, moreover, that the method of formation of the extra cell is not consistent, even between the two species that occur in the Philippine Islands (fig. 32, 33). Among the many metallic Laphriines of the Oriental Region, *Pogonosoma* is quickly recognised, not only by the three submarginal cells, but also by the head structure: the vertex is well excavated, the frons broad, with sharply marked tubercle, and the proboscis and palpi

of the same type as in *Andrenosoma* (fig. 60).

KEY TO THE PHILIPPINE SPECIES OF POGONOSOMA

1. Wing venation as in fig. 32; second submarginal cell shorter than either first or third. First posterior cell open. Abdomen shining steel blue, with well defined white triangles in corners of segments. Scutellum with four marginal bristles, inner two weak .... **cyanogaster** Bezzi

Wing venation as in fig. 33; second submarginal cell as long as first, both much longer than third. First posterior cell closed and stalked. Abdomen black, white triangles obsolete. Scutellum with numerous fine, long hairs, both on margin and on disc. .... **basifera** (Walker)

Pogonosoma cyanogaster Bezzi Fig. 32.

Pogonosoma cyanogaster Bezzi, 1917: 125.

"... closely allied to *P. bleekeri* Doleschall from Amboina, and to *P. semifuscum* van der Wulp from Batjan, but is at once distinguished by the cyaneous white-pubescent abdomen" (Bezzi, 1917: 125)

Head: Face covered with white tomentum, except for a narrow median strip, which remains shining black. Facial tubercle much narrower than face, occupying only one third of space between the eyes, but very prominent in profile, with sharp upper boundary. Hairs and bristles concolorous, white on white-tomented areas, black on black strip. Frons with a shining black, saddle-shaped patch and white tomentum above antennae and on eyemargins. Ocellar tubercle with two long black bristles. Bristles of upper occiput black, hairs of occiput and beard white. Antennae black with mainly black bristles and hairs, some yellow below first segment. Palpi and proboscis black (fig. 60): palpi with black hairs, proboscis with yellow hairs at base and tip.

Thorax: Mesonotum faintly shining through ashy tomentum, which is dense and more whitish laterally and posteriorly; scutellum with white tomentum at extreme base, otherwise shining black with two strong outer marginal bristles and two weaker inner ones. Pleura with white tomentum, densest in three vertical stripes running close to each coxa. Mesopleuron with one strong black bristle as well as white hairs; metapleuron with white hairs.

Abdomen: Dorsum shining steel blue, segments 2-5 each with a well defined triangle of white tomentum in each posterior corner. Clothing hairs white, relatively long and shaggy; discal bristles black, two on each segment. Venter with white tomentum and long white hairs. Male genitalia as in fig. 29.

Legs: Shining black, with rather erect hairs and bristles, white and black almost equally.

Wings: Veins as in fig. 32, membrane brownish in apical half, basal half paler. Halteres with brownish stalk and yellow knob.

Length of body 14 mm; of wing 14 mm.

HOLOTYPE in UMT.

TYPE LOCALITY. PHILIPPINES, LUZON: Tayabas, Mt Banahao (Baker).

MATERIAL EXAMINED. MINDANAO: 38.5, 47.5.

Pogonosoma basifera (Walker) Fig. 33.

Laphria basifera Walker, 1856: 11.

Abruptly distinguished from *cyanogaster* by the very different wing-venation (fig. 32, 33).

Head: Frons and face covered with white tomentum, except for a vertical bare black stripe in center of facial tubercle. This stripe does not extend up to antennae, as it does in *cyanogaster*. Mystax entirely black; white or pale yellowish hairs fill each lateral strip right up to antennae. Frons with black hairs, extending into black occipital hairs and bristles; beard white. Antennae black with black hairs. Palpi and proboscis black, with black hairs on palpi and white hairs at base of proboscis.

Thorax: Mesonotum ashy gray, with three brown stripes; scutellum contrasting, black, shining through thin grayish tomentum. Fine hairs and bristles all black. Scutellar disc and margin with numerous fine black hairs. Pleura black, covered with white tomentum. Hairs of both mesopleuron and metapleuron black dorsally, but mostly white.

Abdomen: Dorsally shining blue-black, with narrow stripes of white tomentum at extreme bases of each segment. Discal bristles strong, black, single clothing hairs black, longer and white on sides. Venter more reddish, with white tomentum and long white hairs.

Legs: Black with very fine hairs which are mixed black and white.

Wings: Venation as in fig. 33. Membrane heavily clouded in middle, anterior to small cross-vein. Halteres blackish with brown knob.

Length of body 15 mm; of wing 11mm.

HOLOTYPE in BMNH.

TYPE LOCALITY. Singapore.

MATERIAL SEEN. MINDANAO: 34.5.

Genus **Andrenosoma** Rondani

Andrenosoma Rondani, 1856: 160. Type-species: *Asilus atra* Linnaeus, 1758, by original designation.

Elaeotoma A. Costa, 1863: 49. Type-species: *Elaeotoma adjustiventris* A. Costa, 1863, monotypic.

Apart from the palpi and proboscis, *Andrenosoma* is rather negatively defined, but it is distinctive to the eye. As its name implies, it has a rather hymenopterous appearance, even if it does not, in fact resemble any particular genus of bee. *Andrenosoma* occurs in all regions of the world, but with only a moderate number of species. There are no previous records from the Philippine Islands, but a single female is present in the collections before me.

Andrenosoma irigensis Oldroyd, new species Fig. 31.

An unremarkable species, with ashy gray and brown tomented thorax, metallic blue-black abdomen, and black legs, with abundant white hairs.

Head: Face on each side with thick white tomentum and white hairs; narrow median black stripe extends from just above facial tubercle downwards, and has black bristles. Frons and occiput with white tomentum and short white hairs, but black bristles: a few on each eye-

margin, two strong and two weak ocellars, and a number of rather weak black postoccipitals merging with white occipital hairs and beard. Antennae black, with black bristles and some white hairs on first segment. Proboscis and palpi, with black hairs, except for white tuft at base of proboscis.

Thorax: Mesonotum black, but covered with rather dense tomentum, ashy gray and brown; the brown tomentum forms an indistinct pattern of three stripes. Clothed with short, fine black hairs, except on paired longitudinal stripes, whitish on base. Scutellum covered with gray tomentum, and clothed with short, erect, spiny black bristles (quite different from the two species of *Pogonosoma*). On the scutellar margin a multiple row of fine black bristles. Pleura with the white tomentum and white hairs, except for single strong black mesopleural bristle.

Abdomen: Dorsum bare, shining metallic blue-black, each segment with a large triangle of white tomentum in posterior angles. Clothed with fine black hairs, white on lateral margins, and with two strong black discal bristles on each segment.

Legs: Shining black, clothed with very long, white hairs, intermingled with a few black bristles, especially on hind tibiae.

Wings: Membrane uniformly grayish.

Length of body 15 mm; of wing 11 mm.

HOLOTYPE in BPB (BISHOP 9676).

TYPE LOCALITY. LUZON, Camarines Sur, Mt Iriga, 500–600 m, 18.IV.1962 (H. M. Torrevillas).

MATERIAL SEEN. LUZON: 7.

Tribe XENOMYZINI

Xenomyzini are one of the most interesting tribes of tropical Asilidae. They are distinguished by the "goggle-eyes" (fig. 54) which are easier to recognise than to define. The eyes are directed forwards to an even greater extent than is usual in Asilidae, with an increase of the diameter from side to side, and a reduction in the fore-and-aft measurement. The forward-facing facets near the antennae are exceptionally big in proportion to the others. Perhaps the best way to recognise this "goggle-eyed condition" is the concavity of the occiput, and the deeply recessed vertex, with the top of the ocellar tubercle well below the level of the eyes.

Though the tribe is homogeneous in this respect, as well as in general structure, there is a sharp division between the genera resembling *Xenomyza* and those resembling *Holcocephala*. *Xenomyza* and its various segregates, which might be regarded as subgenera or as separate genera, have the third antennal segment quite small, seed-like, and prolonged into a thread-like arista (fig. 56), which is generally conspicuously white in its apical half, and recalls the palpating white antennae of some ichneumons. Such an arista is otherwise unknown outside the tribes Leptogasterini, Asilini, and (with pectinations) Omatiini.

The *Holcocephala*-group of genera have a styliform antenna such as is normal among Dasypogoninae in the old sense (fig. 57). The two groups are distinguished by a small venational difference (see key and fig. 43, 44), which seems to be very reliable, though rarely the vein concerned (M_4) may arise from the angle of the second basal and discal cells. The general appearance of the two groups is sufficiently different for this

abnormality not to cause confusion.

The *Xenomyza*-group are rather bare flies, of a reddish brown color, with the hind femora usually swollen and with two rows of spines ventrally. The *Holcocephala*-group are typically fragile, matt black flies, with relatively broad, dark wings and slender legs.

Three genera of Xenomyzini are known from the Philippines: *Xenomyza* of the first group and *Damalina* and *Trigonomima* of the second. Osten Sacken (1882: 107) described two species of *Damalina*, *semperi* and *cyanella*, and commented that the latter had only four posterior cells, but that as he had only one specimen, and that had only one wing, he was not sure that this peculiarity was not an individual abnormality. Enderlein (1914: 164) erected the genus *Trigonomima* for such species, of which there are few, all in the Oriental Region. So *Damalina semperi* Osten Sacken remains in that genus, but *D. cyanella* Osten Sacken is now placed in *Trigonomima*.

Key to Philippine genera of Xenomyzini

1. Third antennal segment small, seed-like, with a long, thin arista (fig. 56). Wing venation as in fig. 43: fifth posterior cell making contact with discal cell, and vein M_4 emerging from posterior angle of discal cell; anal cell closed and stalked ..... **Xenomyza** Wiedemann
   Third antennal segment not seed-like, and ending in a short style (fig. 57). Wing venation as in fig. 44: fifth posterior cell not making contact with discal cell and vein M_4 emerging from second basal cell; anal cell open, or closed near wing margin.....2
2. Only four posterior cells in wing; discal cell with only two veins issuing from its tip. Hind femora and tibiae heavily fringed with long, flattened scaly hairs. Basitarsi of all legs distinctly swollen..... **Trigonomima** Enderlein
   The usual five posterior cells; discal cell with three veins issuing from its tip. Hind femora with hairs, but no scaly fringe. Swollen basitarsi on middle and hind legs only. ..... **Damalina** Doleschall

Genus **Xenomyza** Wiedemann

Xenomyza Wiedemann, 1817: 60. Type-species: *Damalis planiceps* Fabricius, 1805, by designation of Coquillett, 1910.
Damalis auctt, nec Fabricius, 1805: 147.

A widespread tropical genus, better known under the name of *Damalis*. These humpbacked, goggle-eyed flies are often abundant, and possibly fill an ecological role similar to that occupied by Diopsidae in the tropics and by Sepsidae in temperate countries. The size and shape of the eyes clearly indicates a degree of alertness unusual even among Asilidae, but I have no information about their prey.

Key to Philippine species of Xenomyza

1. Hind femora without central spines. A black and brown species..... **nigella** Wulp
   Hind femora ventrally with a double row of spines, most pronounced on apical half (fig. 50)..... 2
2. Scutellum rather flat, with transverse wrinkles, and with marginal rim scarcely defined. ... 3
   Scutellum markedly convex, with well defined rim. 4

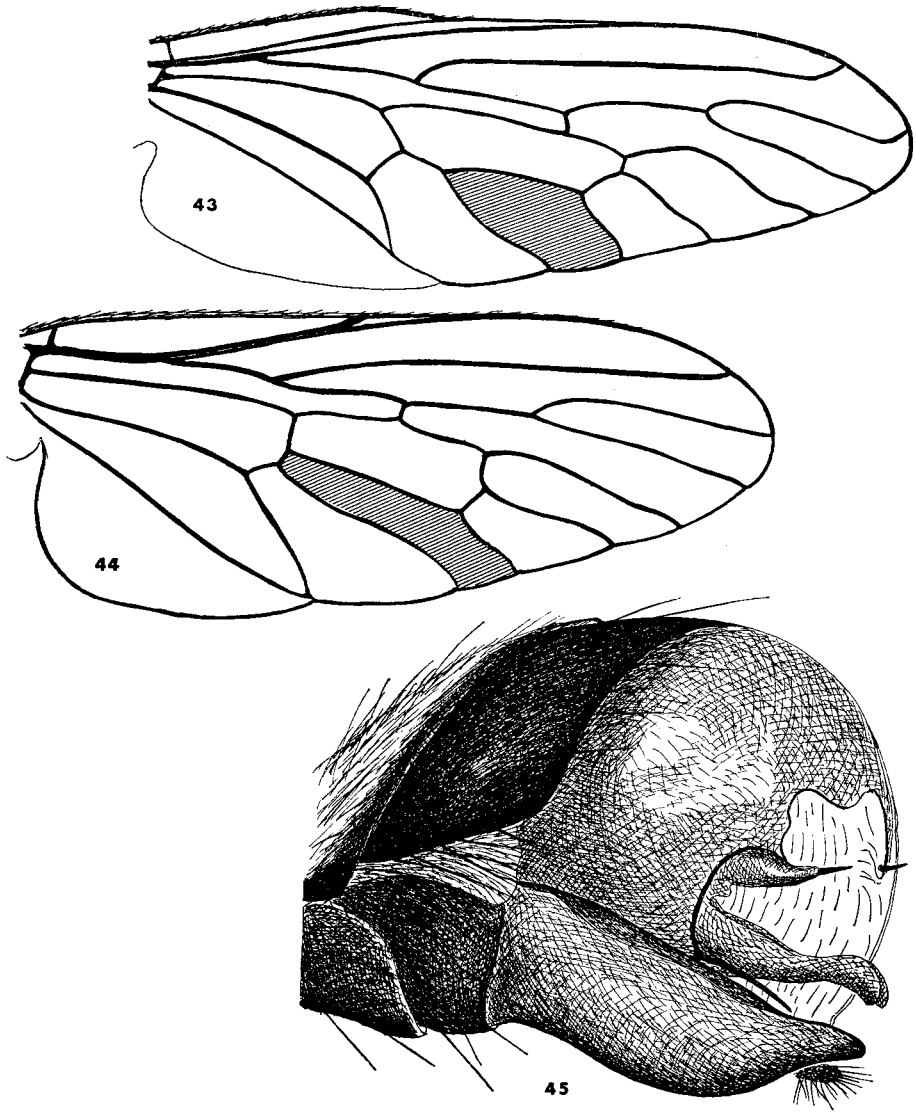


Fig. 43-45. 43, 44, wings of Xenomyzini: 43, *Xenomyza vitripennis* (Osten Sacken); 44, *Damalina semperi* (Osten Sacken). Fourth posterior cell shaded to show difference in the two genera. Fig. 45. ♂ genitalia of *Xenomyza immerita* (Osten Sacken).

3. Mesonotum, and especially abdomen, mainly bare, shining black. Mystax black. Wings brown in basal half, clear at tip. ..... **myops** Fabricius
Mesonotum, and abdomen mainly tomented: mesonotum with two large, bare, triangular spots on posterior half: abomen dorsally with most segments tomented anteriorly and bare posteriorly. Male genitalia as in fig. 46. Wings dimidiate in female, brown in male ..... **centurionis** n. sp.
4. Face with a large, clearly defined, rectangular bare patch..... 5

Face entirely tomented, or with only a small bare area near mystax..... 6

5. Abdomen black with a velvety bloom, which is silvery at certain angles. Wings stained, especially along costal border, and including radial fork. Aedeagus narrow (fig. 45)... ..... **immerita** Osten Sacken

Abdomen brown or blackish, but covered with uniform, dull brown tomentum. Wings almost clear. Aedeagus broad-tipped (fig. 49) ..... **vitripennis** Osten Sacken

6. Abdomen markedly constricted at base, and wasp-like, dorsally black-brown, with rusty brown tomentum. Hind femora with a distinct dark ring..... **carapacina** n. sp.

Abdomen not basally constricted; dorsally red-brown with a row of black spots on each side. Hind femora without any distinct dark band. ..... **maculata** Wiedemann

Xenomyza carapacina Oldroyd, new species Fig. 48.

Distinguished from *maculata* by the basal constriction of the abdomen (not rare in *Xenomyza*) and the annulate hind femora.

Head: Frons and face black, with chocolate-brown tomentum. Mystax of four black bristles. Antennae black with black bristles, only 'arista' half white. Proboscis and palpi black-brown with black hairs.

Thorax: Mesonotum in ground color black, humeri and postalar calli indistinctly reddish. Tomentum pale yellowish at sides; posteriorly more bronze in middle stripe and sublateral spots. Hairs weak, pale yellow. Scutellum convex, black in ground color, with well-marked yellow rim, the whole covered with yellow tomentum. Pleura uniformly covered with pale yellowish tomentum.

Abdomen: Dorsoventrally flattened, and only markedly constricted at second segment, broadening again on third, and reaching maximum breadth at fourth segment. Dorsum black, covered with brown or reddish brown tomentum and fine black hairs, even at sides. Seventh and eighth segments partly bare, shining mahogany brown; genitalia of both sexes red. Venter with yellow tomentum and three rows of well-defined bare spots. Tergites overlap sternites, like a carapace.

Legs: Orange with black markings. All femora with black knees, and with trace of a central annulus, which is distinct on hind femora. Tibiae and tarsal segments tipped with black.

Wings: Very faintly tinged yellow, costal cell more deeply so. Halteres with yellow stalk and reddish knob.

Length of body 12 mm; of wing 10 mm.

HOLOTYPE in BPB (BISHOP 9677).

TYPE LOCALITY. Luzon Mountain Province, Ifugao, Mayoyao, 19-21.VII.1966 (H. M. Torrevillas).

MATERIAL SEEN. LUZON: 3. MINDANAO: 44.

Xenomyza centurionis Oldroyd, new species Fig. 46.

One of the two species with wrinkled, rimless scutellum, *centurionis* is distinguished from *myops* sp. n. by the characteristic patterning of the mesonotum with two large bare spots in the posterior half.

Head: Face and frons black, with thick yellowish gray tomentum. Mystax yellow, confined to a single row of bristles on epistoma. Frontal and postvertical hairs weak, yellow; occiput

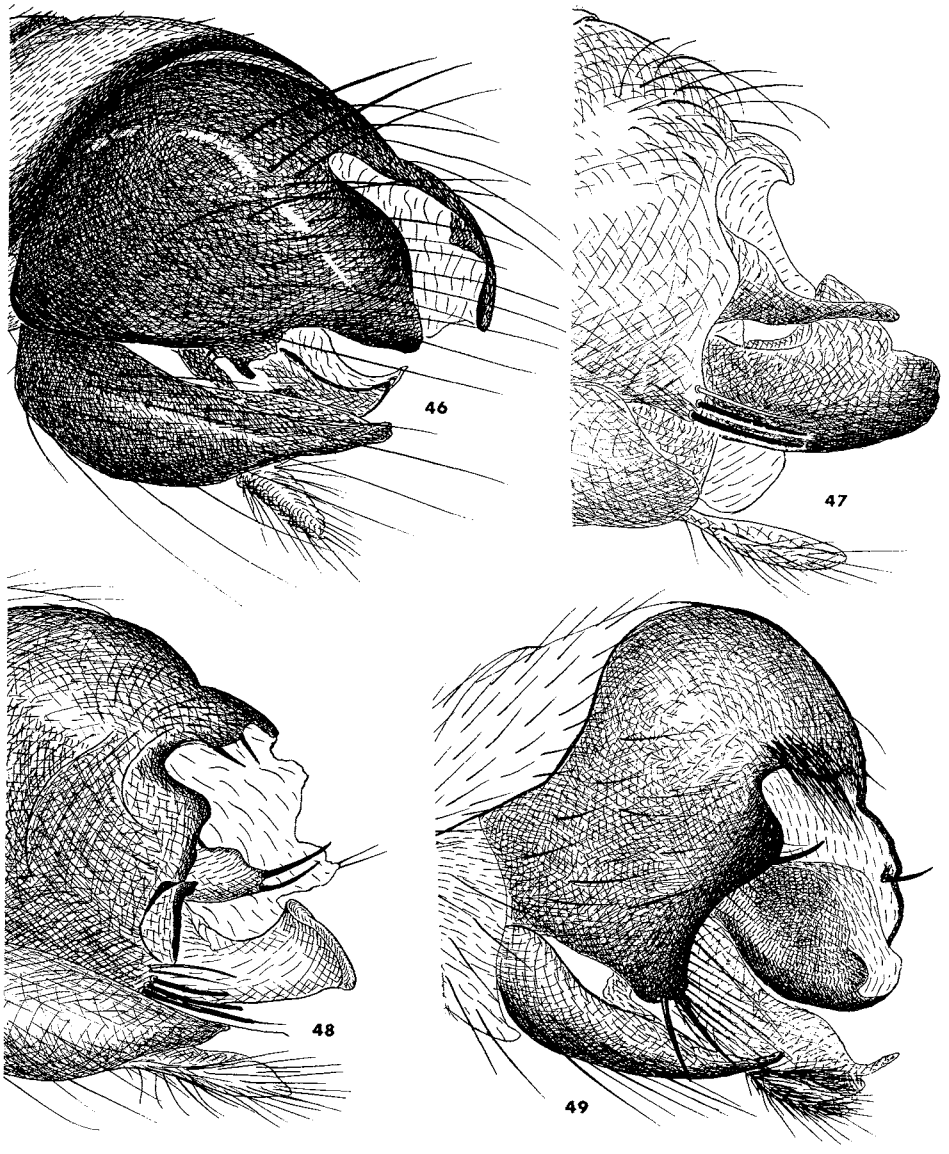


Fig. 46–49. *Xenomyza*, ♂ genitalia. 46, *centurionis* n. sp.; 47, *maculata* (Wiedemann); 48, *carapacina* n. sp.; 49, *vitripennis* (Osten Sacken).

with a regular row of weak yellow bristles; beard almost non-existent. Antennae black with brownish hairs. Proboscis and palpi light brown with yellow hairs.

Thorax: Mesonotum black, with brown humeri and postalar calli; thinly covered with brownish gray tomentum, and leaving bare a broad median stripe (little evident in type specimen), flanked posteriorly by a pair of large bare spots behind transverse suture. Scutellum flat, heavily wrinkled, and more or less covered with yellowish tomentum; without the usual deep-

ly embossed rim.

Abdomen: Dorsum similar to thorax: ie shining patchily through thin brownish or yellowish tomentum: bare areas mainly transverse, and in posterior half of each segment. Venter tomented, with yellow hairs.

Legs: Trochanters black. Femora and tibiae clear brown, only black at extreme joints. Tarsi mainly black, bases of tarsomeres brown.

Wings. Showing sexual dimorphism. Entirely light brown in males; dimidiate in females, brown on basal half, clear at tip.

Length of body 8 mm; of wing 7 mm.

HOLOTYPE in BPB (BISHOP 9678).

TYPE LOCALITY. CULION I., 6 Km W of Culion, 10.VI.1962 (H. Holtmann).

MATERIAL SEEN (Paratypes). CULION: 64. Some in Malaise trap.

Xenomyza immerita Osten Sacken Fig. 45.

Damalis immerita Osten Sacken, 1882: 105.

A dark species with smoky wings.

Head: Black, frons and face with dark brown tomentum: face has a large square area bare and shining black. Mystax of four black bristles. Antennae black, apical half of 'arista' white. Proboscis and palpi black, with yellow and black hairs.

Thorax: Mesonotum black with yellow tomentum, patterned with a broad stripe and two lateral spots, one on each side, in dark brown. Scutellum black in ground color, with yellow tomentum and one pair of fine yellow marginal bristles. Pleura brownish on notopleuron, otherwise with white tomentum.

Abdomen: Dorsum black, with a velvety pile or bloom that is black in some directions and white in others. Tergites with short black hairs and longer yellow hairs at sides. Venter with white tomentum. Male genitalia as in fig. 45.

Legs: Dark brown and blackish, with variations of color, but no well-marked pattern. On fore and hind legs the knees and other joints are black; on hind legs femora are a darker red in middle and black at knees, tibiae and tarsal segments with blackish tips.

Wings: Entire membrane stained light brown, and in addition costal margin, submarginal and first posterior cells densely covered with microtrichiae. Halteres yellow-brown.

Length of body 9 mm; of wing 9 mm.

HOLOTYPE in DEI.

TYPE LOCALITY. 'Philippine Islands'.

MATERIAL SEEN. LUZON: 1, 80.

Xenomyza maculata (Wiedemann) Fig. 47.

Damalis maculatus Wiedemann, 1828: 416.

The pattern of the abdomen is distinctive, each of the dusty yellow-brown segments having a black spot at each posterior corner.

Head: Face and frons divided by a deep transverse furrow through bases of antennae. Frons

dull blackish, face with bronze tomentum. Mystax composed of four black bristles. Antennae black except for white-tipped 'arista'. Proboscis and palpi shining brown, with hairs mostly yellow, a few long, stiff black bristles on palpi.

Thorax: Black in ground color, with yellow tomentum broadly at sides and posteriorly, and a broad brown median stripe. Postalar calli and scutellum clear yellow, with yellow tomentum; scutellum without strong bristles, but with fine, yellow marginal hairs. Pleura covered with yellow tomentum, beneath which ground color shows a vertical dark stripe through mesopleuron/sternopleuron, and is yellow posteriorly.

Abdomen: Reddish brown, somewhat dusky to naked eye; each segment has a pair of black spots on hind margin close to sides. Fine clothing hairs mostly black, yellow at extreme sides, where there are longer yellow hairs. Venter similar, without the black spots.

Legs: Red, only hind tibiae blackish.

Wings: Faintly yellowish, costal cell more yellow. Halteres yellow-brown.

Length of body 13 mm; of wing 11 mm.

HOLOTYPE in RML.

TYPE LOCALITY. JAVA.

MATERIAL SEEN. PALAWAN: 71, 98, 100.

Xenomyza myops (Fabricius)

Damalis myops Fabricius, 1775: 148.

The original description mentions only three characters: "thorace nigro, abdomine cyaneo, alis basis fuscis". It is by no means certain that there is only one species in the Far East with these characteristics, but a few specimens in the present collection, all from Palawan appear to be conspecific.

Head: Frons and face densely covered with bronze tomentum; in some lights frons looks chocolate-brown, and contrasts with face; separated by a deep furrow at level of antennae from mystax of four bristles, black in one specimen, yellow in others. Antennae black [third segment missing in all specimens available].

Thorax: Mesonotum mostly shining black; lateral margins, a prescutellar patch, and base of scutellum yellowish; posthumeral triangular patches of brown tomentum become visible from some directions. Pleura with yellow tomentum and a small bare spot before wing base.

Abdomen: Dorsally bare and shining, black-brown in immature specimens, but metallic purplish in mature specimens. Venter with grayish tomentum.

Legs: Shining brown, tibiae more yellow-brown. Hind femora distinctly swollen, with two vertical rows of black stripes.

Wings: Stained brown in basal half, clear apically. Wiedemann (1818: 417) says a little darker at tip, and there is possibly much variation in density and even in extent of wing marking. Halteres yellow-brown.

HOLOTYPE in Zetterstedt collection.

TYPE LOCALITY. SUMATRA.

MATERIAL SEEN. PALAWAN: 68.

Xenomyza nigella (Wulp)

Damalis nigella Wulp, 1872: 143.

A small, predominantly black species, distinguished from the others in the Philippine Islands by the lack of ventral spines on the hind femora.

Head: Frons and face black, covered with velvety black-brown tomentum. Moustache reduced to four black bristles on mouthmargin. Antennae black [broken in specimens available]. Proboscis and palpi black, or red-black, with yellow hairs.

Thorax: Mesonotum black, tomented, dark brown with broad yellow lateral and posterior margins, and scutellum. Bristles and hairs concolorous, except for one pair of slender black marginal scutellars. Notopleural margin brown, rest of pleura with yellowish tomentum. Hairs of metapleural tuft whitish or yellowish.

Abdomen: Dark red-black, with brown tomentum, and at extreme sides a little yellow tomentum and yellow hairs. Venter with grayish tomentum and whitish hairs. Venter and most of dorsum of eighth segment bare and shining black-brown.

Legs: Black, with a varying amount of yellow on tibiae and base of hind femora. Hind femora slender, spindle-shaped, and without any ventral spines.

Wings: Clear or faintly tinted, only costal cell distinctly yellow. Halteres yellow-brown.

Length of body 8 mm; of wing 8 mm.

HOLOTYPE in RML.

TYPE LOCALITY. Menado, CELEBES.

MATERIAL SEEN. LUZON: 6, 8. MINDANAO: 32, BALABAC I.: 102.

Xenomyza vitripennis (Osten Sacken) Fig. 43, 49, 54.

Damalis vitripennis Osten Sacken, 1882: 106.

Bezzi (1917: 124) commented on the variability of leg color in this species, and there appears to be a similar variability in size, from 9–13 mm. This is almost 50 % in length, and results in a striking difference in apparent bulk.

Head: Frons and face blackbrown in ground color, with yellowish gray tomentum covering all frons, but leaving bare a rectangular area extending upwards from mouthmargin to about middle of face. Mystax consisting of four black bristles. Antennae all black, except for tip of 'arista', which is white. Occiput with thin grayish tomentum and pale yellow hairs. Beard white. Proboscis and palpi black, latter with long yellowish hairs.

Thorax: In ground color mainly black, but scutellum and posterior areas of pleura often yellowish. Covered with dense tomentum, mostly pale yellowish, but with a broad, dark brown, median stripe. A triangular area on each side, above postalar callus, is usually bare. Scutellum strongly convex, with a well-marked rim; often blackish with yellow rim, but sometimes all yellow, with long yellow hairs on margin and on disc. Pleura entirely covered with pale yellowish tomentum, and with yellow hairs on meso- and metapleura.

Abdomen: Black-brown, covered with brown and coppery tomentum, with a few longer yellow hairs at sides. Venter black with dense gray tomentum, each segment with three bare spots. Male genitalia mahogany-red, structure as in fig. 49; note hypandrium with two angles at each side, each with one or two strong bristles, and aedeagus broad at tip.

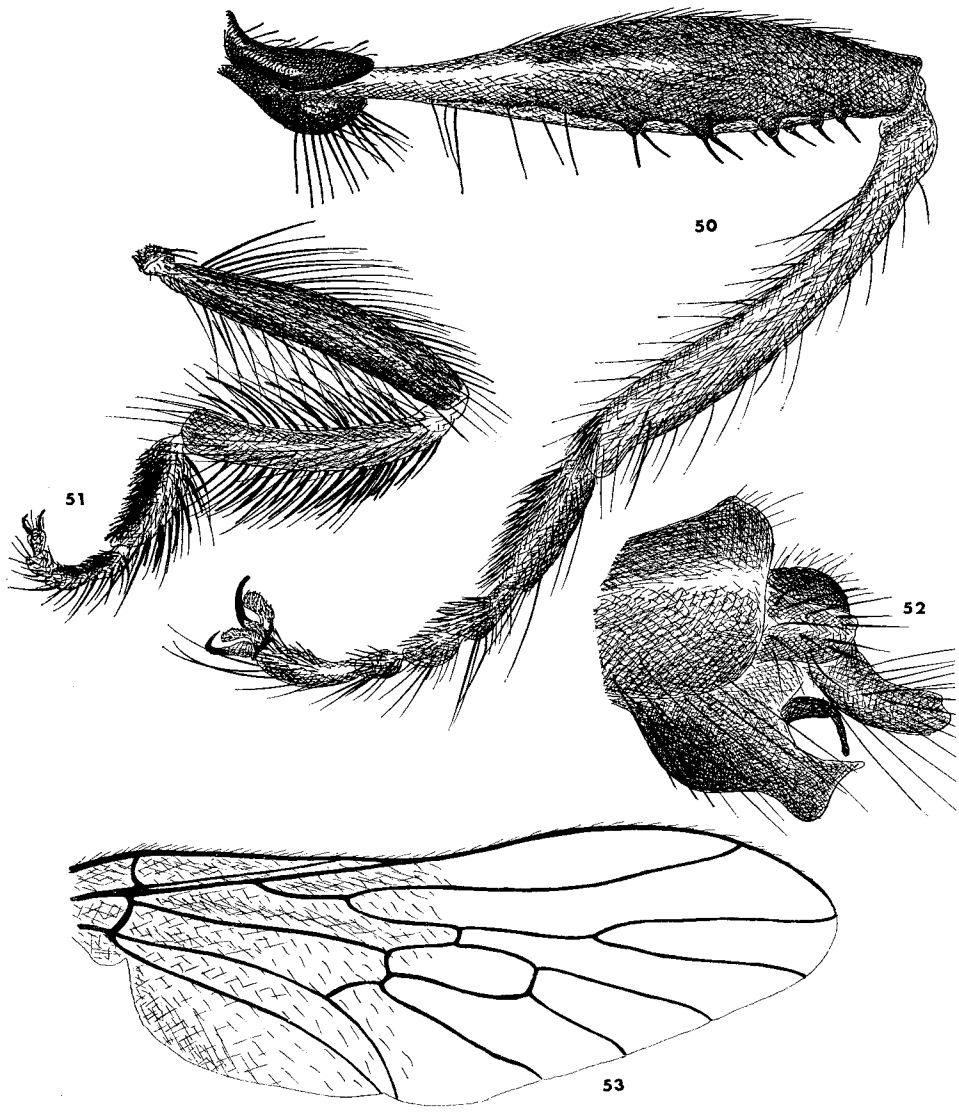


Fig. 50–53. Xenomyzini. 50, *Xenomyza vitripennis* (Osten Sacken), left hind leg of ♂; 51, *Trigonomima cyanella* (Osten Sacken), hind leg of ♂; 52, *Damalina semperi* Osten Sacken, ♂ genitalia; 53, *Trigonomima cyanella* (Osten Sacken).

Legs: Coxae like pleura. Hind trochanters very large, mahogany-red or blackish, with bunch of strong black bristles. Femora and tibiae reddish brown, with varying amounts of darker color, especially in middle of femora [Bezzi, 1917: 124 says that the color of the legs "varies from entirely black to entirely red or yellowish, to variations of these colors"]. Most specimens, however, have the hind femora more or less infuscated in the middle, as in the original description of Osten Sacken. Tarsi dark reddish, appearing blackish because of dense black hairs.

Wings: Generally almost clear, sometimes with a brownish tint. Crossvein r-m comes well before middle of discal cell. Halteres dull reddish.

Length 9–13 mm; Males generally smaller than females.

HOLOTYPE in DEI.

TYPE LOCALITY. 'Philippine Islands.'

MATERIAL EXAMINED. LUZON: 1, 3, 4, 20, 22, 80, 83. A total of over 400 specimens nearly all from localities 1, 3, 4.

Genus **Damalina** Doleschall

Damalina Doleschall, 1858: 90. Type-species: *Damalina laticeps* Doleschall, 1858, monotypic.

The several genera of the *Holcocephala*-group have been insufficiently distinguished, but as I have already shown for the African species (1969: 13) the picture becomes simpler if each region is taken separately. It begins to look as if the Neotropical species belong to *Holcocephala*; the African to *Rhipidocephala*, with *Oxynoton* as an extreme variant; and the Oriental species to *Damalina*, with *Trigonomima* as an extreme variant.

Since only one species of *Damalina* is recorded from the Philippine Islands, the following description contains elements of both generic and specific value.

Damalina semperi Osten Sacken

Damalina semperi Osten Sacken, 1882: 107.

A small, black species, less robust than *Xenomyza*, and with the characteristic antenna of fig. 57.

Head: Frons and face velvety black with bronze tomentum; no bare areas, but a paired blackish mark beneath antennae. Mystax black, at most with one or two brownish or yellowish bristles. Antennae (fig. 57), palpi and proboscis all black, with black hairs and bristles. Only occiput paler, with yellowish gray tomentum and pale yellowish hairs.

Thorax: More hump-backed than in *Xenomyza*. Anterior face almost vertical. Mesonotum velvety brown, with yellowish scutellum and a trifid prescutellar patch, as well as lateral margins from humeri to postalar calli. Pleura thinly covered with yellowish white tomentum, without pattern or bare areas. Mesonotum with long, fine hairs, mostly black, except posteriorly and on scutellum, where they are mostly yellow. Pleura with yellow hairs which are especially long and bristly on meso- meta- and sternopleura.

Abdomen: Dull red-brown, a little paler laterally on first four tergites. Hairs fine, black; some yellow laterally, especially on pale areas and at sides of first segment. Genitalia with tufts of yellow hairs.

Legs: Coxae like pleura, with yellowish white tomentum and yellow hairs. Rest of legs shining mahogany brown, clothed with dense and long hairs and bristles, mostly black, but conspicuously yellow on femora (except dorsally), and less densely on ventral surfaces of tibiae and tarsi. Hind tarsi strongly tapered, from a large and stout basitarsus down to a small apical tarsomere; under surface with a dense, compacted, comb-like structure, bright yellow in color.

Wings: Generalised venation, all cells open on wing margin; five posterior cells (cf. *Trigono-*

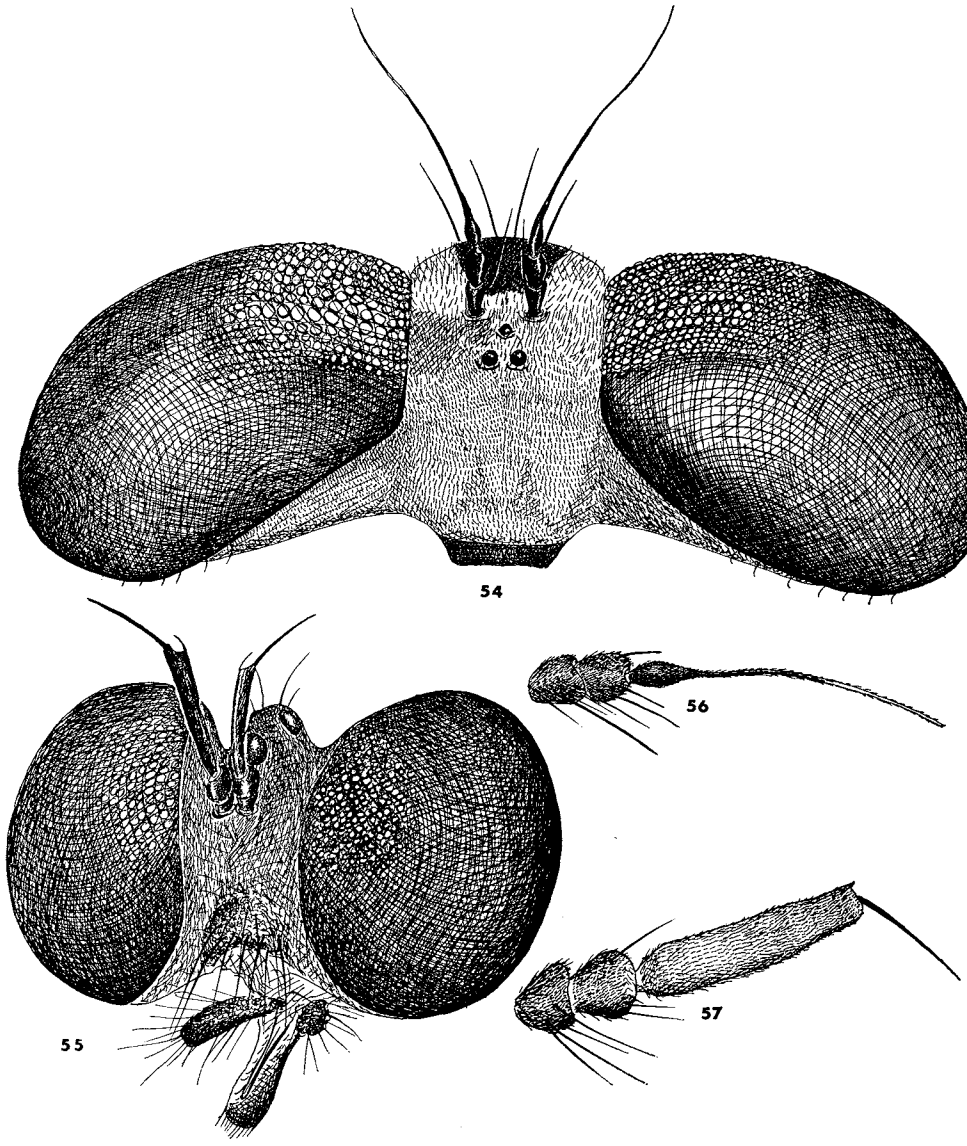


Fig. 54-57. 54-55, heads of Xenomyzini: 54, *Xenomyza vitripennis* (Osten Sacken). Note shape of eyes and occiput; 55, *Damalina semperi* Osten Sacken. 56, 57. Antennae of Xenomyzini: 56, *Xenomyza*; 57, *Damalina* and *Trigonomima*.

nomima), with fourth posterior cell arising from second basal. Wing membrane almost uniformly darkened, varying from almost black to a pale smoky color. There is a deeper coloration in posterior half, and a paler apex, but these areas are not sharply defined.

Length of body 7 mm; of wing 7 mm.

HOLOTYPE in DEI.

TYPE LOCALITY. Philippine Islands.

MATERIAL SEEN. LUZON: 18. About 45 specimens of both sexes.

Genus **Trigonomima** Enderlein

Trigonomima Enderlein, 1914: 164. Type-species: *Trigonomima apipes* Enderlein, by original designation.

Osten Sacken (1882: 107, 108) commented on the fact that the unique specimen of his *Damalina cyanella* had only four posterior cells instead of the usual five, but reserved judgment on the generic significance, if any, of this detail, because he had only one specimen, with one wing missing. Enderlein (1914) had a total of 12 specimens of both sexes, and therefore felt justified in erecting the genus *Trigonomima* for the combination of four posterior cells with heavily fringed hind femora and tibiae. He described two species, *apipes* and *canifrons*, which, together with *Damalina cyanella* Osten Sacken and *Damalina pennipes* Hermann, 1914, give a total of four names for the species in *Trigonomima*. How many of these are really distinct is a further problem.

Only one species involves the Philippine Islands.

Trigonomima cyanella (Osten Sacken) Fig. 51.

Damalina cyanella Osten Sacken, 1882: 108.

Specimens in the present collections agree perfectly with Osten Sacken's description of *Damalina cyanella*, and equally well with that of *Trigonomima apipes* Enderlein. *T. canifrons* Enderlein was said to differ from *apipes* in having more completely black hairs on head and thorax, and shorter fringes on the hind femora and tibiae, but it may be noted that the type material of both of Enderlein's species had identical collecting data, from Sumatra. It seems very probable that *apipes* and *canifrons* are synonymous with one another, and with *cyanella*, which fortunately has priority.

Head: Frons and face dull black, with thin ashy gray tomentum. Antennae, palpi and proboscis black. Hairs of vertex, antennae, mystax, proboscis and palpi black. Occiput black with thin gray tomentum and fine black hairs.

Thorax: Dorsum, including scutellum, with a thin, uniform covering of gray tomentum, and with fine black hairs. Scutellum with two long bristles arising from disc. Pleura with tomentum more brownish, especially sternopleuron, and with hairs black.

Abdomen: Black, with black-brown tomentum, dully shining, with purple metallic reflections. Hairs black.

Legs: Black. All legs conspicuously hairy, but hind femora and tibiae with a fringe longer than their own breadth (fig. 51).

Wings: Venation typical of genus with only four posterior cells. Basal half of wing distinctly blackish, apical half pale gray, or almost hyaline.

Length of body 6 mm; of wing 5 mm.

HOLOTYPE in DEI.

TYPE LOCALITY. 'Philippine Islands'.

MATERIAL SEEN. LUZON: 18, 22, 26.5. MINDANAO: 38.5, 41. NEGROS I.: 62.

Tribe STICHOPOGONINI

This is a tribe of gray, dust-colored species, cryptically concealed against the sandy and stony terrain in which they occur. They sit out in the open, in the full glare of the sun, and possibly this is related to the head structure that is a characteristic of the tribe: the vertex is exceptionally wide, and excavated into a saddle shape. The eyes are not particularly small, however, and it is not obvious what effect this development of the vertex can have upon the visual ability of the fly.

The tribe Stichopogonini is world-wide, with its greatest development in the continental areas, where arid zones have provided a variety of habitats, and evolved an interesting variety of genera. In the Orient the prevalent genus is *Clinopogon*, relatively big flies for this tribe — but still only reaching about 15 mm. — littoral in habit, and probably present on every beach of the thousands of islands of varying size. The rather featureless exterior makes it difficult to define species, and there are indications that *Clinopogon* may exist in just a few widely distributed species. For example, *C. nicobarensis* Schiner occurs on beaches all round the Indian Ocean, from Madagascar to an indefinite limit in SE Asia.

Only one species of this tribe has previously been recorded from the Philippines, *Stichopogon peregrinus* Osten Sacken, but the present collection contains a single female of *Clinopogon*.

The separation of *Clinopogon* from *Stichopogon* is not easy by means of key characters, but in practice the habitus of the two is quite different. *Clinopogon* is robust, rather furry as well as dusty, and lacking either strong bristles or abdominal pattern. *Stichopogon* is smaller, more fragile, with isolated strong bristles, especially on the legs, and often (as in the Philippine species) with a well-defined abdominal pattern.

KEY FOR THE SEPARATION OF STICHOPOGON AND CLINOPOGON

1. A pair of well-developed bristles standing between the ocelli. Fourth posterior cell typically with a long stalk at its base. Usually small, or even tiny flies.....**Stichopogon** Loew
   Ocellar bristles weak or absent. Fourth posterior cell typically with a short basal stalk, or none. Larger flies, 12–15 mm long, and robust. ..... **Clinopogon** Bezzi

Genus **Stichopogon** Loew

Stichopogon Loew, 1847: 499. Type-species: *Dasypogon elegantulus* Wiedemann in Meigen, 1820, by designation of Back, 1909.

I have not seen any specimen of *Stichopogon* from the Philippine Islands, but the BMNH has an unidentified *Stichopogon* from Borneo that agrees perfectly with Osten Sacken's description.

Stichopogon peregrinus Osten Sacken

Stichopogon peregrinus Osten Sacken, 1882: 108.

Distinguished by its characteristic abdominal pattern.

Head: Face and frons gray tomentum over a black ground color. Mystax and all other hairs and bristles of head entirely white. Antennae, proboscis and palpi black.

Thorax: Mesonotum black, with rather thin whitish tomentum, and only faint traces of narrow paired median stripes. Clothing hairs white, erect, all bristles white. Scutellum and pleura similar.

Abdomen: Dorsum with a clearly defined pattern of brown and gray; third, sixth and seventh tergites almost entirely brown; fourth and fifth with distinct brown triangles pointing forwards; second with variable indications of a larger black triangles. Clothing hairs white, erect. Venter gray with white hairs, bigger posteriorly.

Legs: Entirely black, with gray tomentum and pale yellow hairs and bristles.

Wings: Subhyaline, very faintly brownish.

Length of body 5 mm; of wing 5 mm.

HOLOTYPE in DEI.

TYPE LOCALITY. "Philippines".

MATERIAL SEEN. None from Philippines. A series in the BM from BORNEO.

Genus **Clinopogon** Bezzi

Clinopogon Bezzi, 1910: 153. Type-species: *Clinopogon sauteri* Bezzi, 1910, by original designation.

The single *Clinopogon* in the present collection is the first recorded from the Philippine Islands, and belongs to the widespread species *C. nicobarensis* (Schiner).

Clinopogon nicobarensis (Schiner)

Stichopogon nicobarensis Schiner, 1868: 161.

In 1959, revising the Asilidae of Madagascar, I formed the opinion that all the *Clinopogon* occurring on beaches round the periphery of the Indian Ocean belong to a single species, originally described by Schiner from Kondul, in the Nicobar Islands. It is a species of uniform appearance, black in ground color, with thin whitish tomentum and white or yellowish hairs and bristles.

Head: Face and frons with dense, dirty white tomentum. All hairs and bristles yellowish or white. Antennae, proboscis and palpi black.

Thorax: Mesonotum uniformly covered with gray tomentum, and with only a faint trace of a darker median stripe. Clothing hairs pale yellowish, long and dense, especially on scutellum, which has abundant fine hairs but no strong marginal bristles. Single notopleural, supra-alar and postalar bristles yellowish. Pleura similar.

Abdomen: Dorsum uniformly grayish, with erect pale yellowish hairs. Venter similar, hairs longer anteriorly (cf *Stichopogon*).

Legs: Black in ground color, covered with grayish tomentum and with all hairs and bristles white or pale yellowish. Bristles are numerous, especially on tibiae, but they are not as long, nor as individually prominent, as they are in *Stichopogon*.

Wings: Clear. Fourth posterior cell sedentary.

Length of body 13 mm; of wing 12 mm.

Tribe SAROPOGONINI

This is the most generalised tribe of Asilidae, and is recognised in practice by not having the special features of the other tribes. The one positive characteristic is the structure of the prosternum, which is an isolated plate, separated by membrane from the propleura. The prosternum is usually not difficult to see, but sometimes it is concealed by the hairs of the fore coxae.

Some genera have a curved spur at the tip of the fore tibia, extending over the base of the fore basitarsus, which may have a companion process. Hull (1962) segregates these genera into Dasypogonini, and uses the name Stenopogonini for the rest, ie those without spur. This is logical and practical, but gives rise to some uneasiness, because the spurred genera do not seem to be very much alike, either in general appearance or even in the structure of the spur itself. I prefer, therefore, to retain Saropogonini for all the genera with detached prosternum, and to use the fore-tibial spur as a convenient key character (fig. 58).

The Saropogonini recorded from the Philippine Islands are two species of *Saropogon* — small, compact, shining brown — and the huge *Microstylum dux* Wiedemann, a widespread Oriental species. The last is easily recognised among the other big yellow Asilidae of this region by the way in which the second posterior cell bulges forwards into the first. I have not seen this species from the Philippines.

Genus **Saropogon** Loew

Saropogon Loew, 1847: 439. Type-species: *Dasypogon luctuosus* Wiedemann, 1820, by designation of Coquillett, 1910.

Key to Philippine species of Saropogon

1. Larger species (10-13 mm), robust, plain orange in color, dorsum of abdomen shining mahogany brown with a median row of dark spots of varying size, or completely absent. Mesonotum with three indistinct brown stripes, and a brown humeral spot on each side. Legs entirely orange..... **rubricosus** Bezzi

   Smaller species (less than 10 mm), frail; dark brown in ground color, and thorax covered with dense dull yellow tomentum, leaving bare a conspicuous shining brown patch on sternopleuron. Abdomen shining dark brown, with broad yellow band on each segment. Femora dark brown, tibiae and tarsi somewhat lighter, at least basally. ..... **specularis** Bezzi

Saropogon rubricosus Bezzi Fig. 58.

Saropogon rubricosus Bezzi, 1917: 121

Head: Face densely covered with yellowish tomentum or very short pile. Mystax confined to a single row of about 6-8 yellow bristles on epistoma, which scarcely projects in profile; no distinct facial tubercle. Frons similar at sides, and with a median triangle of bare, shining black, extending forward from the bare ocellar tubercle, which has two short yellow bristles. Postvertex with brown tomentum and a pair of long, stout yellow bristles. Occiput with pale

yellowish tomentum and fine yellow hairs. Beard yellowish, very scanty. Antennae dull red-black, with yellow tomentum and yellow hairs, and bristles; first and second segment each with a conspicuous yellow bristle. Proboscis and palpi red-black, with yellow hairs; proboscis yellow apically.

Thorax : Orange. Mesonotum sometimes with the appearance of three indistinct darker stripes, but the only consistent pattern is an oval, dark brown humeral spot on both sides. Clothing hairs black, bristles black and rather numerous; besides notopleural, supra-alar and

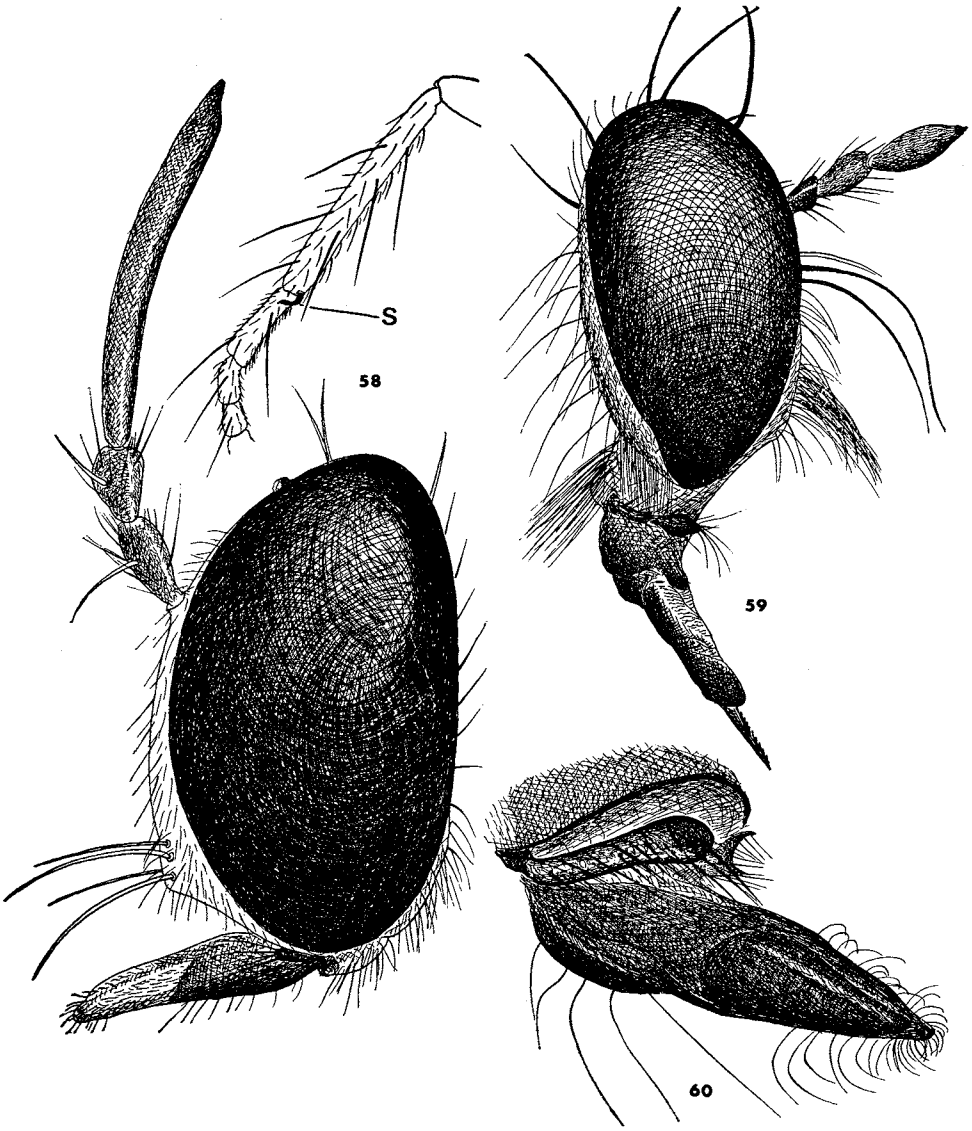


Fig. 58-60. Head structures. 58, *Saropogon rubicosus* Bezzi, with inset of fore tibia showing tibial spur, S; 59, *Aphistina partita* (Walker); 60, Proboscis of *Pogonosoma*.

postalar bristles, there are four pairs of dorsocentrals extending forward almost transverse suture. Scutellum orange, with two strong orange marginal bristles and several bristly hairs on each side. Pleura entirely orange with yellow tomentum: the only bristles, those of metapleural tuft, are orange.

Abdomen: Shining mahogany brown, sometimes without pattern, often with a median row of dark spots. Clothing hairs sparse, orange, longer ventrally.

Legs: Orange, only base of hind tibiae obscurely darker. Hairs and bristles yellow, bristles being isolated and very long, especially on tibiae. Fore tibiae with spur as shown in fig. 58. Hind tibiae and tarsi with a ventral 'pad' of yellow hairs.

Wings: Weakly and uniformly tinted yellow. All cells open, including anal. Halteres with orange stem and dark red knob.

Length of body 10-13 mm; of wing 12 mm.

HOLOTYPE in UMT.

TYPE LOCALITY. LUZON: Tayabas, Mt Banahao (Baker).

MATERIAL SEEN. LUZON: 6, 7, 8, 9, 14. MINDANAO: 39, 40, 43, 45, 46. 5. CULION: 64.

Saropogon specularis Bezzi

Saropogon specularis Bezzi, 1917: 122.

Head: Face with dense yellow tomentum, and a mystax consisting of only four yellow bristles, with a few yellow hairs between them. Frons entirely bare, shining black, this area ending in a triangular patch on each side of antennae, and thus encroaching on face. Venter and occiput with golden yellow tomentum and short, black, bristly hairs, comprising a pair of widely separated postverticals and a row of occipitals. Beard scanty, yellow. Antennae black-brown, hairs and bristles black; second segment with one conspicuous black bristle. Proboscis and palpi black-brown with yellow hairs.

Thorax: Mesonotum entirely obscured by thick rusty yellow tomentum, with traces of a divided grayish median stripe. Short black clothing hairs and black bristles, comprising notopleural, supra-alar, postalar and numerous dorsocentrals which extend up to or just beyond transverse suture. Scutellum with thin tomentum, perhaps margin bare, shining brown, with two black marginal bristles, strongly incurved. Pleura covered with dense, golden yellow tomentum, except for sternopleuron, which, together with all coxae, is bare, shining dark brown. Metapleural hairs fine, yellow.

Abdomen: Dorsum bare, shining; each segment black with a posterior yellow band of varying breadth, clothing hairs yellow. Venter similar, but with narrower yellow bands.

Legs: Femora bare, shining dark brown, matching coxae and sternopleural patch. Tibiae and tarsi more yellow-brown, hind tibiae with a dark brown ventral 'pad'. Tibial bristles long, but less so that in *rubricosus*.

Wings: Faintly grayish. All cells open, including anal (narrowly). Halteres pale yellow.

Length of body 7-8 mm; of wing 9 mm.

HOLOTYPE in UMT.

TYPE LOCALITIES. LUZON, Laguna, Mt Banahao. MINDANAO: Butuan (Baker).

MATERIAL SEEN. NEGROS OR.: 56.

Tribe ASILINI

Mostly gray, slender robber flies, often very bristly. Characterised by the aristiform antennae (but without feathering of the arista, see Ommatiini), and by the uniformly closed marginal cell of the wings.

These are probably the most recently evolved Asilidae, and fall into a profusion of genera that are difficult to define and to distinguish. The tribe is less dominant in the Oriental Region than in either Palaearctic or Ethiopian, and only the following eight genera are so far known from the Philippines.

Key to Philippine genera of Asilini

1. Three submarginal cells 2
   Only two submarginal cells 3
2. Radial fork longer than second posterior cell. Antennae close together. ..... **Philodicus** Loew
   Radial fork shorter than second posterior cell, strongly divergent, antennae wide apart ..... **Promachus** Loew
3. Fourth posterior cell bulging forwards, so that discal cell is strongly constricted ..... **Clephydroneura** Becker
   Fourth posterior cell not bulging forward, discal cell not constricted 4
4. Basitarsi of fore and middle legs thickened and bristly (fig. 61). Ovipositor telescopic (fig. 74). Male genitalia pedunculate (fig. 62.). ..... **Astochia** Becker
   Basitarsi normal. Ovipositor variable, but not telescopic. Male genitalia not pedunculate 5
5. Dorsocentral bristles of thorax extending forward of transverse suture. Ovipositor blade-like (fig. 75, 76), flattened from side to side. Male genitalia simple, upper forceps never cleft, though sometimes with a dorsal tooth (fig. 77, 78) 6
   Dorsocentral bristles not extending forward of transverse suture. Ovipositor not flattened and blade-like. Male genitalia usually with a dorsal process, and upper forceps often deeply cleft (fig. 65-73) 7
6. Facial tubercle large, ending abruptly beneath antennae ..... **Machimus** Loew
   Facial tubercle much smaller and more rounded. ..... **Cerdistus** Loew (no species recorded, but an unidentified pair seen)
7. Ovipositor with two upturned spines, used for sweeping sand or soil to cover eggs (fig. 81). Male genitalia in dorsal view curved, and enclosing an open space (fig. 80), but upper forceps not cleft in lateral view ..... **Philonicus** Loew
   Ovipositor short, down turned. Male genitalia seldom curved in dorsal view, and always with upper forceps deeply cleft in lateral view, sometimes quite complex (fig. 65-73) ..... **Heligmoneura** Bigot *sensu lat.*

Genus **Astochia** Becker

Astochia Becker, 1913: 538. Type-species: *Astochia metatarsata* Becker, monotypic.

Related to *Neoitamus* of temperate regions, and sharing with that genus a distinctive form of telescopic ovipositor (fig. 74), *Astochia* differs in lacking the proclinate occipital bristles of *Neoitamus*, and in the characteristic form of male genitalia and basitarsi. The hypopygium is laterally compressed, and the lower forceps pendulous, giving the whole structure a boot-shaped appearance (fig. 62). In both sexes the basitarsi of all legs are stout and bristly, but this is accentuated in males, which may have strikingly spatulate

bristles there (fig. 61).

I have specimens of three species of *Astochia* from the Philippines, which, apart from sharing the genitalic characteristics described above, show no obvious genitalic differences from each other.

KEY TO PHILIPPINE SPECIES OF ASTOCHIA

1. A robust black and yellow species, notable for the yellow-stained wings and the furry black pile of the abdomen. Male with silky yellowish hairs on fifth and sixth abdominal tergites, 'parted' to lie laterally ..... **nigrina** Ricardo
   Wings clear except for the usual apical gray infuscation. Abdomen without furry black pile on fifth and sixth segments 2
2. Femora as well as tibiae bi-colored, yellow posteriorly, with black streak on anterior face. Larger species (20 mm) ..... **scalaris** Hermann
   Femora all black, slender; fore and mid tibiae yellow posteriorly, black anteriorly. Small species (11 mm) ..... **inermis** Hermann

Astochia nigrina (Ricardo)

Neoitamus nigrinus Ricardo, 1919: 64

One of several robust species, with rusty tomentum on the thorax, and the abdomen clothed with furry black pile, *A. nigrina* was described from the Philippines, and is distinguished from related species by the furry tufts of hairs *posteriorly* on the abdomen of the male — ie like the North American *Efferia*, and not the *fasciatus*-group of *Promachus*—and by the yellow ovipositor of the female.

Head: Face and frons with brassy yellow tomentum, frons a little darker than face. Hairs black, except for a very few ventrally in mystax. Antennae, palpi and proboscis black with predominantly black hairs. Postvertical bristles black, occipital hairs and beard yellow.

Thorax: Black in ground color, with brassy yellow tomentum, paired median stripes, and broad lateral stripes in dark brown. Hairs and bristles black. Scutellum uniformly covered with yellow tomentum and with black discal hairs and black marginal bristles. Pleura uniformly covered with yellow tomentum, and with abundant fine, silky hairs, which are mostly black.

Abdomen: First five tergites and sternites with thick tomentum, and a short, black, furry pile. Segments six to ten, comprising ovipositor in females, clear yellow-brown, bare and shining. Males have long, straight, laterally disposed yellow hairs on fifth tergite and shorter, weaker ones on sixth; sixth tergite and genitalia steely blue, with black hairs.

Legs: Coxae-like pleura. Femora shining black, with an indistinct red spot posteroventrally near tip. Fore and mid tibiae orange, with narrow black tip; basitarsi dull reddish, and other tarsomeres black. Hind tibiae and tarsi black. Hairs and bristles almost entirely black; hind femora with rather abundant silky black hairs ventrally. Fore tarsi of males have spatulate bristles, less well developed than those of *A. scalaris* (fig. 61).

Wings: Rust-colored. Veins are bright yellow, and membrane extensively covered with yellow microtrichiae, leaving clear cells only in basal half of wing.

Length of body (including ovipositor) 23 mm; of wing 16 mm.

HOLOTYPE in BMNH.

TYPE LOCALITY. LUZON, Cape Engano.

MATERIAL SEEN. LUZON: 19. MINDANAO: 88.

Astochia scalaris Hermann Fig. 61, 62.

Astochia scalaris Hermann, 1917: 27.

This is clearly the most abundant of the three Philippine species, and in the male is recognised by the exaggerated swelling and conspicuously spatulate bristles of the fore tarsus.

Head: Face and frons with yellow tomentum. Mystax extensively yellow, with black hairs and bristles dorsally and laterally. Frons with black hairs and bristles. Antennae, palpi and proboscis black, with predominantly black hairs. Postvertical bristles strong, black; lower postoccipital hairs yellow, beard white.

Thorax: Mesonotum with ashy yellow-gray tomentum outlining paired median stripse and broader lateral patches. Hairs and bristles all black. Scutellum with yellowish gray tomentum and black discal hairs and marginal bristles. Pleura more grayish than mesonotum, with abundant silky yellow hairs, including metapleural tuft; only upper mesonotum with fine black hairs.

Abdomen: Tergites matt black, brown on disc, with yellow-gray posterior and lateral margins, clothed with rather long and shaggy yellow hairs. Venter brownish with yellow hairs. Male genitalia as in fig. 62; males do not have tufts of yellow or white hairs on fifth and sixth tergites (cf. *nigrina* Ricardo); fifth *sternite* of male has a bushy tuft of white hairs. Ovipositor. shining black.

Legs: Coxae-like pleura. Femora and tibiae slender and rather elongate, yellow posteriorly, black anteriorly to a greater or lesser extent; chiefly black anterobasally on fore and middle femora. Fore tarsi yellow, but the incrassate basitarus appears black because of its dense hairs and bristles; long bristles of fore basitarsus include some that are conspicuously spatulate (fig. 61). Middle and hind tarsi black, or at least black-brown).

Wings: Faintly tinted yellow, and distinctly darkened towards tip, especially around fork of R_{4+5}, where microtrichiae are dense enough to give the appearance of a brown cloud.

Length of body 20 mm; of wing 15 mm.

HOLOTYPE in DEI.

TYPE LOCALITY. TAIWAN.

MATERIAL SEEN. LUZON: 1, 8, 12, 19 - long series. MINDANAO: 32.7 93.5. PALAWAN: 67, 72

Astochia inermis Hermann

Astochia inermis Hermann, 1917: 29.
Neoitamus siamensis Ricardo, 1919: 68. **n. syn.**

Much smaller and slighter than the other two Philippine species, and with all-black femora.

Head: Tomentum of face white on epistoma, more yellowish above, and on frons. Mystax consisting predominantly of thick white bristles, and a few fine black hairs above. Frons

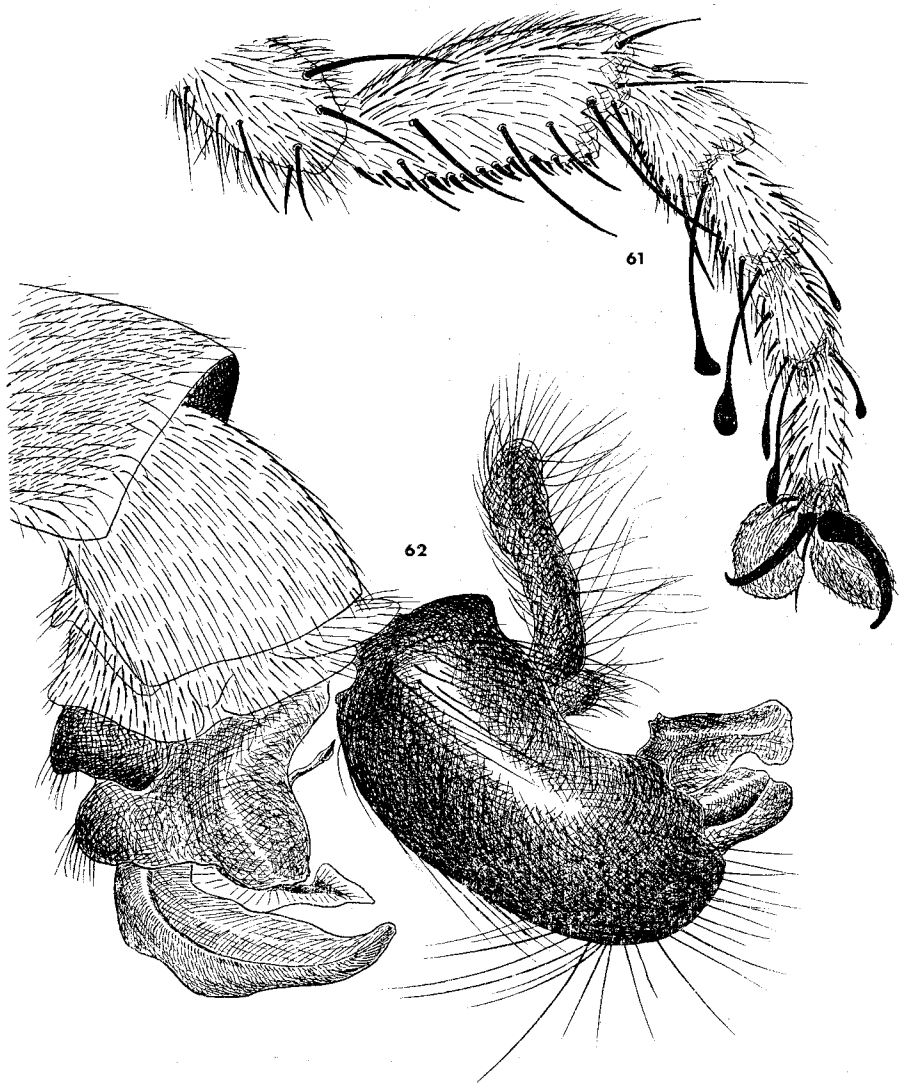


Fig. 61, 62. *Astochia scalaris* Hermann: 61, right fore tarsus of male, showing thickened basitarsus (a generic character) and the spatulate hairs of this and other species; 62, male genitalia.

with mainly black hairs. Postvertical bristles mainly black, some white ones; lower postoccipital hairs and beard white.

Thorax: Mesonotum ashy gray, especially laterally; paired median stripes and broader lateral ones dark gray. Hairs and bristles mainly black. Scutellum with gray tomentum, short, white discal bristles, and one pair of black marginal scutellars. Pleura with mottled yellowish and white tomentum, and with hairs and bristles white, including metapleural tuft.

Abdomen: Dorsally dull ashy gray, each tergite with a black discal apot and grayish lateral

and posterior margins. Some short black clothing hairs mingled with longer pale ones. Venter more brownish, with yellowish hairs. Fourth and fifth sternites in male with laterally directed tufts of yellowish hairs. Ovipositor shining black.

Legs: Slender, and even the fore basitarsi are not conspicuously enlarged, though they are very bristly. Legs all black, with exception of fore and middle tarsi, which are yellow posteriorly, and hind tibiae which are yellowish brown basally. White clothing hairs conspicuous on hind femora, and on fore and middle tibiae, and fore tarsi.

Wings: Membrane faintly yellowish, with gray tip formed from microtrichiae in cells from subcostal to fifth posterior, but without concentration of color on radial fork (cf. *scalaris*).

Length of body 11 mm; of wing 10 mm.

HOLOTYPES. *inermis* in DEI; *siamensis* in BMNH.

TYPE LOCALITIES. *inermis*, Taiwan; *siamensis*, Thailand.

MATERIAL SEEN. LUZON: 4, 22. MINDANAO: 30, 37.

Genus **Clephydroneura** Becker

Clephydroneura Becker, 1925: 68. Type-species: *Asilus xanthopus* Wiedemann, 1819, by designation of Oldroyd, 1938.

Clephydroneura is one of many genera that were still undescribed at the time of Hermann's death, and were later published in his name by other authors. In this case Becker's description took the form of a half-couplet in a key, comparing *Clephydroneura* with *Synolcus* Loew: no species were included, and no type designated. Subsequent authors pointed out that the two genera could be separated by the bristliness or otherwise of the metanotal callosities, *Clephydroneura* having these bristly and *Synolcus* bare. The former is wholly Oriental and the latter Ethiopian.

Oldroyd (1938) revised the genus *Clephydroneura*, with a total of nineteen species. None of these has previously been recorded from the Philippine Islands, but the present collection contains several specimens of *Clephydroneura bengalensis* Macquart which, in spite of its name, is only doubtfully present in India. Oldroyd (loc. cit.) suggested that the locality 'Bengal' for the type specimen was perhaps an error of labelling, and he removed the specimen from Coimbatore, recorded by Miss Ricardo (19 22: 60), to *annulata* Fabricius.

Clephydroneura bengalensis (Macquart)

Asilus bengalensis Macquart, 1838: 141.

The combination of characters by which this species is distinguished from all the others of the genus includes an infuscated wing-tip, with the infuscation extending into the fifth posterior cell, extensively yellow legs, femora without any black apical band, and yellow first antennal segment.

Head: Frons and face covered with silky yellow tomentum, and mystax entirely yellow. Antennae yellow with blackish arista. Upper occipital bristles black, lower occipitals and beard yellow. Proboscis and palpi black with yellow hairs.

Thorax: Orange, patternless; hair and bristles of mesonotum black, those of pleura yellow.

Abdomen: Dorsally covered with brown tomentum and long yellow hairs. Upper forceps of male brilliantly shining black; ovipositor of female also shining black.

Legs: Entirely yellow, including tarsomeres. Yellow hairs and bristles on coxae, and some on femora and tibiae, but hairs predominantly black.

Wings: Costa slightly thickened, but not appreciably dilated, though membrane of marginal, submarginals and first posterior cells is transversely wrinkled. Apex and hind margin heavily infuscated, with triangular area in fifth posterior cell. Halteres yellow, knob partly dusky.

Length of body 20 mm; of wing 13 mm.

HOLOTYPE in MP.

TYPE LOCALITY. BENGAL.

MATERIAL SEEN. PALAWAN: 68, 72, 96. CULION: 64.

This species is known from Java and Sumatra, but its occurrence in the Indian subcontinent is doubtful.

Genus **Heligmoneura** Bigot

Heligmoneura Bigot, 1858: 356. Type-species: *Heligmoneura modesta* Bigot, 1858, monotypic.
Cinadus Wulp, 1898: 41. Type-species: *Cinadus spretus* Wulp, 1898, by designation of Hull, 1962.
Oligoschema Becker, 1925: 135. Type-species: *Oligoschema nuda* Becker, 1925, monotypic.
Haplonota Frey, 1934: 316. Type-species: *Haplonota elegans* Frey, 1934 (= *Cinadus genitalis* Edwards, 1919) by original designation.
Amphiscolops Hull, 1962: 552. Type-species: *Asilus mendax* Walker, 1857, by original designation.

The genera of Asilini related to *Heligmoneura* are structurally attractive, but very difficult to segregate from each other. Tsacas (1968) in the course of an intensive study of the genus *Neomochtherus* in the various zoogeographical regions, has made a number of comments on this subject, and his statement that the laterally compressed ovipositor is a characteristic of *Neomochtherus* effectively excludes the Philippine species from that genus (but see also *Cerdistus*)

There remains a complex of species which combine the characters of a short, non-compressed ovipositor, with downturned lamellae, and vein R_5 angled in the middle. This last is the source of the generic name *Heligmoneura* [from, "a bending of the bone without fracture", or what is sometimes called a 'green stick' fracture] but is a feature of at least three groups of genera in Asilidae: the present group, the genera related to *Machimus*, and some at least of those related to *Ommatius*.

The species of this group attract attention by their conspicuous genitalia and by certain configurations of very strong bristles, and so the few authors who have studied Oriental Asilidae have been inclined to erect new genera for any distinctive species. Thus two of the species in the present paper would fall into genus *Oligoschema* Becker (1925: 135), and a third differs only in having the face much narrower. Other species, however, show various gradations of bristliness of the abdominal tergites, as well as complexity of the male genitalia.

It seems fairly certain that *Oligoschema* Becker, 1925 and *Haplonota* Frey, 1934 are not valid genera, and the outstanding question is whether *Heligmoneura* Bigot, 1858, with

an African type-species, is congeneric with *Cinadus* Wulp, 1898, with an Oriental type. If not, can all the African species be placed in *Heligmoneura* and all the Oriental species in *Cinadus*, or do both genera occur in both regions? Hull (1962: 582, 585) inclines to the former view, but no author has yet seen and compared enough species to be able to decide this point.

I therefore place the Philippine species known to me in a genus *Heligmoneura sensu lat.*, to include *Cinadus* as well as *Oligoschema* and *Haplonota*. The presence of rather conspicuous bristles on the anterior face of the hind femora in some species recalls the genus *Hoplopheromerus*, reviewed by Tsacas & Oldroyd (1967), but in that genus the bristles in this position are much more numerous and spiny. The presence of a small cluster of strong bristles on the lateral margin of the posterior segments of the abdomen of the males of certain species (see fig. 65, 67) is the diagnostic feature of *Amphiscolops* Hull (1962). The position and orientation of these bristles is specifically distinct, but it is doubtful whether it has any generic significance.

Key to the Philippine species of Heligmoneura (*sensu lat.*)

1. Face broader, with facial tubercle nose-like, and extending up to bases of antennae (fig. 63). Males with upper forceps short, deeply cleft; lateral bristles of abdomen very strong, with a prominent, downwards inclined cluster in each posterior angle of sixth tergite (fig. 65, 67) 2
   Face narrower, facial tubercle much shorter (fig. 64) 3
2. Basitarsi of all legs reddish. Male with genitalia as in fig. 65, and sixth tergite with a cluster of 4–5 white, downwardly pointing, straight bristles. Vertex mostly with yellow tomentum, and only a tiny black spot (*Amphiscolops*) ..... **seminuda** n. sp.
   Basitarsi of all legs black. Male with genitalia as in fig. 67, and sixth tergite with long, upwardly curved, black bristles. Vertex with large black spot. (*Amphiscolops*) ... **sula** n. sp.
3. A tiny species (10 mm) with mainly black mystax. Thorax, including mesonotum, uniformly gray, and legs clear yellow. Male genitalia as in fig. 72 ..... **pygmaea** n. sp.
   Not so small, even in small examples. Mesonotum with a brown pattern 4
4. Scutellar bristles yellow 5
   Scutellar bristles black 6
5. Facial tubercle very small, confined to lower third of face. Hind femora unusually slender, reaching back to third abdominal segment. Male genitalia as in fig. 71, upper forceps deeply cleft into two equal parts ..... **divaricata** n. sp.
   Facial tubercle more than one third height of face. Hind femora not unusually slender. Male genitalia with an upward-pointing prong, but not cleft into two equal parts (fig. 70) ..... **elaphra** n. sp.
6. Hind femora with a distinct brown spot or ring, about one third of length from apex, and fringed with long black and white hairs ventrally. Male genitalia (fig. 73) ..... **spuria** Wulp
   Hind femora without a brown spot or ring remote from apex, but sometimes generally darker on apical third. Male genitalia as in fig. 66 ..... **spreta** Wulp

Heligmoneura divaricata Oldroyd, new species Fig. 64.

Distinguished immediately by the male genitalia (fig. 71), with the upper forceps deeply cleft and divaricate, and in both sexes by the unusually elongate and slender hind femora. Close to *elaphra*, but distinguished by the characters given in the key.

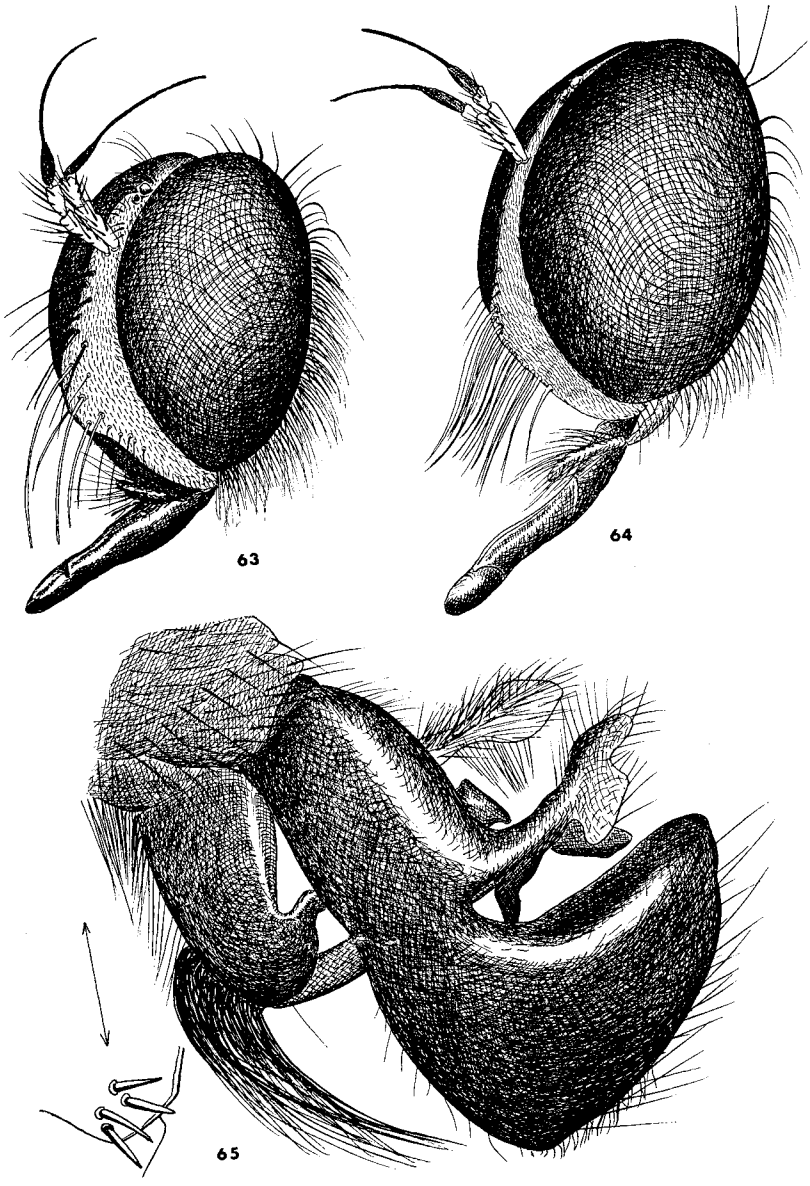


Fig. 63-65. *Heligmoneura.* 63, *seminuda* n. sp., head ; 64, *divaricate,* n. sp., head ; 65, *seminuda* n. sp., genitalia, inset, bristles on sixth abdominal tergite.

Head: Face with thick white tomentum, contrasting with brown frons. Mystax predominantly white, with isolated black bristles. Postvertical bristles strong, black, postocular ciliation and beard white. Antennae reddish brown, with black hairs; proboscis and palpi black with yellow hairs.

Thorax: Tomentum of mesonotum dull brown, obscurely gray at extreme sides. Clothing

hairs and some bristles pale yellowish, most bristles black. Scutellum brown with one pair of yellow marginal bristles. Tomentum of pleura brown and gray, giving a faint impression of vertical bands; hairs and bristles of metapleuron yellowish.

Abdomen: Dorsum dark brown, a little paler at sides. Clothing hairs yellow. Venter similar. No strong lateral bristles on posterior segments. Male genitalia very distinctly cleft (fig. 71).

Legs: Hind legs, in particular, unusually long and slender. Predominantly yellow, but tips of femora and tibiae brown, much more extensively so on hind legs. Clothing hairs and bristles mixed black and yellow.

Wings: Faintly yellow, heavily infuscated at tip, from submarginal and first posterior cells.

Length of body 14 mm; of wing 13 mm.

HOLOTYPE in BPB (BISHOP 8679)

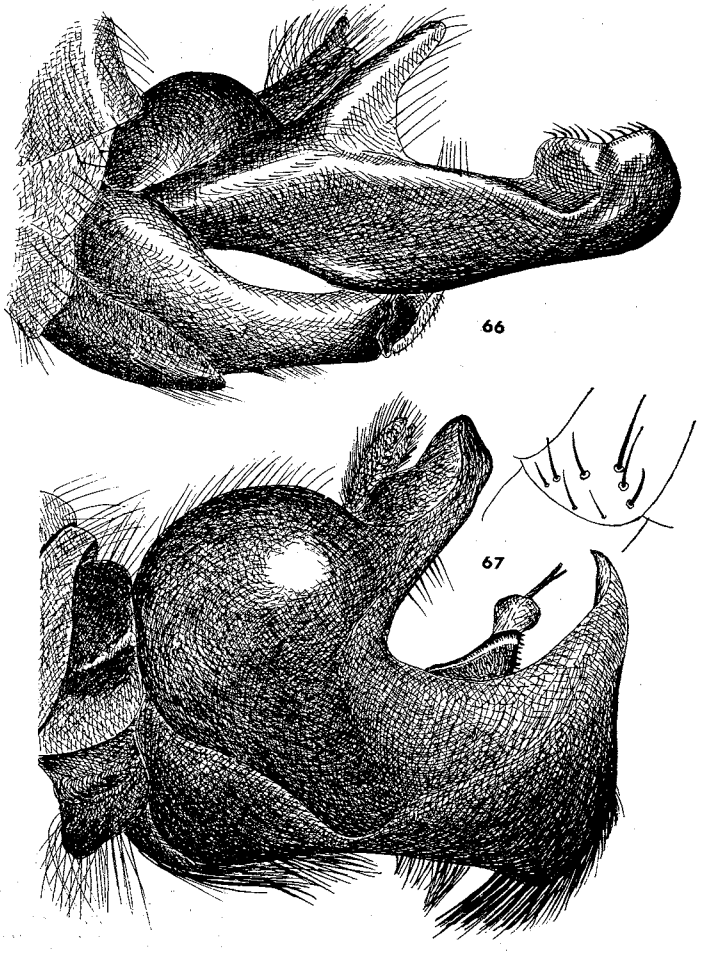


Fig. 66, 67. *Heligmoneura*, ♂ genitalia. 66, *spreta* (Wulp); 67, *sula* n. sp., inset, upturned bristles on sixth tergite.

TYPE LOCALITY. LUZON, Camarines Sur, Mt. Isarog, Pili, 600 m. 5.IV.1965 (H. M. Torrevillas).

MATERIAL SEEN (paratypes). LUZON: 7, 14, 88.

Heligmoneura elaphra Oldroyd, new species Fig. 70.

Distinguished from *seminuda* and *sula* spp. n. in the male by lacking the stiff bristles at the sides of the posterior abdominal segments, and by the more elongate upper forceps (fig. 70). In both sexes the dorsum of the abdomen has abundant yellow hairs.

Head: Face and frons narrow. Face brilliant white, frons golden brown; facial tubercle reaching about halfway up to antennae. Mystax almost entirely white. Hairs at sides of frons yellow. Strong postvertical bristles black, but postoccipital bristles and hairs yellow, and beard white. Antennae brown, palpi and proboscis black, all with black hairs.

Thorax: Mesonotum with light brown tomentum, becoming more gray laterally and with faint traces of three longitudinal stripes. Clothing hairs fine, white, bristles strong and mostly black, but one or two white ones on postalar callus. Scutellum light brown with one pair of yellow marginal bristles.

Abdomen: Tomentum of dorsum dark brown, more yellow laterally and posteriorly on each tergite. Clothing hairs yellow, rather longer laterally, but no patches of strong bristles (cf. *seminuda* and *sula*, spp. n.). Venter similar. Male genitalia as in fig. 70

Legs: Yellow: knees, tips of tibiae and all tarsi obscurely brownish. Clothing hairs and bristles mixed black and yellow.

Wings: Very faintly smoky, iridescent, with well-marked area of gray microtrichiae at tip and along hind margin, as far as anal vein.

Length of body 16 mm; of wing 12 mm.

HOLOTYPE in BPB (BISHOP 8680).

TYPE LOCALITY. LUZON: Laguna, Makiling, 30.III.1968 ex mud spring. (M. D. Delfinado).

MATERIAL SEEN. LUZON: 3, 6, 26.5.

Heligmoneura pygmaea Oldroyd, new species Fig. 72.

A small, neat species, with gray body contrasting with clear yellow legs. Male genitalia as in fig. 72, upper forceps deeply cleft.

Head: Face narrow, and with small tubercle as in fig. 64. Face and frons covered with dark golden yellow tomentum, mystax entirely black. Occiput gray with yellow postoccipital bristles. Beard white. First two antennal segments clear yellow with black bristles (third segment not known to me). Proboscis black, palpi light brown with yellow-brown hairs.

Thorax: Mesonotum black in ground color, uniformly covered with thin gray tomentum, no pattern except the faintest traces of paired stripes. Fine clothing hairs, and long but slender bristles, black. Scutellum uniformly gray, with no marginal bristles. Pleura also black in ground color with uniformly gray tomentum. Bare of hairs except on metapleuron, where there is one white bristle and one white bristle on hypopleuron.

Abdomen: Dorsum with yellowish gray tomentum, and irregular traces of brown median

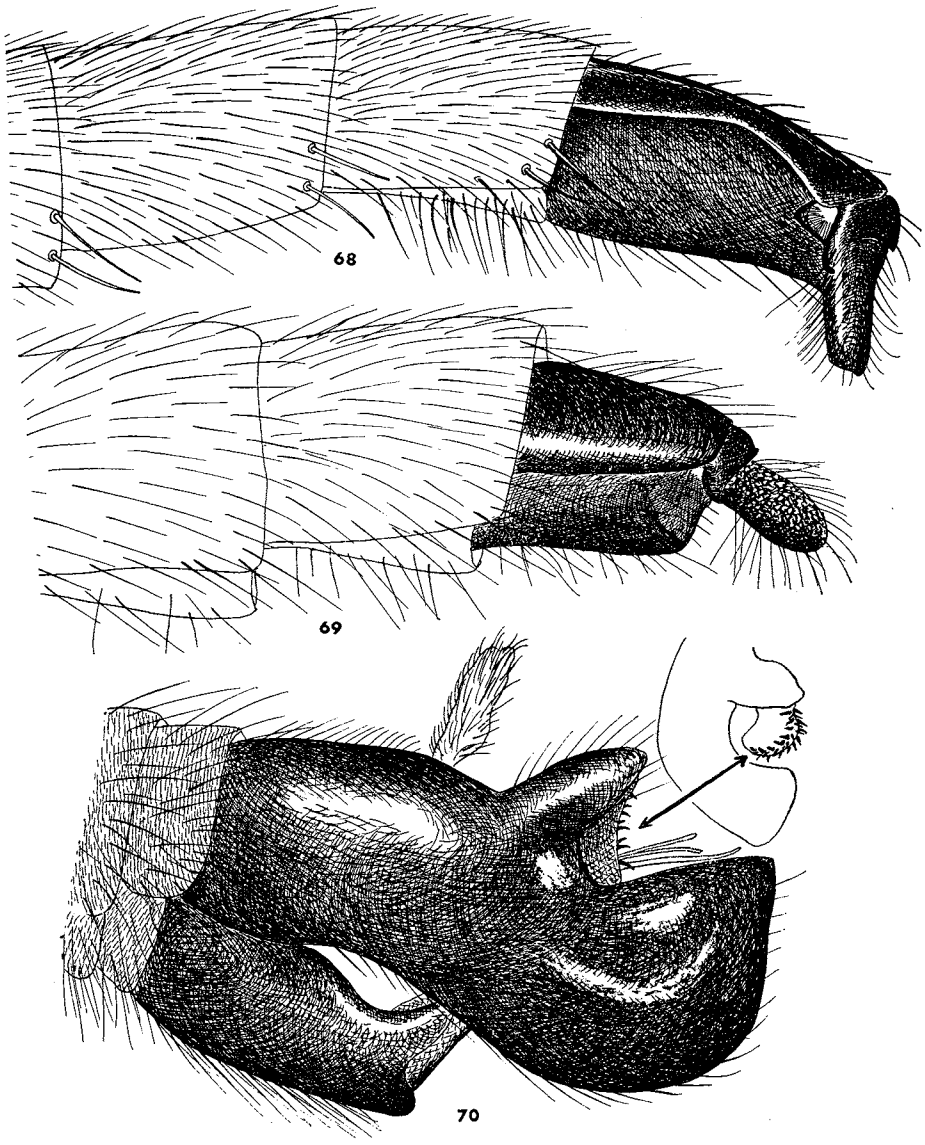


Fig. 68-70. *Heligmoneura:* 68, *seminuda* n. sp., ovipositor; 69, *spreta* (Wulp), ovipositor; 70, *elaphra,* n. sp., ♂ genitalia.

spots. Clothing hairs yellow, enlarged into long yellow bristles laterally on each segment, especially prominent on fourth to sixth segments. Male upper forceps deeply cleft, trifid (fig. 72) shining black.

Legs: Clear yellow, including tarsi. Bristles long and conspicuous, mainly yellow, with only a few black ones.

Wings: Clear, with apical infuscation extending from tip of marginal cell to apex of vein M_{3+4}.

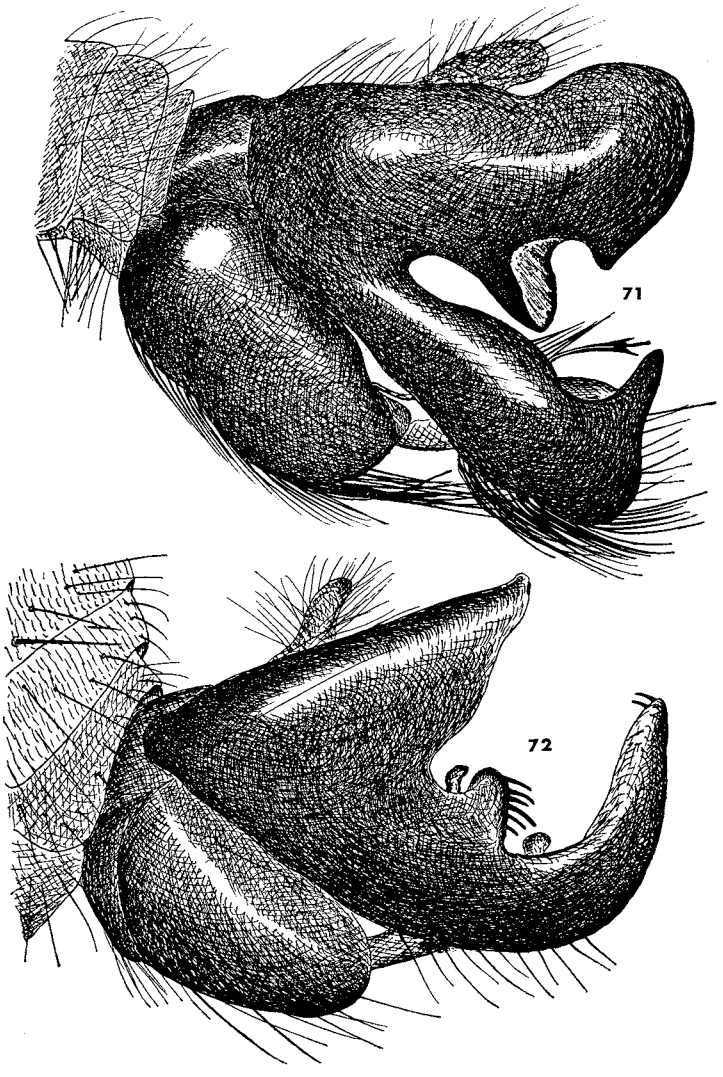


Fig. 71, 72. *Heligmoneura*, ♂ genitalia: 71, *divaricata* n. sp.; 72, *pygmaea* n. sp.

Length of body 10 mm; of wing 9 mm.

HOLOTYPE in BPB (BISHOP 8681).

TYPE LOCALITY. LUZON: Albay Province, Libon, Caquscos, 200 m 7.V.1965 (H. M. Torrevillas).

MATERIAL SEEN (Paratypes). LUZON: 20, 84.

Heligmoneura seminuda, Oldroyd, new species. Fig. 68.

This is the most typically *Oligoschema* of the Philippine species, with the relatively broad frons, high facial tubercle and spiny abdominal tergites as described by Becker in his original diagnosis. It also differs from specimens in the BMNH, and from the description of *O. nuda* in not having black femora.

Head: Face and frons relatively broad, antennae separated from eyes by about their own width. Facial tubercle nose-like, smoothly faired down dorsally almost up to antennal sockets, and covered with a mystax that is mainly white, with only a few black bristles dorsally and ventrolaterally. Tomentum dense, white. Frons a little more golden yellow, with a cordiform, shining black spot beneath median ocellus; along eyemargin a dense row of yellowish bristles; ocellar tubercle with 6-7 black hairs. Vertex similar, with yellow hairs above a crown of black postoccipital bristles. Lower occipital hairs yellow, beard white. Antennae yellow with black and yellow hairs; third segment brown, arista black. Palpi and proboscis black with yellow hairs and some black hairs on palpi.

Thorax: Mesonotum with yellow-brown tomentum and only very faint indications of pattern of darker stripes, clothed uniformly and rather densely with longish black hairs; a few yellow hairs ventrally on humeri, and in a yellow supra-alar tuft, bristles black. Scutellum similar, with erect, long, fine black hairs on disc, a tuft of yellow hairs at each lateral angle, and two strong black marginal bristles. Pleura with uniform yellowish gray tomentum and mostly yellow hairs, a few black ones dorsally on mesopleuron.

Abdomen: Dorsum brown, with narrow, brick-red hind margins to segments, more grayish laterally and basally. Clothing hairs short, black, recumbent in brown areas; yellow, longer and more erect on grayish areas. Laterally and ventrally a strong armament of yellow bristles, most numerous on third tergite, horizontal except on sixth tergite, where a tight clump of 3-4 short, strong bristles points vertically. Venter similar, with grayish tomentum and strong yellowish bristles, especially prominent on second and third sternites. Male genitalia as in fig. 65, notable for antler-like prongs of upper branch of upper forceps.

Legs: Coxae like pleura. Legs otherwise yellow, except for apices of tarsi, which are darker. Fore and middle legs with numerous stiff black bristles, and yellow ones that are usually longer and more slender. Hind legs less heavily armed. Clothing hairs mostly black on femora and tarsi, yellow-brown mainly on tibiae.

Wings: Clear, gray microtrichiae in tips of marginal, submarginal and posterior cells.

Length of body 17 mm; of wing 17 mm.

HOLOTYPE in BPB (BISHOP 8682).

TYPE LOCALITY. MINDANAO: Malaybalay, Bukidnon, 23.VI.1968 (M. D. Delfinado).

MATERIAL SEEN. (Paratypes). LUZON: 16, 20, 23. 5. MINDANAO: 495, 88. LEYTE: 28. PALAWAN: 97. SULU: 50, 51. NEGROS OR.: 58.

Heligmoneura spreta (Wulp) Fig. 66.

Cinadus spretus Wulp, 1898: 141.

Another species that is recognised principally by the form of the male genitalia (fig. 66), the upper forceps with a thumb-like projection. It shares the black scutellar bristles of *spuria* Wulp, but lacks the distinctive annular ring on the hind femora of that species.

Head: Face with dense white tomentum, frons more brownish. Mystax usually almost entire-

ly white, with only isolated black hairs. Postvertical bristles weak, mostly white, with some black ones; postoccipital hairs and beard white. Antennae with first two segments orange, third darker, hairs mostly yellowish; palpi and proboscis black, with yellow hairs (palpi sometimes brown).

Thorax: Mesonotum with dense brown tomentum, no pale areas. Clothing hairs very short, black, sparse, apart from weak acrostichal rows. Bristles black; scutellum grayish, with one pair of black marginal bristles. Tomentum of pleura brown and gray, in patches, a brown patch especially prominent on mesopleuron. Metapleural tuft yellow.

Abdomen: Dorsum brown, with yellowish lateral and posterior margins. Clothing hairs yellow, long and bristly towards sides, but no stiff bristles (cf *Amphiscolops*). Venter similar. Male genitalia with both upper and lower forceps elongate, and with prominent dorsal projection (fig. 66).

Legs: Coxae yellow in ground color, which shows through gray tomentum. Legs mainly yellow-brown, but all femora darkened anteriorly, and especially in apical half. Hind tibiae darkened in apical third, and hind tarsus brownish.

Wings: Lightly stained yellow, broadly grayish at tip.

Length of body 14 mm; of wing 13 mm.

HOLOTYPE in RML.

TYPE LOCALITY. SUMATRA.

MATERIAL SEEN (paratypes). MINDANAO: 32, 35, 39, 42, 45. LUZON: 1, 3. BALABAC: 77.

Heligmoneura spuria (Wulp) Fig. 73.

Cinadus spurius Wulp, 1898, *Tijdschr. Ent.* **41**: 140.

Distinguished from other species known to me by the isolated brown ring on the hind femora, about one quarter of the length from the apex. The male genitalia are elongate and exceptionally open (fig. 73).

Head: Face with dense whitish tomentum, frons more golden brown. Mystax chiefly white, with a few black bristles. Postvertical bristles strong, black, postoccipital ciliation and beard white. Antennae pale yellow, third segment elongate, hairs black. Palpi clear brown with yellow hairs; proboscis black with yellow hairs.

Thorax: Mesonotum black in ground color, with dark golden brown tomentum, more grayish at sides. Clothing hairs mainly black, longer laterally and posteriorly; bristles black. Scutellum dark gray, with erect pale hairs and one pair of black marginal bristles. Pleura more grayish, with mostly pale yellow hairs and bristles, even on metapleuron.

Abdomen: Dorsum apparently brown (very greasy) and covered with moderately long yellow clothing hairs. Sides of fourth tergite (only) with a cluster of about ten strong yellow bristles. Venter similar to dorsum. Male genitalia complex and open (fig. 73).

Legs: Fore coxae yellow, contrasting with gray middle and hind coxae. Legs, including basitarsi, pale yellow; hind femora with a distinctive dark brown annulus at about one quarter of length from apex. Hairs and bristles mainly pale on fore and middle legs, mainly black on hind legs.

Wings: Clear, with the usual grayish tip.

Length of body 17 mm; of wing 12 mm.

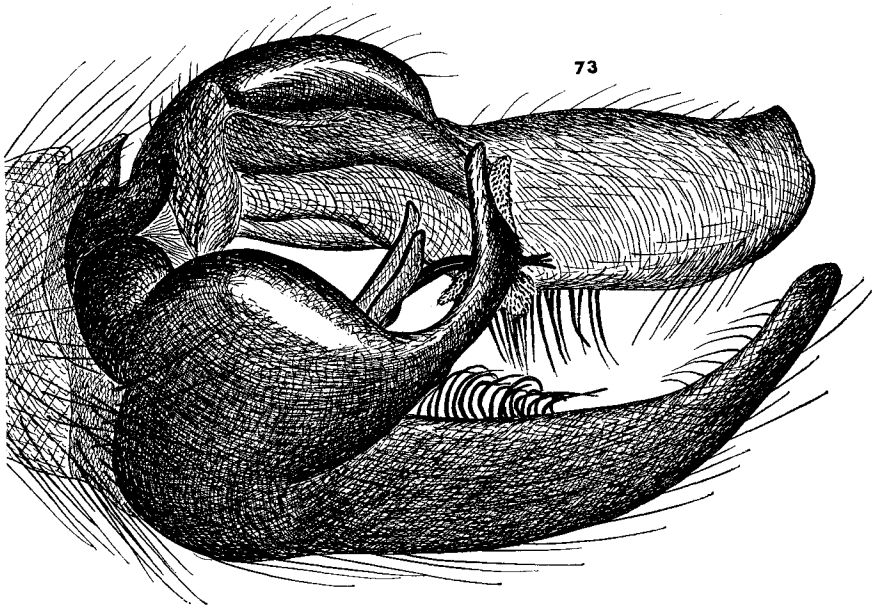


Fig. 73. *Heligmoneura spuria* (Wulp), ♂ genitalia.

HOLOTYPE in RML.

TYPE LOCALITY. CELEBES, Toli Toli.

MATERIAL SEEN. BALABAC I.: 76.

Heligmonera sula Oldroyd, new species Fig. 67.

Belongs to *Oligoschema* Becker, like *seminuda* sp. n., but is distinguished from the latter by the darker legs in both sexes, and in the male by the strong bristles of the abdominal tergites which, instead of being all yellow and straight, are black and upcurved on tergites 4–6.

Head: Facial tubercle nasiform, extending quite close to antennal sockets. Mystax mainly white, but with a few black hairs dorsally, and extensive black hairs lateroventrally. Frons mainly bare, shining black, only a little brassy tomentum on eyemargins, where there is a row of long black hairs. Ocellar bristles black. Vertex also with numerous fine black hairs which merge into black postoccipital bristles. Lower postoccipitals mainly yellow, with a few black hairs; beard white. Antennae with first segment black, second yellow-brown, third dull reddish, arista black; bristles black. Palpi black with black bristles; proboscis-black with hairs basally.

Thorax: Fully tomented, with a fairly distinct pattern of stripes formed in blackish, brown and yellow-brown tomentum. Clothed with almost uniform and rather dense, fine black hairs. Scutellum similar, with two long, curved black marginal bristles. Bristles of mesonotum black; small tufts of yellow hairs on humeri, supra-alar and postalar calli, and at lateral angles of scutellum. Pleura with yellowish gray tomentum and mostly yellow hairs, a few black ones dorsally on mesopleuron.

Abdomen: Tergites dark brown, with more grayish brown sides, and with narrow, brick red posterior margins. Clothing hairs short, recumbent, black on dark patches, longer, more erect

and yellow on gray areas, and especially long on first and second tergites, and sides of third. Lateral bristles exceptionally strong, upcurved; abundant on third tergite, where they are mostly yellow, fewer on 4-6, where they are all black. Venter with soft hairs only, no strong bristles. Male genitalia with a simple process to upper forceps, not antler-like, reinforced by bundles of tough black hairs (fig. 67).

Legs: Coxae like pleura, except that hind coxae may have a tuft of black hairs. Femora and tibiae red-brown or reddish yellow, blackened dorsally to a variable extent, sometimes with a prominent black dorsal stripe. Tarsi black. Clothing hairs and bristles mainly black, except on hind tibiae.

Wings: Clear, with dark microtrichiae from tip of Sc. to Cu_1+1A.

Length of body 18 mm; of wing 16 mm.

HOLOTYPE in BPB (BISHOP 8683).

TYPE LOCALITY. PALAWAN: Agr. Exp. Stn. 11.2 km S of Puerto Princessa. 15-17. IV.1868 (D. E. Hardy).

MATERIAL SEEN. PALAWAN: 68.5, 70.5, 72. 95. BUSUANGA: 101.

Genus **Machimus** Loew

Machimus Loew, 1949: 1. Type-species: *Asilus chrysitis* Meigen, by original designation.
Tolmerus Loew, 1849: 94. Type-species: *Asilus pyragra* Zeller, by original designation.

Machimus is a difficult genus to evaluate because its characteristics are generalised for the Asilini: prominent facial tubercle, simple genitalia in both sexes, absence of any positive recognition features. Most species have vein R_5 more or less distinctly angled in the middle, but this is a feature shared with many other Asilini, as well as with *Ommatius*. Although *Machimus* has been recorded from all regions of the world except Australia it is not certain that all the species are congeneric. Various segregates have been proposed, *Tolmerus* being the only one that is widely accepted, and even this proves a difficult segregate to recognise in practice, and in my opinion is best disregarded, even as a subgenus.

I can recognise three species of *Machimus* in the material from the Philippine Islands. The males have very distinctive upper forceps (fig. 77-79), and both sexes show slight differences in the width of frons and face.

1. Tibiae and basitarsi reddish yellow with black tips; femora often with an apicoventral red spot. Male genitalia with elongate upper forceps, dorsally toothed (fig. 77)..... ..... **divinosus** n. sp.
   Legs entirely black.....2
2. Abdomen covered with dense yellow tomentum, and with yellow bristles. Male upper forceps smoothly triangular at tip, subject to considerable variation, lower forceps of normal size (fig. 77)..... **aurulentulus** Becker
   Abdomen with gray tomentum and median patches of darker brown. Male upper forceps truncate, with concave, backwards facing surface. Lower forceps large, triangular (fig. 79)..... **truncatus** n. sp.

Machimus divinosus Oldroyd, new species Fig. 76, 77.

The bicolored legs immediately distinguish this species from the other two. It is closely allied to *M. chinensis* Ricardo, from which it is distinguished by the black mystax, absence of strong black ventral spines on fore femora, and especially by the form of the male genitalia.

Head: Face with yellowish gray tomentum. Hairs and bristles of mystax almost entirely black, only one or two white ones in center of lower margin. Frons slightly more brownish, with many black hairs. Postvertical and upper postoccipital bristles black; lower postoccipital hair and beard white. Antennae black with black hairs. Proboscis and palpi black with mixed yellow and black hairs

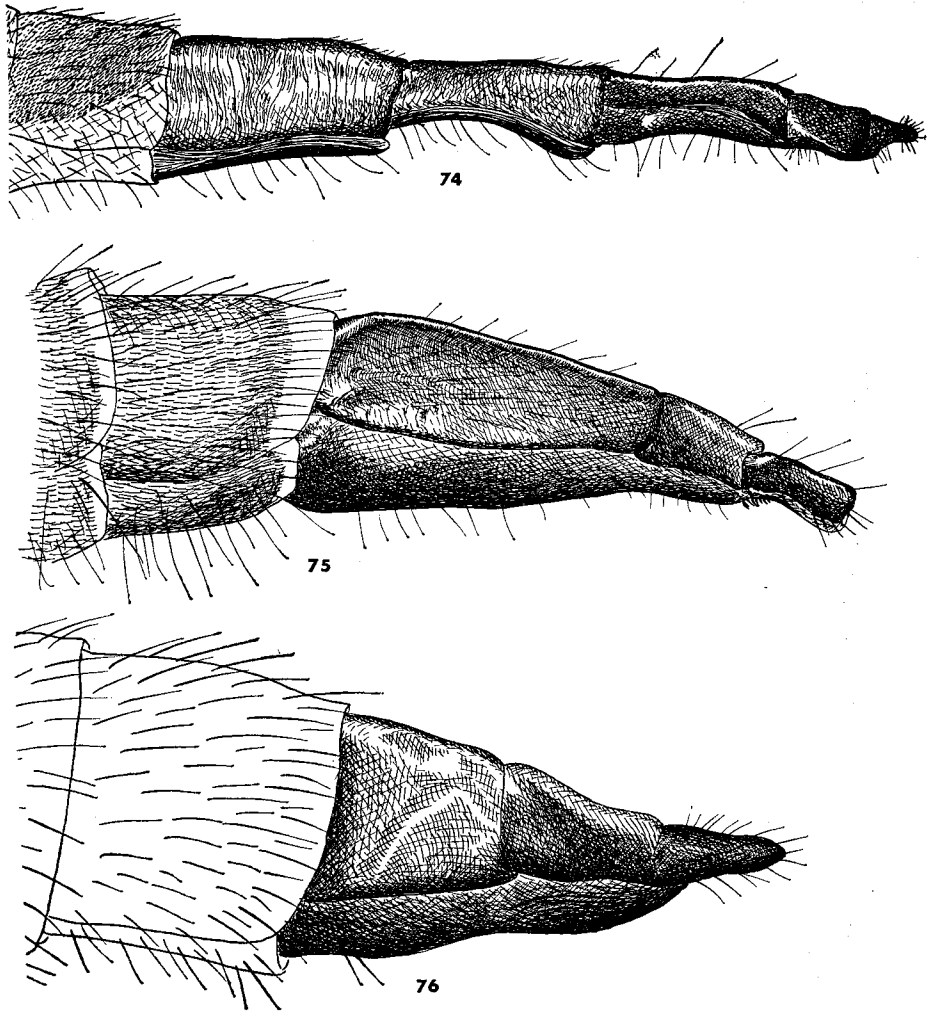


Fig. 74-76. Ovipositors. 74, *Astochia scalaris* Hermann; 75, *Machimus aurentulus* Becker; 76, *Machimus divinosus* n. sp.

Thorax: Mesonotum with dull black pattern outlined in rusty yellow-brown tomentum. Bristles and clothing hairs black. Scutellum with uniformly yellow tomentum and one pair of black marginal bristles. Pleura with thin yellowish gray tomentum, hairs and bristles mostly yellow, except for some black ones in metapleural tuft.

Abdomen: Dorsum covered with yellow tomentum, yellow clothing hairs and bristles. Venter similar. Male genitalia as in fig. 77; upper forceps toothed, like those of many *Neomochtherus*. Ovipositor rather short (fig. 76).

Legs: Coxae like pleura. Femora black, shining, with a small red spot usually present ventrally, near tip. Tibiae and basitarsi reddish yellow with black tips; rest of tarsi black. Bristles and clothing hairs mainly black, but middle and hind femora and tibiae with yellow hairs, especially posteriorly.

Wings: Heavily infuscated in marginal, submarginals and all posterior cells.

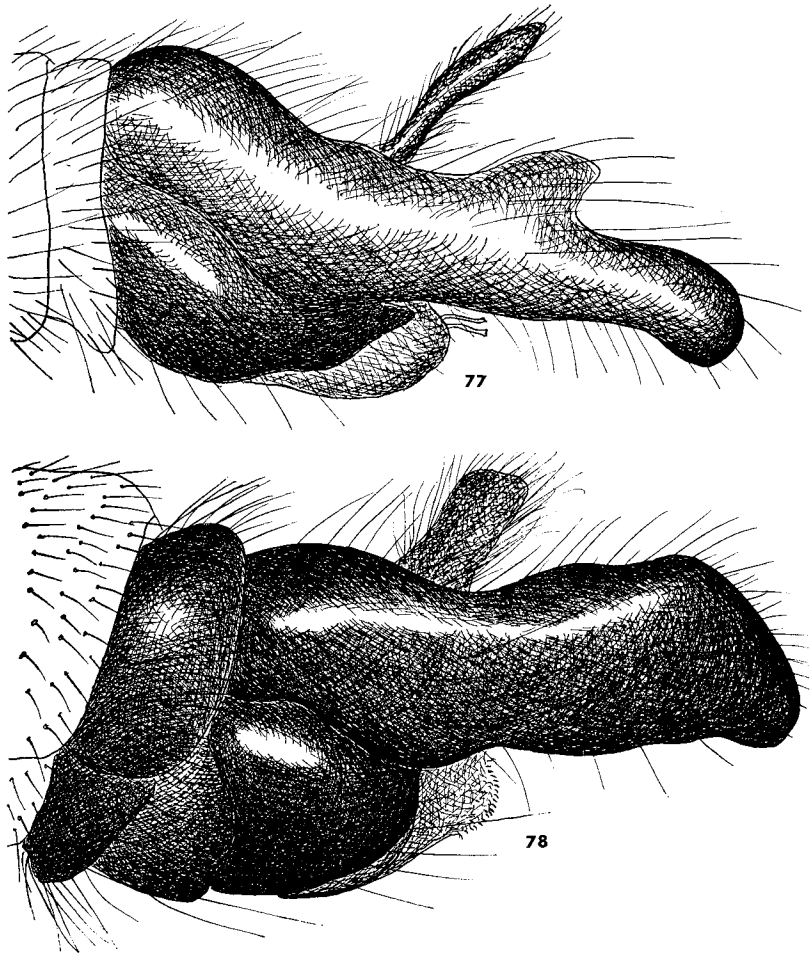


Fig. 77, 78. *Machimus*, ♂ genitalia. 77, *divinosus* n. sp.; 78, *aurentulus* Becker.

Length of body 15 mm; of wing 15 mm.

HOLOTYPE in BPB (BISHOP 8684).

TYPE LOCALITY. LUZON: Mountain Province, Abatan, Bugias, 60 km S of Bontoc, 1800–2000 m, 4.V.1964 (H. M. Torrevillas).

MATERIAL SEEN. LUZON: 1, 80, 81.

Machimus aurulentulus Becker Fig. 75.

Machimus aurulentulus Becker, 1925: 249.

Distinguished from the others by the combination of all-black legs with a yellow-dusted abdomen.

Head: Face with dense yellow tomentum. Mystax almost entirely black, only a few yellowish hairs in middle, ventrally. Frons similar, with black hairs. Postvertical and upper postoccipital bristles and hairs black; lower postoccipital hairs and beard yellowish white. Antennae, proboscis and palpi black with mainly black hairs, some pale hairs ventrally on proboscis and palpi.

Thorax: Mesonotum dull, brassy yellow tomentum, with dull brown stripes, a paired median stripe, and irregular lateral patches. Scutellum uniformly dull brassy. Clothing hairs black, rather long, bristles black; dorsocentrals softening into hairs anterior to transverse suture; four marginal scutellars. Pleura with uniformly yellowish gray tomentum and mostly yellowish hairs; a few black hairs dorsally on mesopleuron, and metapleural tuft mainly black.

Abdomen: Dorsally and ventrally entirely covered with yellow tomentum, yellow clothing hairs and bristles, and a few black bristles laterally on first tergite. Male genitalia as in fig. 78; upper forceps with smooth outline and downturned tip.

Legs: Entirely black, with black bristles and black clothing hairs, but overlaid with longer yellow hairs, especially posteriorly on fore and middle femora and tibiae, and anteriorly on hind femora.

Wings: Heavily infuscated in centers of most cells, clear along veins and towards base.

Length of body 14 mm; of wing 11 mm.

HOLOTYPE in DEI.

TYPE LOCALITY. Toa-Tsui-Kutsu, TAIWAN.

MATERIAL SEEN. LUZON: 1, 80, 81.

Machimus truncatus Oldroyd, new species Fig. 79.

Differs from *divinosus* in the all black legs and from *aurulentulus* in the absence of a uniform yellow abdominal tomentum; and from both in the form of the male genitalia (fig. 79).

Head: Face with yellowish white tomentum. Mystax mainly blackish, but with a bunch of numerous yellowish white bristles in lower center. Frons blackish brown with black hairs. Postvertical and upper postoccipital bristles and hairs black; lower postoccipital hairs and beard whitish.

Thorax: Ashy. Mesonotal pattern of dull black, with divided median stripe and lateral patches on a ground of ashy yellowish gray tomentum. Bristles and clothing hairs black. Dorsocentrals extending well forward of transverse suture. Pleura gray with yellowish gray tomentum and

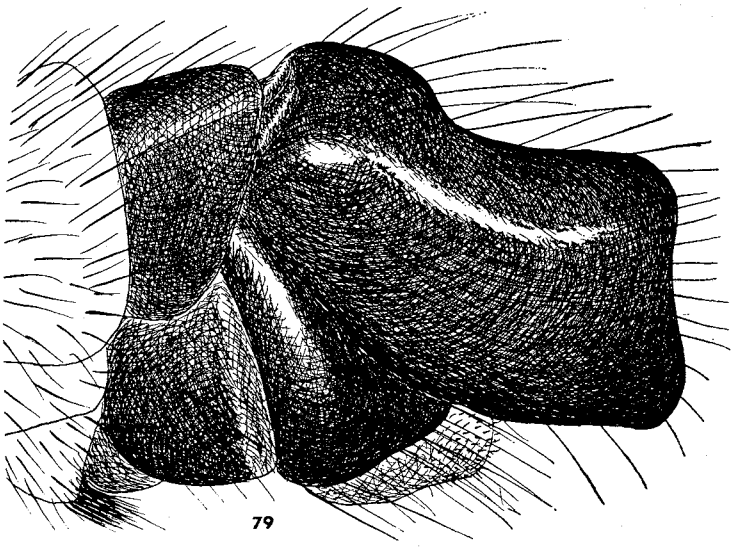


Fig. 79. *Machimus truncatus* n. sp., ♂ genitalia

mostly yellow hairs and bristles ; black hairs dorsally on mesonotum, and strong black bristles in metapleural tuft.

Abdomen: Dorsum also with ashy gray tomentum, but without the covering of yellow that is so characteristic of *aurentulus*. Each tergite with a quadrate brown discal spot, with black hairs, and yellow tomented hind and lateral margins, with yellow hairs. Venter grayish with yellow hairs. Male genitalia as in fig. 79; upper forceps truncate, with straight or concave posterior margin.

Legs: Entirely black with black bristles and mainly black clothing hairs; posterior faces of fore and mid tibiae, and anterior face of hind femora, with some yellow hairs.

Wings: Heavily infuscated in centers of cells, clear along veins, and basally.

Length of body 14 mm; of wing 11 mm.

HOLOTYPE in BPB (BISHOP 8685).

TYPE LOCALITY. LUZON: Ifugao Province, Jacmal Bunhian. 24 km E Mayoyao, 800-1000 m, 19-21.IV.1967 (H. M. Torrevillas).

MATERIAL SEEN. LUZON: 2, 3, 4, 6, 27.

Genus **Philodicus** Loew

Philodicus Loew, 1847: 391. Type-species: *Asilus javanus* Wiedemann, 1819, by original designation.

Teretromyia Bigot; 1859: 416. Type-species: *Teretromyia cothurnata* Bigot, 1859, monotypic.

This distinctive genus of the Old World tropics has a Javanese type (*Asilus javanus* Wiedemann) and about thirty Oriental species. Three species have been recorded from the Philippines: *integer* Macquart, 1846; *longipes* Schiner, 1868; and *albispina* Thomson, 1869 — all of them described from Manila. A good series in the material before me,

from a range of localities, clearly belong to one species, in spite of the fact that most specimens have the first posterior cell open, but several — mostly from Balabac Is. — have this cell closed. I think that there is only one species of *Philodicus* in the Philippine Islands, and that it should therefore take the oldest name, *P. integer* (Macquart, 1846) with the other two as synonyms.

Philodicus integer (Macquart)

Erax integer Macquart, 1846: 81.
Philodicus longipes Schiner, 1868: 179. **n. syn.**
Asilus albispina Thomson, 1869: 470. **n. syn.**

Apart from the apparently slight, but significant venational character of *Philodicus* (see key to genera), this species is easily distinguished from any species of *Promachus* by its more typically asiline appearance: slender, elongate, gray, dusty colored. It has no outstanding specific characters, except the combination of an all-white mystax with all-black legs. There are considerable variations in detail — the mystax may be all-white, or partly black; scutellum with 2-6 marginal bristles, and discal hairs black or white; first posterior cell open or closed and stalked — but all these seem to be variations within one species.

Head: Face with light gray or white tomentum, and almost all facial hairs and bristles white except for isolated black bristles in lower part of mystax. Antennae black with black hairs. Frons gray with black hairs. Upper occipital bristles strong, black; lower occipital hairs and beard yellowish white.

Thorax: Ashy gray-brown, with dark brown pattern of paired median stripe, and large lateral patches. Clothing hairs very short, spiny, black, becoming longer posteriorly. Bristles strong, black. Scutellum with 2-6 marginal bristles and with erect hairs either white or black; all possible combinations seem to occur. Pleura uniformly covered with yellowish tomentum. A patch of black hairs on upper part of mesopleuron and black bristles in metapleural tuft, and sometimes on hypopleuron, but bristles and hairs mostly pale yellowish.

Abdomen: Dorsum covered with yellowish gray tomentum, and each segment with a quadrate dark brown spot; clothing hairs on brown spots short, bristly, black; usually those on pale margins are white and longer, especially towards base of abdomen, but there is considerable variation. Strong posteroventral bristles on segments 1-5. Venter gray with white hairs. Genitalia of both sexes shining black with short white hairs (not in a tuft, as in many *Promachus*).

Legs: Coxae like pleura, with yellowish gray tomentum. Fore coxae with white hairs and bristles; middle and hind coxae with one or two prominent bristles which may be either black or white. Rest of legs entirely black, with black bristles, but all segments, including tarsi, covered with short white clothing hairs.

Wings: Clear, with apical gray patch extending back to tip of vein M_2. First posterior cell usually open, though narrowed at tip, but in some specimens this cell is closed and stalked.

Length of body 18 mm; of wing 12 mm.

HOLOTYPES. *integer* in HDO: *longipes* in NHMW; *albispina* in NRS.

TYPE LOCALITIES. All Manila.

MATERIAL SEEN. LUZON: 19, 20.5. MINDANAO: 38. PALAWAN: 67, 68, 71, 94, 99. BALABAC: 77. NEGROS OR.: 59.5.

Genus **Philonicus** Loew

Philonicus Loew. 1849; 144. Type-species: *Asilus albiceps* Meigen 1820, monotypic.

This essentially Palaearctic genus is little known in the Orient, with only two recorded species. One of these is now recorded from the Philippine Islands for the first time.

Philonicus nigrosetosus Wulp Fig. 80, 81.

Philonicus nigrosetosus Wulp, 1881: 24.

A compact fly with cylindrical abdomen, shining black through thin tomentum, and all black legs.

Head: Face with thick whitish tomentum, and with a small facial tubercle covering only lower half of face. Mystax black dorsally, yellowish below. No short hairs between mystax and antennae. Frons more yellow, with black hairs. Antennae black with black hairs; proboscis and palpi black with white hairs. Upper occipital bristles; lower occipitals, beard, white.

Thorax: Mesonotum ashy gray-brown, with paired black-brown median stripes and sublateral spots. Clothing hairs short, black, becoming longer posteriorly. Long bristles black, including about four pairs of dorsocentrals. Scutellum ashy gray, with fine black hairs and 2-4 black marginal bristles. Pleura yellowish gray with mostly yellow hairs, and a few black ones on metapleuron.

Abdomen: Cylindrical, ie tergites strongly arched. Dorsally with black-brown tomentum, more grayish at sides and very narrowly on hind margin of each segment. Clothing hairs black, whitish and longer at sides of first four segments. Venter similar. Genitalia of both sexes fig. 80, 81.

Legs: Entirely black, shining, with mainly black bristles, but ground color almost obscured by a covering of pale yellow hairs.

Wings: Light smoky brown.

Length of body 16 mm; of wing 12 mm.

HOLOTYPE in RML.

TYPE LOCALITY. Sidjoendjoeng, SUMATRA.

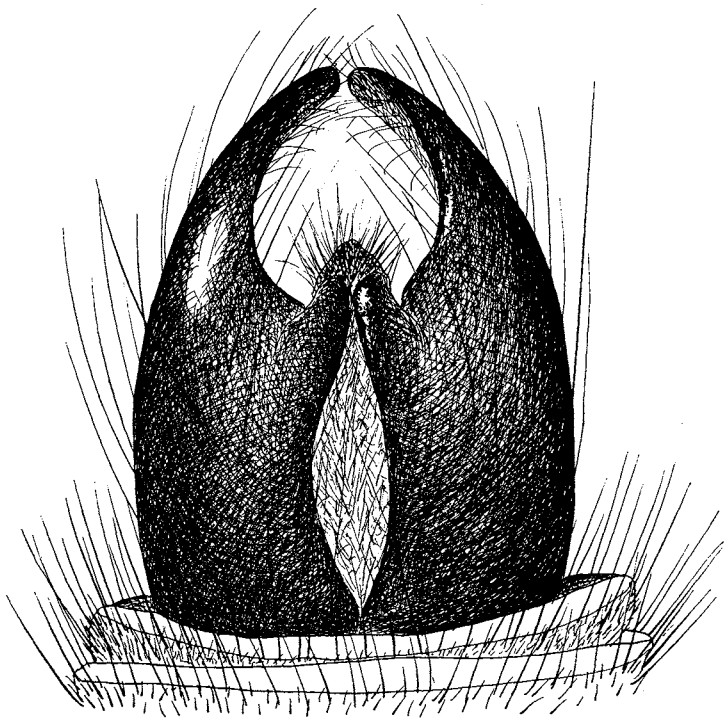
MATERIAL SEEN. LUZON: 1, 4. A series of 43 specimens of both sexes from two localities.

Genus **Promachus** Loew

Trupanea Macquart, 1838; 91. Type-species: *Asilus maculatus* Fabricius, 1775, by original designation. Preoccupied by *Trupanea* Schrank, 1803.

Promachus Loew, 1848: 390. Type-species: *Asilus maculatus* Fabricius, 1775, by designation of Coquillet, 1910.

This almost world-wide genus presents a number of problems, both of nomenclature and of taxonomy, but a limited survey such as the present is not the place in which to arrive at any decision about these. *Promachus sensu lat.* is easily identifiable by the wing venation and the species fall into two main groups, the *fasciatus*-group with distinctive tufts of pale hairs on the first three abdominal segments, and the rest. Among the latter are several types of ovipositor, which clearly indicate differences in oviposition sites,



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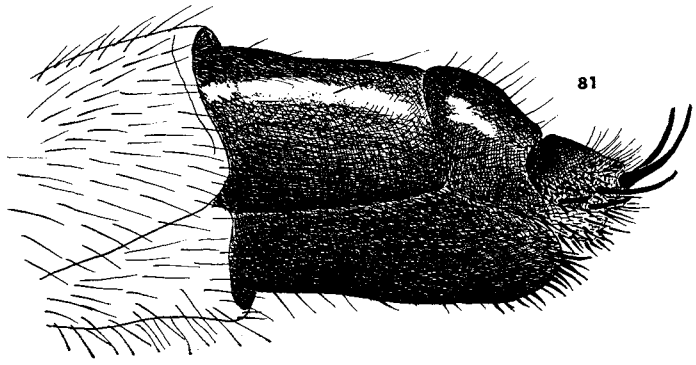


81

Fig. 80, 81. *Philonicus nigrosetosus* Wulp : 80, ♂ genitalia in dorsal view ; 81, ovipositor in lateral view.

and which may justifiably be linked with subgeneric or even generic groupings.

Key to Philippine species of Promachus

1. Ovipositor as in fig. 90, consisting of 8-10th segments only. Radial fork of wing very long, originating basad of or at least level with anterior crossvein.....2

Ovipositor as in fig. 88, consisting of 5–10 segments, telescopic. Radial fork of wing very short, originating well apicad of anterior crossvein (subgenus TRYPANOIDES)...11

2. Base of abdomen with conspicuous tufts of white hairs dorsally.....3
   Base of abdomen not conspicuously different from rest.....5
3. White hairs apparently on *three* tergites. Fore and middle tibiae yellow posteriorly. All femora black, with bronze tomentum anterodorsally. Mesonotum with conspicuous lateral margins of dull yellow tomentum. ..... **superfluus** n. sp.
   White hairs on *two* tergites only. Legs either all black, or femora as well as tibiae yellow posteriorly. Mesonotum without any conspicuous dull yellow lateral margin.....4
4. Legs entirely black, with black hairs and bristles. Male genitalia as in fig. 83, eighth sternite without any ventral process ..... **bifasciatus** Macquart
   Femora and tibiae externally yellow, especially ventrally and posteriorly. Femora with strong whitish hairs anterodorsally. Male genitalia with strong ventral process (fig. 91) ..... **manilliensis** Macquart
5. Some or all femora, as well as tibiae, yellow, with black stripe anterodorsally. 6
   All femora black, even if tibiae are partly yellow.....10
6. Mystax and facial hairs entirely white. Male genitalia globular, very compact (fig. 85), silvery hairs covering upper surface.....**hypocaustus** sp. n.
   Mystax and facial hairs mixed white, or yellow, and black. Male genitalia elongate 7
7. Hind femora as well as others yellow posteriorly. Abdomen with broad rusty red segmentations..... **forcipatus** Schiner
   Hind femora black. Abdomen black, without obvious segmentations. 8
8. Abdomen dorsally and ventrally covered with long yellow hairs..... **leucopareus** Wulp
   Abdomen dull black dorsally, without any long yellow hairs.....9
9. Eighth sternite of male with very long process (fig. 92)..... **maculosus** Macquart
   Eighth sternite of male without process (fig. 89) ..... **triflagellatus** Frey
10. Fore and middle tibiae yellowish posteriorly, otherwise legs black. All pregenital segments with black hairs. ..... **philipinus** Ricardo
    All tibiae and tarsi reddish yellow, at least posteriorly. Tergites 5–7 with long, rust-red hairs.....**plutonicus** Walker
11. Tibiae light yellow, contrasting strongly with femora. Male genitalia peculiarly down-turned (fig. 84) ..... **nussus** n. sp.
    Tibiae black, not more than indistinctly yellowish at base.....**indigenus** Becker

Promachus bifasciatus (Macquart) Fig. 83.

Trupanea bifasciata Macquart, 1838: 98.
Trupanea strenua Walker, 1860: 106.

In spite of the specific name, and Macquart's clear statement: *abdominis fasciis duabus albo pilosis*, Frey (1923: 21) keys out this species as having three bands of white hairs on the abdomen. It is stated by Macquart that the two white bands are on the second and third tergites, and the species is clearly distinct from *superfluus* sp. n., which has three white bands and reddish yellow tibiae.

Head: Face with brassy tomentum, more brownish beneath antennae and on frons. Lower part of mystax with stiff yellow bristles, rest of face and frons with black hairs and bristles, except for a few delicate yellow hairs at vertex. Antennae black with black hairs, third segment about as long as first. Upper postvertical bristles and hairs black; lower, and beard yellowish.

Thorax: Mesonotum dull black with black hairs and bristles, including a covering of very

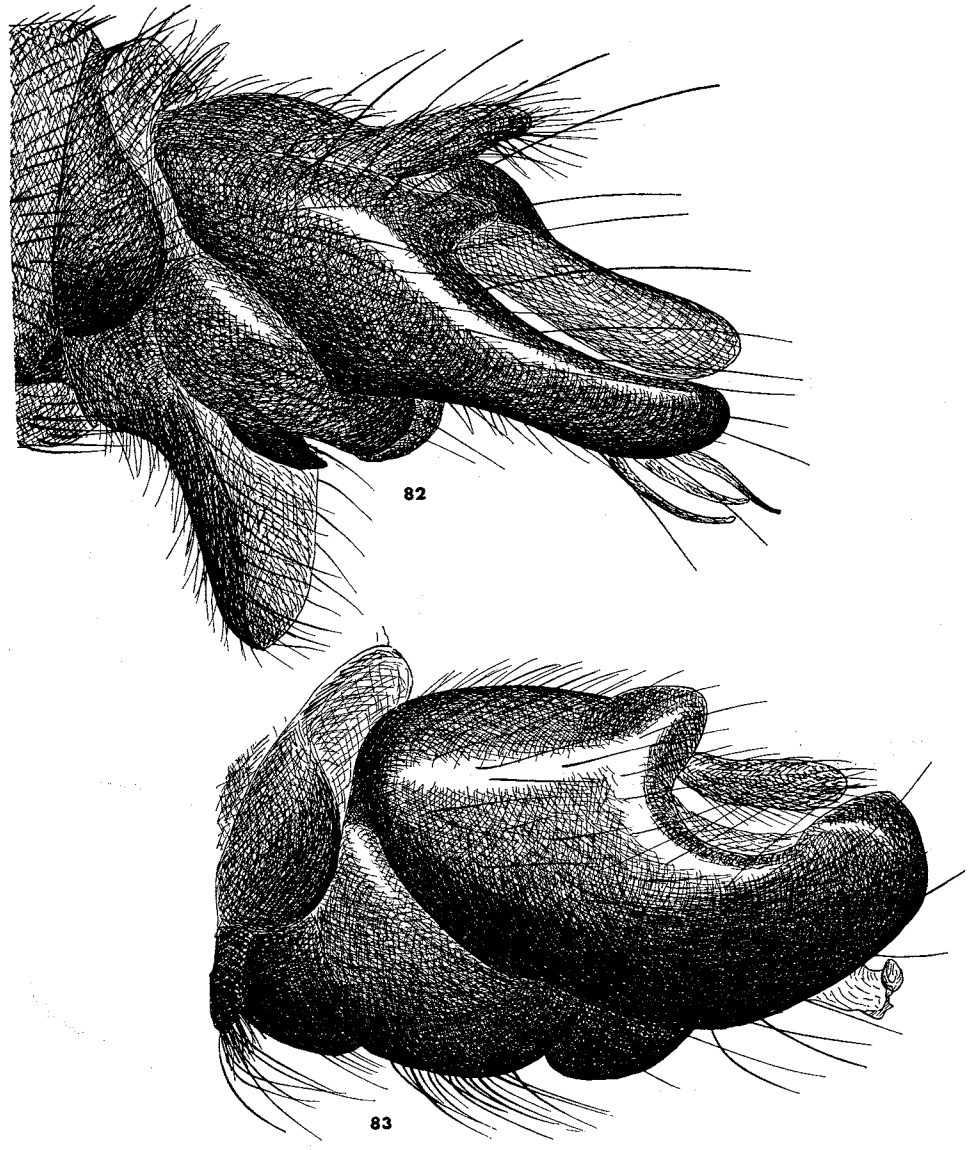


Fig. 82, 83. *Promachus*, ♂ genitalia: 82, *superfluus* n. sp.; 83, *bifasciatus* (Macquart).

short black bristly hairs. Pleura similar, but with brown tomentum. Hairs black, mixed with yellow hairs and bristles, especially on meta- and hypopleura.

Abdomen: Dorsally black, with brown tomentum and a narrow, but distinct band of brown tomentum along each lateral margin. Two conspicuous bands of white hairs are actually located on second and third tergites, the first tergite being bare of pale hairs except at extreme sides. Venter black, with thin grayish tomentum and long white hairs. Male genitalia (fig.

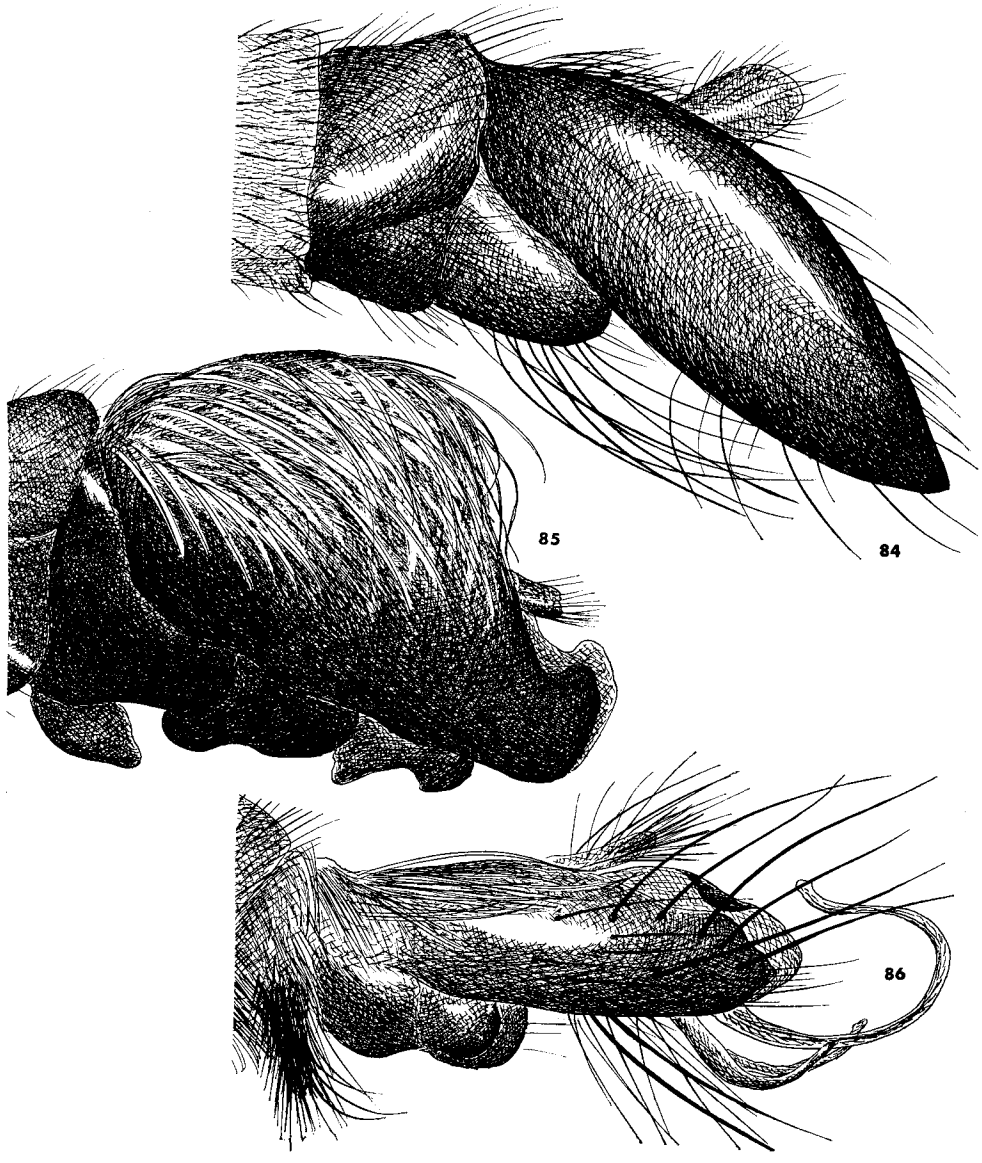


Fig. 84-86. *Promachus*, ♂ genitalia: 84, *nussus* n. sp.; 85, *hypocaustus* n. sp.; 86, *philipinus* Ricardo.

83) short and compact, forming a strongly curved pair of forceps when seen from above, and without any dorsal tuft of white hairs.

Legs: Entirely black. Coxae with long, pale yellow hairs, other hairs and bristles black.

Wings: Uniformly pale brown, with lenticular gray cloud in second submarginal cell.

Length of body 20 mm; of wing 17 mm.

HOLOTYPE in MP.

TYPE LOCALITY. JAVA.

MATERIAL SEEN. MINDANAO: 34.5, 40.

OTHER PHILIPPINE RECORDS. MINDANAO, Cagayan (Bezzi, 1917: 126); Surigao, V.1915-VIII.1916 (Frey, 1923; 22). SAMAR I., Catbalogan, V.1915 (Frey, 1923; 22).

Promachus forcipatus Schiner Fig. 87.

Promachus forcipatus Schiner, 1868: 178.

The distinctive male genitalia (fig. 87) have prominent eighth sternite, long, narrow forceps, and extremely long aedeagus, with short lateral prongs.

Head: Frons and face with yellow tomentum. Mystax mainly yellow, but black dorsally. Frons with black hairs. Antennae, proboscis and palpi black, hairs mixed black and yellow. Upper occiput with strong black bristles, rest of occipital hairs, and beard, pale yellowish.

Thorax: Black, covered with rusty yellow tomentum. Mesonotum—when in good condition—showing a pattern of blackish divided median stripe and lateral patches, outlined by areas of very short, erect black spines. Supra-alar margins of mesonotum with an unusually strong array of numerous black bristles, which extend horizontally backwards. Scutellum with fine yellow hairs, and a marginal row of long, erect, black bristles. Pleura with more grayish yellow tomentum and whitish tufts of hairs, especially on pro-, sterno- and hypopleura. Metapleural tuft mixed yellow and black.

Abdomen: Each tergite has a quadrate blackish patch, and grayish yellow posterior and lateral margins, with short clothing hairs that are predominantly black towards base of abdomen, but otherwise yellow. The membranous posterior margin of each segment is dull brick-red. Venter uniformly grayish yellow with long yellow hairs. Male genitalia as in fig. 87 with conspicuous tuft of white hairs.

Legs: All three pairs with femora and tibiae yellow posteriorly, and with a black streak anteriorly; tarsi black. Sometimes posterior face of hind femora less clearly contrasting with anterior face. Clothing hairs mixed black and yellow, bristles black.

Wings: Membrane pale yellowish, almost clear, gray patch in first submarginal cell.

Length of body 24 mm; of wing 19 mm.

HOLOTYPE in NHMW

TYPE LOCALITY. LUZON, Manila.

MATERIAL SEEN. LUZON: 16, 17, 20, 26. NEGROS OR.: 55.

OTHER PHILIPPINE RECORDS. LUZON, Mt Banahao, V.1914; Paete, 28.6.1916; Batangas, VI-VIII, 1914 (Frey, 1923: 22).

Promachus hypocaustus Oldroyd, new species Fig. 85.

In the male, at least, distinguished by the abundant yellow abdominal hairs and the compact genitaila, draped in long white hairs (fig. 85).

Head: Face and frons with yellow tomentum. Mystax entirely yellow, extending up to an-

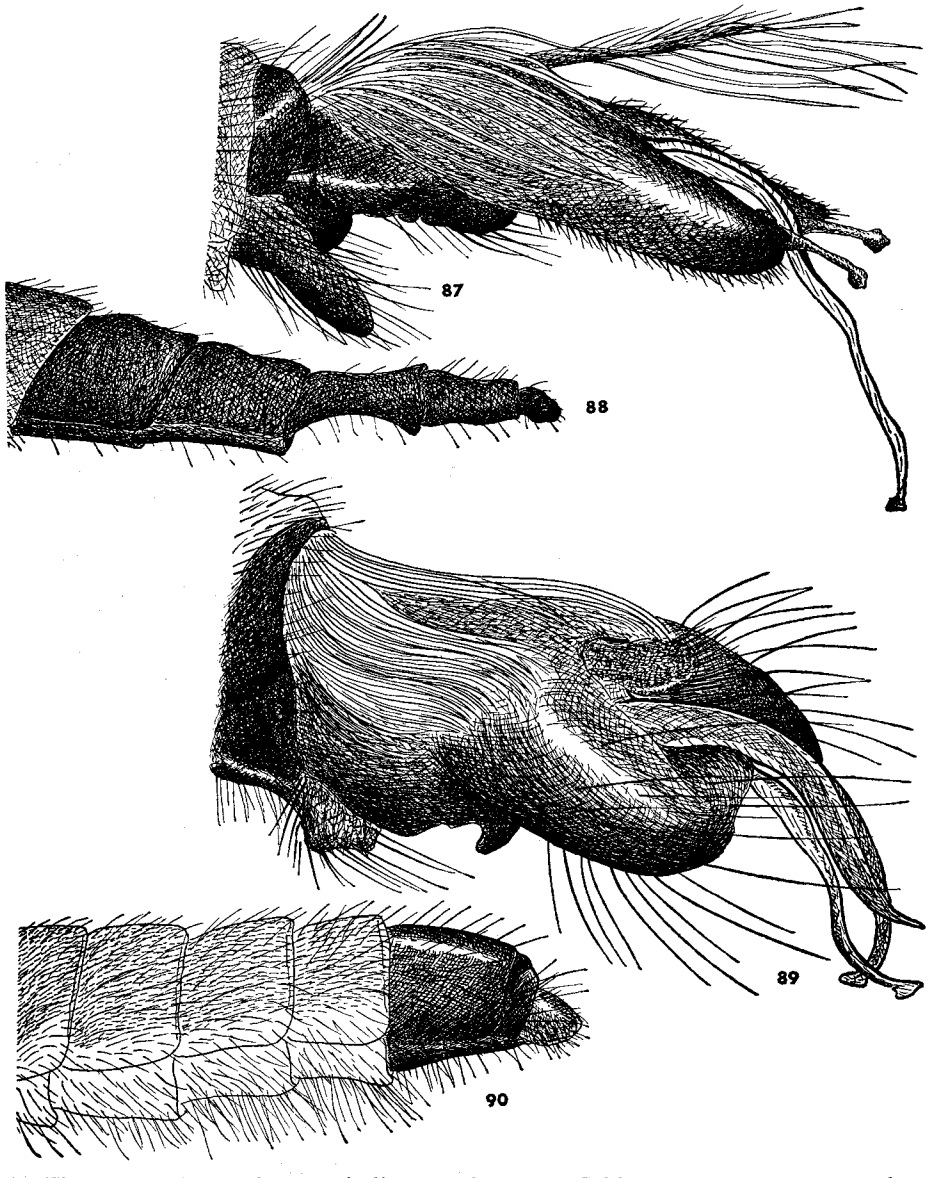


Fig. 87–90. *Promachus*, genitalia: 87, *forcipatus* Schiner, ♂; 88, (*Trypanoides*) *indigenus* Becker, female; 89, *triflagellatus* Frey, male; 90, *philipinus* Ricardo, ♀.

tennae. Frons with black hairs. Vertical and postvertical bristles very strong, black; postoccipital bristles black, hairs, and those of beard, yellow. Antennae black with yellowish tomentum and black hairs. Palpi black with black hairs; proboscis black with yellow hairs.

Thorax: Mesonotum with dull black pattern of the usual type, on a rusty yellow ground. Hairs and bristles entirely black; scutellum with two black marginals and numerous black discal hairs. Pleura blackish, with long yellow hairs, especially posteriorly.

Abdomen: Black, with abundant yellow hairs basally, extending over four segments dorsally and more ventrally. Genitalia as in fig. 85, draped with long white hairs.

Legs: Femora black, obscurely yellow posteriorly; tibiae reddish yellow, tarsi black. Bristles black, abundant yellow hairs on femora and tibiae.

Wings: Lightly smoky

Length of body 25 mm; of wing 17 mm.

HOLOTYPE in BPB (BISHOP 8686).

TYPE LOCALITY. LEYTE, Palo, 21.VIII.1957 (W. U. F).

MATERIAL SEEN. LEYTE: (holotype only).

Promachus (Trypanoides) indigenus Becker Fig. 88.

Trypanoides indigenus Becker, 1925: 74.

Distinguished, as Becker says, by being one of the few species with the legs all black.

Head: Face with yellowish tomentum, a dense black mystax, and long, fine, black hairs beneath antennae. Frons a little more brownish, with black hairs. Antennae, proboscis and palpi black, with black hairs. Upper occipital bristles black, lower occipital hairs white, beard yellowish.

Thorax: Mesonotum ashy gray, with broad, divided median stripe, and sublateral patches. Clothing hairs black, moderately long, becoming longer and more bristly posteriorly. Scutellum ashy gray, with black hairs and multiple rows of black marginal bristles. Pleura similar, with pale yellow hairs; metapleural tuft black.

Abdomen: Tergites 1-4 ashy gray laterally and posteriorly, with a quadrate black spot touching anterior margin; hairs whitish. Segments 5-10 forming ovipositor. Venter grayish, with ashy white tomentum.

Legs: All black, at most tibiae obscurely reddish basally. Bristles black, but hairs predominantly yellow, longer ventrally on femora.

Wings: Light brown.

Length of body, including ovipositor, 24 mm; of wing 17 mm.

HOLOTYPE in DEI.

TYPE LOCALITY. TAIWAN.

MATERIAL SEEN. LUZON: 16.

Promachus leucopareus Wulp

Promachus leucopareus Wulp, 1972: 99.

A rather big species, distinguished by having the abdomen entirely covered with long, yellowish white hairs.

Head: Face covered with yellowish tomentum; mystax black in upper half, yellow below; hairs beneath antennae yellow. Frons with yellowish tomentum, two small tufts of yellow hairs beneath antennae, and black hairs along side margins. Upper occipital bristles black; lower occipitals hairs yellowish, beard white. Proboscis and palpi black; palpi with black hairs apically, yellow hairs basally. Antennae black, with black and yellow hairs.

Thorax: Ashy yellowish gray, with a broad, denuded black median stripe and broken sublateral stripes. Clothing hairs moderately short, somewhat longer posteriorly, and there mixed with some yellow hairs. Bristles rather sparse, confined to two notopleurals, two supra-alars, two postalars and two pairs of dorsocentrals. Scutellum yellowish, with long, fine yellow hairs and a number of curved black bristles not on margin, but on disc. Pleura with grayish yellow tomentum and mostly yellow hairs, mixed with black on metapleuron.

Abdomen: Tergites with gray lateral and posterior borders, and a quadrate black patch on fore margin. Entire dorsum covered with recumbent yellowish hairs, especially dense on anterior segments. Third and fourth tergites with a clump of yellow bristles on each side. Venter similar. Eighth segment tomented similarly and its sternite slightly extended. Male genitalia shining black.

Legs: Fore and middle femora and tibiae black anteriorly and bright orange posteriorly, with black tarsi. Hind femora mostly black, indistinctly red basally and apically; hind tibiae red with black tip; hind tarsi black. Bristles nearly all black, hairs mostly yellow. Some femoral bristles are very strong and black, especially anteriorly on hind femora

Wings: Light smoky brown, with lenticular gray patch in first submarginal cell.

Length of body 25 mm; of wing 17 mm.

HOLOTYPE in PML.

TYPE LOCALITY. JAVA.

MATERIAL SEEN. LUZON: 25.

Promachus maculosus (Macquart) Fig. 92

Asilus maculosus Macquart, 1834: 312.

A rather small species, identified by the combination of characters given in the key. The preponderance of white rather than yellow bristles is distinctive.

Head: Face with ashy gray tomentum; mystax black above, silky white below; hairs beneath antennae black. Frons ashy gray-brown, with black hairs. Antennae black with black hairs; third segment oval, about as long as first segment. Proboscis and palpi black, hairs mainly black; some white or yellowish ones ventrally. Upper occipital bristles and hairs black, lower occipital hairs and bristles silky white.

Thorax: Mesonotum dull chocolate-brown, with a pair of broad median stripes and indefinite sublateral patches. Lateral and posterior margins rather indefinitely rust-brown. Posterior half with long, strong black bristles, mingled with longer hairs. Scutellum with black marginal bristles, and black discal hairs. Pleura grayish, with hairs and bristles pale except for predominantly black hairs in metapleural tuft.

Abdomen: Dorsum dull blackish with black hairs, except for broad lateral margins which have pale gray tomentum and white hairs. Venter gray with white hairs. Male genitalia, including eighth segment, shining blue-black; eighth sternite with long process; a dorsal tuft of white hairs.

Legs: Coxae like pleura, with long yellowish white hairs. Fore femora and tibiae black with a reddish posterior stripe, tarsi black. Hind femora black, except in teneral specimens, when the posterior face may seem pale. Hairs and bristles of legs predominantly black, orange hairs dorsobasally on hind femora.

Wings: Smoky brown, large lenticular spot in first submarginal cell.

Length of body 18-20 mm; of wing 17 mm.

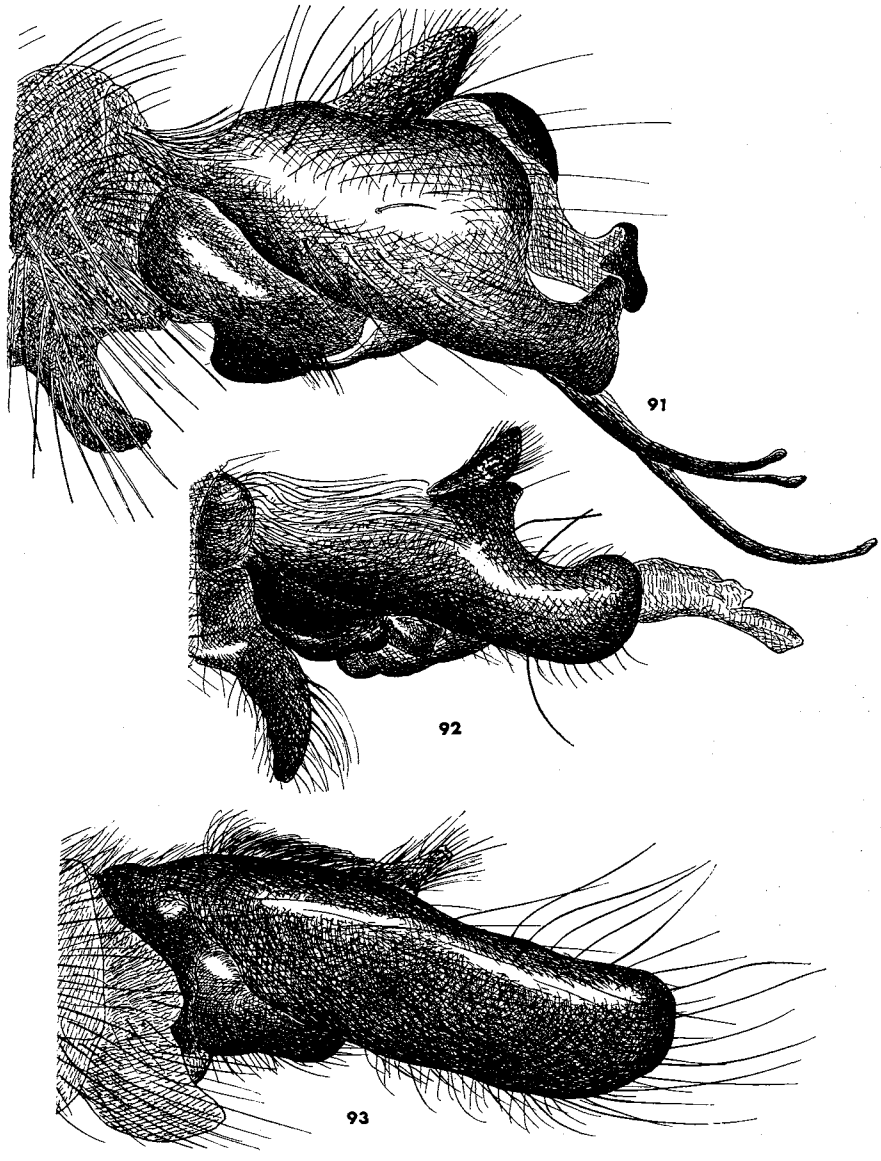


Fig. 91-93. *Promachus*, ♂ genitalia: 91, *manilliensis* (Macquart); 92, *maculosus* n. sp.; 93, *leucopareus* n. sp.

HOLOTYPE in MP.

TYPE LOCALITY. 'Philippines'.

MATERIAL SEEN. MINDANAO: 41, 44, 45, 47.5.

OTHER PHILIPPINE RECORDS. ?POLILLO I., 12-15.VIII.1915 (Frey, 1923: 23).

Promachus manilliensis (Macquart) Fig. 91.

Trupanea manilliensis Macquart, 1838: 194.

A close relative of *bifasciatus* Macquart, from which it is separated by the leg coloring and by the structure of the male genitalia.

Head: Face with thick yellow tomentum. Mystax largely black, but with conspicuous yellow hairs and bristles ventrally; fine black hairs beneath antennae. Frons with yellow tomentum and black hairs. Antennae black with black hairs. Proboscis and palpi black with mainly black bristles and hairs; most of occipital hairs, and beard, yellow.

Thorax: Mesonotum dull black, more rusty brown around margins, covered with rather long, black, bristly hairs, which leave only indistinct traces of paired median stripes, bare of hairs. Laterally some bristles are present, but not the spinous array seen in *forcipatus* Schiner. Scutellum covered with long, erect hairs which are yellow on disc and black on margin. Mesopleuron blackish in upper part, rest of pleura ashy yellowish gray. Hairs long and moderately dense, black on upper parts, golden yellow ventrally, and combining with long yellow hairs on coxae to give the thorax a shaggy, golden appearance. Metanotal tuft almost entirely yellow, only a few black hairs dorsally.

Abdomen: Apparently with two bands of snow-white hairs basally, though in fact they cover sides of first segment, whole of second, and anterior part of third. Rest of dorsum with velvety black hairs, except at extreme sides, where there is a band of dull yellow tomentum. Venter black with black hairs. Male genitalia as in fig. 91; black, with ventral process and white dorsal tuft.

Legs: Coxae covered with yellow-gray tomentum, and obscured by shaggy yellow hairs. Fore and middle femora and tibiae light reddish yellow posteriorly, with black stripe or partial stripe anteriorly, tarsi black. Hairs and bristles predominantly black, though some yellow hairs posteriorly, especially on fore legs. Hind legs similarly patterned, but more obscurely, so that they may sometimes be described as almost entirely black (Frey, 1923: 21). Hind femora dorsally and anteroventrally with short, bright orange hairs; tibiae posteriorly with bright orange of short hairs.

Wings: Clear, but rather deep brown staining, gray patch in first submarginal cell.

Length of body 22–24 mm; of wing 18 mm.

HOLOTYPE? Collection of the Marquis de Spinola.

TYPE LOCALITY. Manila.

MATERIAL SEEN. LUZON: 1, 11, 14, 80, 83, 84.

OTHER PHILIPPINE RECORDS. LUZON: Mt Banahao, VI.1914; ? Vigan, VI.1916 (Frey, 1923: 22).

Promachus (Trypanoides) nussus Oldroyd, new species Fig. 84.

A small, grayish species, with distinctly downturned male genitalia (fig. 84).

Head: Face and frons with yellowish gray tomentum. Mystax fine, mixed black and pale yellowish. Frons with mixed black and yellowish hairs. Postverticals long, black; occiput without bristles, but only fine, snow-white hairs, including beard. Antennae black, first two segments with unusually strong black bristles. Palpi and proboscis black with mixed black and snow-white hairs.

Thorax: Tomentum of mesonotum gray with well marked black pattern, abundant black clothing hairs and bristles. Scutellum gray with 4-6 rather weak marginals, and two prominent discal bristles, all black. Pleura gray, with fine black hairs anterodorsally, longer, yellowish ones posteriorly; metapleural tuft all yellow.

Abdomen: Black, grayish at sides, covered with yellow pile on all tergites and sternites. Male genitalia curiously downturned, as in fig. 84, shining black.

Legs: Femora black, with long, yellowish hairs. Tibiae clear yellow with black tips, tarsi black.

Wings: Unstained, but with usual gray patch in first submarginal cell.

Length of body 21 mm; of wing 15 mm.

HOLOTYPE in BPB (BISHOP 8687).

TYPE LOCALITY. BUSUANGA I., 4 km S of San Nicolas. 23.V.1962 (M. Thompson).

MATERIAL SEEN. BUSUANGA I.: 65. A male and female from Palawan are larger and more robust, but otherwise similar. I do not make them paratypes.

Promachus philipinus Ricardo Fig. 90.

Promachus philipinus Ricardo, 1920: 228.

Overall, a very black species, relieved only by yellow hairs in beard and on fore coxae, yellowish fore and mid tibiae, and white tuft on male genitalia.

Head: Face with yellow tomentum. Mystax almost entirely yellow, with only a few black hairs dorsally. Hairs beneath antennae all yellowish, or mixed with a few black ones. Frons with yellow tomentum, but black hairs. First antennal segment black, second and third dull red, third segment elongate, as first and second together. Hairs mainly black, a few yellow. Proboscis and palpi black, or dull reddish, with hairs predominantly black. Strong postoccipital bristles black; beard yellow.

Thorax: Mesonotum dull chocolate-brown, with median and sublateral stripes of blue-gray; lateral and posterior margins rust-brown. Posterior half of mesonotum with long, strong, black bristles. Scutellum chocolate-brown, rather small, and a multiple row of strong black marginal bristles invade disc to about half its length; other hairs black. Pleura chocolate brown with black hairs, except for a few yellow ones on pleura.

Abdomen: Dorsum chocolate-brown; membranous hind margins of segments dull red, especially on anterior segments, but not as conspicuously so as in *forcipatus* Schiner; clothing hairs black. Venter similar. Male genitalia as in fig. 86, with strong ventral process on eighth sternite, and a dorsal tuft of white hairs. Female genitalia, fig. 90.

Legs: Coxae dull chocolate-brown, like pleura, and hind coxae almost bare, but fore coxae have thick yellow hairs like those in beard. Femora shining purplish black, with black hairs, and dorsally sparse, short, orange hairs, especially prominent on hind femora. Fore and middle tibiae bright yellow posteriorly, with a black stripe anteroventrally; clothing hairs concolorous. Hind tibiae and all tarsi black-brown.

Wings: Stained light yellow, usual gray patch in first submarginal cell.

Length of body 19 mm; of wing 17 mm.

HOLOTYPE in BMNH.

TYPE LOCALITY. N. LUZON: Cape Engano.

MATERIAL SEEN. LUZON : 7, 8, 15, 84. NEGROS Or. : 56.5.

OTHER RECORDS. LUZON : Buranen, 4.V.1915 ; LEYTE : St. Cruz, 11.XI.1915. (Frey, 1923 : 23).

Promachus plutonicus (Walker)

Trupanea plutonica Walker, 1861 : 265.

This species was first described from a female from Tond, Celebes, and subsequently Miss Ricardo (1920 : 225) identified three males from the Philippine Islands. She drew attention to certain differences, and I am not sure that they are in fact the same species ; but this cannot be decided until more material from Celebes is available for comparison. In the meantime I submit the following description taken from the Philippine specimens.

It is a large, very black species (hence its name), distinguished by the presence of red hairs dorsally towards the tip of the abdomen.

Head : Eyes more widely separated than in many species, facial knob large and nose-like, covered with thick yellow tomentum. Mystax mainly black, with a few yellow hairs ; hairs beneath antennae yellow. Frons similar, with black hairs. Antennae, proboscis and palpi black, with black hairs. Postoccipital bristles all black, only beard silky, deep yellow.

Thorax : Mesonotum dull black-brown, divided median stripe indicated only by slightly less matt texture. Clothing hairs black, extremely short and spicule-like but posteriorly rather longer, and mixed with bristles. Scutellum black-brown, with black bristles and marginal hairs. Pleura similar, with black hairs, except on propleura and fore coxae where they are pale.

Abdomen : Also deep black. Male abdomen has extensive tufts of black hairs laterally, especially on first three tergites, and male genitalia are compact, and buried in a mass of orange hairs. Female abdomen also black, with short black hairs, without the basal tufts, but with recumbent red hairs on tergites 5-7. Venter similar, black hairs, rather long, and mingled with a few white ones.

Legs : Femora shining black ; tibiae and tarsi red, indistinctly darker on anterior face. Hairs and bristles black, except for a scattering of short orange hairs on femora, especially hind femora. It is the abundance of these hairs in the female type of *plutonicus* that contrasts most strongly with the male specimens determined by Miss Ricardo.

Wings : Moderately stained brown.

Length of body 30 mm ; of wing 24 mm.

HOLOTYPE in BMNH.

TYPE LOCALITY. Tond, CELEBES.

MATERIAL SEEN. NEGROS I. : 55. LUZON : Cape Engano [specimens in BM identified by Miss Ricardo].

Promachus superfluus Oldroyd, new species Fig. 82.

As the key indicates, the species is apparently unique among Philippine *Promachus* in having white tufts clearly on *three* segments of the abdomen. (cf *bifasciatus* Macquart).

Head : Face with yellow tomentum, frons a little darker. Mystax black above, with yellow

bristles medially and lateroventrally. Frontal hairs and postvertical hairs and bristles black. Antennae, palpi and proboscis black, all with black hairs dorsally and some yellow ones ventrally. Lower postoccipital hairs and beard yellow.

Thorax: Mesonotum matt black-brown, with broad, dull yellow lateral margins. Scutellum dull black, with black discal hairs and usually eight black marginal bristles. Pleura with dull yellowish tomentum and fine, long, rather sparse hairs, black on dorsal half, yellow ventrally.

Abdomen: Dorsally matt black, with dull, brown lateral margins. Tergites 1-3 with abundant erect white hairs, forming three distinct transverse bands. Other segments dorsally with short black bristly hairs; ventrally all sternites dull brown with long yellow hairs. Male genitalia as in fig. 82, eighth sternite with prominent process.

Legs: Coxae like lower pleura, dull brown, with abundant, fine yellow hairs. All femora black, with stout black bristles, but anteriorly, at least, with recumbent yellow clothing hairs, conspicuous against black background. Fore and middle tibiae black internally, extensively yellow externally and posteriorly; hind tibiae only inconspicuously reddish externally. All tarsi black with black hairs.

Wings: Uniformly light smoky brown, with a lenticular gray spot in first submarginal cell.

Length of body 23 mm; of wing 18 mm.

HOLOTYPE in BPB (BISHOP 8688).

TYPE LOCALITY. MINDANAO : Dalwansan, Bukidnon 2000'. 23.IV.1968 (D. E. Hardy).

MATERIAL SEEN. MINDANAO : 49. LUZON : 48, 49, 50, 73.

Promachus triflagellatus Frey Fig. 89.

Promachus triflagellatus Frey, 1923 : 22.

Distinguished from *maculosus* chiefly by the male genitalia, particularly the absence of a ventral process on the eighth sternite (fig. 89).

Head: Face with yellowish gray tomentum. Mystax mostly black, but with strong yellowish white bristles in center. Hairs beneath antennae black. Frons and occiput more yellow, with black hairs. Upper occipital bristles and hairs black; lower occipital hairs and beard grayish white. Antennae, palpi and proboscis black with black hairs.

Thorax: Dorsum yellowish brown, with a divided median stripe and broken lateral stripes of matt brown. Lateral and posterior borders a little more rust-brown. Clothing hairs black, moderately short, becoming longer posteriorly, and leaving longitudinal stripes bare. Notopleural, supra-alar and postalar bristles strong, black. Scutellum black-brown, with black hairs, and multiple rows of strong, upturned marginal bristles. Pleura yellowish gray with fine hairs, mostly black dorsally and whitish ventrally; metapleural tuft black.

Abdomen: Dorsum black with black hairs, longer and whitish at extreme sides of first four segments. Venter black, with white hairs. Male genitalia as in fig. 89, with dense white tuft, but without projection on eighth sternite.

Legs: Fore and middle femora and tibiae black anteriorly and externally, red posteriorly. Tarsi black. Hind femora and tibiae obviously reddish posteriorly but apparently black to naked eye.

Wings: Light smoky brown, with the usual lenticular gray patch in the first submarginal cell.

Length of body 18 mm; of wing 15 mm.

HOLOTYPE in HF.

TYPE LOCALITY. MINDANAO : Butuan.

MATERIAL SEEN. MINDANAO : 45.

Promachus varipes (Macquart)

Trupanea varipes Macquart, 1838 : 97.

Frey (1923 : 22) recorded this species from the Philippines [LUZON : Mount Banahao and Los Banos] but I have not recognised it in my material.

Tribe OMMATIINI

Characterised by the feathered arista of the antenna, a unique feature among Asilidae, though not uncommon among many muscoid flies. In itself this seems a small difference from Asilini, but in fact there are a number of other, less tangible differences which establish Ommatiini as a valid tribe, though clearly related to such asiline genera as *Heligmoneura* (see above). Even when the antennae have been broken, as they frequently are in collections, any of the species of Ommatini covered in this paper can be segregated from Asilini by the shape of the head, once this difference has been appreciated.

KEY TO PHILIPPINE GENERA OF OMMATIINI

1. Large, dull, rust-colored species, with characteristic genitalia in both males and females (fig. 94, 96). Face very broad, diverging towards epistoma, where it is almost as broad as one eye, and with a broad space beside antennal sockets (fig. 95) ..... **Cophinopoda** Hull

   Medium or small species, not conspicuously rust-colored (though sometimes shining yellow-brown). Genitalia varied and often elaborate, but not as in fig. 94, 96. Face narrow, much narrower than one eye, and eyes almost or quite touching antennal sockets. 2

2. Feathered arista only as long as the elongate third antennal segment, which is awl-like (fig. 99). Yellow and black flies, with spatulate abdomen, ichneumon-like. .... **Michotamia** Macquart (**Allocotosia** Schiner)

   Feathered arista several times as long as third antennal segment, which is seed-like (fig. 105). Usually gray flies, and if abdomen is spatulate they resemble wasps rather than ichneumons ..... **Ommatius** Wiedemann ... 3

3. Abdomen strongly spatulate, and hind femora inflated, more so in males than in females. (fig. 100) ..... subgenus **Emphysomera** Schiner

   Abdomen not conspicuously spatulate ; hind femora slender, or only slightly inflated ... . subgenus **Ommatius** Wiedemann, s. str.

Genus **Cophinopoda** Hull

Cophinopoda Hull, 1958 : 251. Type-species : *Asilus chinensis* Fabricius, 1794, by original designation.

For many years it was recognised that *Asilus chinensis* Fabricius, though included in the genus *Ommatius* because of its feathered arista, differed greatly in general appearance

from nearly all the other very numerous species of *Ommatius*. It was also realised that this specific name had been applied to what was probably a complex of species, extending from Japan and northern China, through the Indo-malayan Region, to Queensland, and round the shores of the Indian Ocean to Madagascar.

Hull (1958) erected the genus *Cophinopoda* with *Asilus chinensis* Fabricius as type, and Oldroyd (1964: 246) divided the complex into six species, which could be distinguished from each other by genitalic differences in both sexes, and which showed a clear distribution pattern.

Osten Sacken (1882) recorded *Ommatius fulvidus* Wiedemann (a synonym of *A. chinensis* Fabricius) as being common in the Philippine Islands, but the only specimen available to me in 1964 was a single female, definitely not *chinensis*. I made this the type of a new species *Cophinopoda philippinensis*, but the series of specimens available to me in the present collections shows that it falls within the range of variation of *C. garnotii* Guérin. The latter ranges from Queensland, through New Guinea, Celebes, Borneo and Malaya, Thailand, Viet-Nam, Laos and Cambodia. The Philippines is a natural part of this range.

Cophinopoda garnotii Guérin Fig. 94–96.

Asilus garnotii Guérin, 1830: pl. 20, fig. 8.
Ommatius fulvidus Wiedemann. Osten Sacken, 1882: 111. Misidentification.
Cophinopoda philippinensis Oldroyd, 1964: 252. **n. syn.**

Unique among Philippine Asilidae in its large size and rusty yellow coloration.

Head: Face and frons uniformly covered with dense yellow tomentum, and all hairs and bristles yellow. Mystax extended by hairs to cover nearly entire face except along eyemargins. Occiput with whitish tomentum and yellow hairs and bristles dorsally, merging into white beard ventrally. Antennae; first two segments orange with yellow hairs, contrasting with black third segment and arista.

Thorax: Mesonotum entirely tomented, dull rust-yellow, with a broad, divided median stripe, and lateral patches, dark brown, but ill-defined. Densely clothed with short, bristly black hairs, except laterally, where hairs and at least some bristles are yellow, and posteriorly, where there are three or more dorsocentrals placed close together. Scutellum inflated, with well-marked rim; clothed with yellow tomentum and yellow hairs, and with two strong marginal bristles. Pleura uniformly covered with rusty yellow tomentum, and with rather abundant yellow hairs, especially on meso-, sterno-, and pteropleura, and with a yellow tuft of bristly metapleural hairs.

Abdomen: Segments black basally, brick-red apically, but entirely covered with rusty yellow tomentum, and clothed all over with orange hairs. Bristles only at extreme sides of first segment. Genitalia as in fig. 94, 96, those of male prominent, but those of female concealed beneath eighth tergite.

Legs: Coxae like pleura. Femora and tarsi black, tibiae orange. Femora and tibiae clothed with yellow hairs; hairs of tarsi mainly black. Some bristles black, others orange, all stout, and only moderately long.

Wings: Membrane pale rusty yellow. Veins Sc and R_1 and main stems of others, orange, rest of venation black. Heavy covering of microtrichiae, except in parts of basal cells, and along main veins. Halteres with reddish stem and red-brown knob.

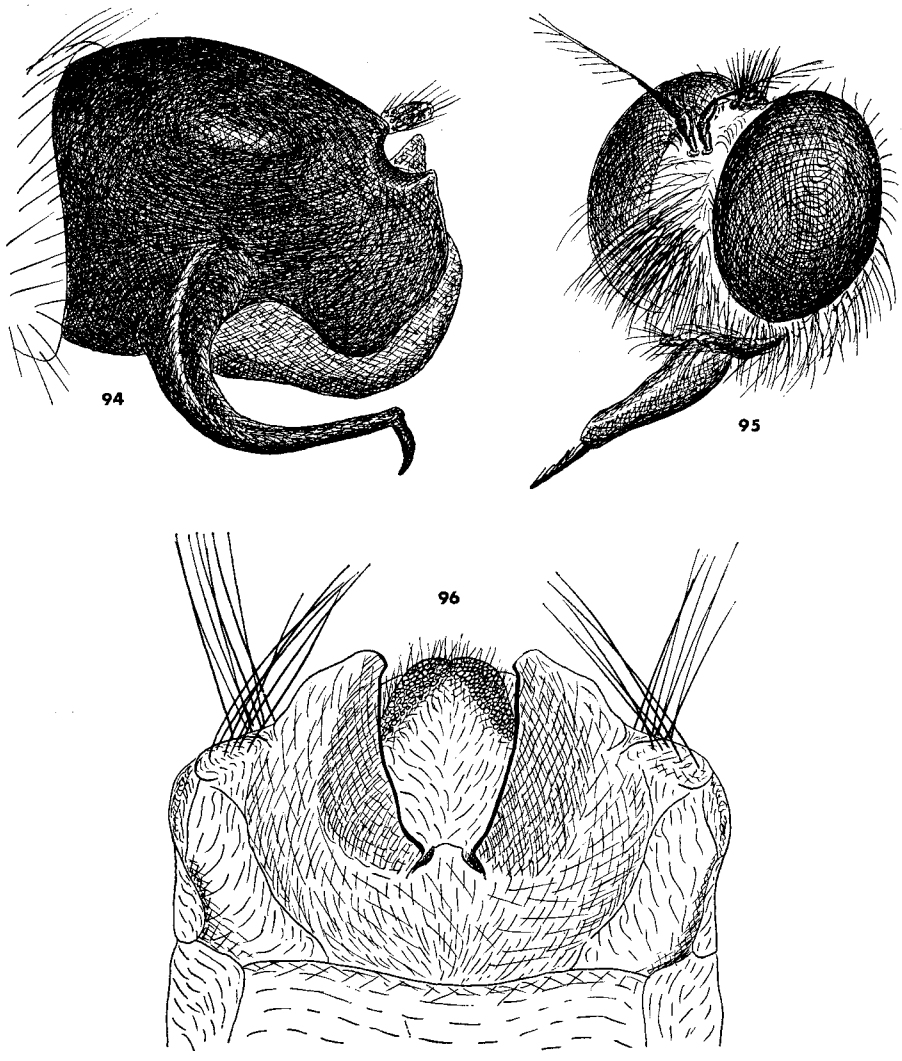


Fig. 94-96. *Cophinopoda garnotii* Guérin : 94, ♂ genitalia ; 95, head ; 96, ♀ genitalia, *in ventral view*.

Length of body 27 mm ; of wing 22 mm.

HOLOTYPES. *garnotii* described only from figure. ? no type extant ; *philippinensis* in BMNH.

TYPE LOCALITY. *garnotii*, Buru ; *philippinesis*, MINDANAO, 28.4.1920 (Dr A. Moore).

MATERIAL SEEN. LUZON : 22, 25. MINDANAO : 32.5. PALAWAN : 68.

Genus **Michotamia** Macquart

Michotamia Macquart, 1838: 72. Type-species: *Michotamia analis* Mecquart, 1838, monotypic.
Allocotosia Schiner, 1866: 845. Type-species: *Asilus auratus* Fabricius, 1794, by original designation.

A rather uncommon genus of the Old World tropics, chiefly known from Indonesia and Queensland, barely represented in Africa. It is distinguished from *Ommatius* not merely by the relatively long and tapering third antennal segment — which in itself might be no more than a group character — but by the generally ichneumon-like habitus.

KEY TO PHILIPPINE SPECIES OF MICHOTAMIA

1. Fifth and sixth abdominal tergites black, abdomen otherwise orange. Legs yellow..... ..... **aurata** Fabricius (common in Orient, not yet recorded from Philippines)
   All segments of abdomen with some black markings. 2
2. Segments 1-4 with hind margin and sides yellow, rest entirely black, except for genital segments of female (fig. 97) ..... **triangulum** Wulp (**anulata** Bigot)
   All segments with black center, yellow sides and hind margin (fig. 98). ..... **vulpina** Bigot

Michotamia triangulum (Wulp) Fig. 97, 99.

Allocotasia triangulum Wulp, 1872: 251.
Michotamia annulata Bigot, 1878: 239.

The abdominal pattern (fig. 97) distinguishes this species, and is clearly shown in Wulp's colored drawing of the whole insect.

Head: Face and frons densely covered with yellow tomentum. Face almost plane in profile, with a mystax of yellow bristles on lower quarter, and a few yellow hairs above; with four pairs of erect fine bristles (cf *Ommatius*). Frons with yellow tomentum and no hairs. Occiput with yellow tomentum and a row of occipital bristles that may be yellow or partly black. Beard white. Antennae with second segment orange, first and third black. Proboscis and palpi black, palpal hairs black, hairs of base of proboscis pale yellow.

Thorax: Mesonotum black, entirely covered with grayish tomentum, and with indistinct pattern of longitudinal stripes. Bristles black, including 3-4 pairs of dorsocentrals and one pair of marginal scutellars. Pleura uniformly covered with golden tomentum and with yellow hairs and bristles; a few black ones ventrally in metapleural tuft.

Abdomen: With orange and black pattern as in fig. 97; segments 1-4 with conspicuous posterior and lateral orange borders; segment 5 with very narrow posterior border; rest entirely black. Clothing hairs generally short black on black areas, and longer orange on orange areas; female has more long orange hairs on sixth segment.

Legs: Fore and middle legs orange except for tarsi. Hind femora orange, with an elongate dorsal black spot; hind tibiae and tarsi blackish. Clothing hairs and bristles mainly black.

Wings: Smoky brown, darker towards fore border, indistinctly paler at base.

Length of body 18 mm; of wing 16 mm.

HOLOTYPES. *annulata* in HDO; *triangulum* in RML.

TYPE LOCALITIES. *annulata*, Burma; *triangulum*, Java.

MATERIAL SEEN. PALAWAN; 64.

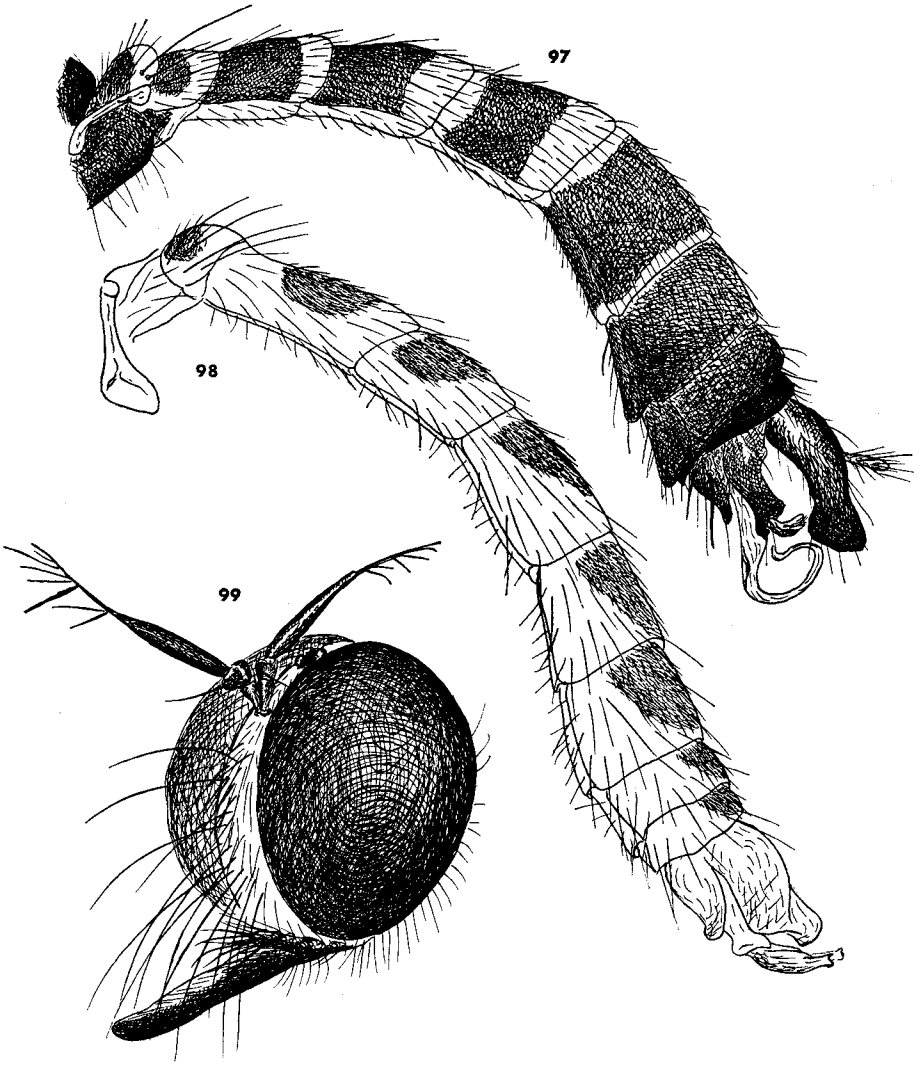


Fig. 97-99. *Michotamia:* 97, *triangulum* (Wulp), ♂ abdomen ; 98, *vulpina* Bigot, ♂ abdomen ; 99, *triangulum* (Wulp), head.

Michotamia vulpina (Bigot) Fig. 98.

Allocotasia vulpina Bigot, 1875 : 242.

Distinguished from *annulata* by the lesser amount of black in the abdominal pattern, each segment having only a median black spot, leaving the margins of each segment more or less broadly yellow (fig. 97, 98).

Head: Face with whitish tomentum, denser and more yellowish along eyemargins. Bristles of

mystax, and bristly hairs in middle of face, white. Tomentum of frons and occiput more yellowish, with yellow postoccipital bristles. Beard white. Antennae with first two segments orange, third black. Proboscis and palpi black; pupal hairs mostly black, hairs of base of proboscis yellowish.

Thorax: Mesonotum black in ground color, humeri and postalar calli red, entirely covered with dense yellow tomentum. Fine clothing hairs mainly black, bristles black; one pair of dorsocentrals and a single pair of marginal scutellars. Pleura and coxae black in ground color, except for anterior half of fore coxae, hind coxae, and are immediately above, up to halteres.

Abdomen: (fig. 98) Mainly orange, each segment with a discal black patch, which leaves posterior margins and broad lateral areas orange. Genitalia entirely orange. Venter orange. Hairs concolorous.

Legs: Orange with black clothing hairs and black bristles. Tarsi indistinctly darker, and hind femora with a small black patch anterodorsally.

Wings: Uniformly light smoky brown.

Length of body 14 mm; of wing 10 mm.

HOLOTYPE in HDO.

TYPE LOCALITY. CELEBES.

MATERIAL SEEN. LUZON: 8, 15. MINDANAO: 46.5, 47.5, 88, 93.5.

Genus **Ommatius** Wiedemann

Ommatius Wiedemann, 1821: 213. Type-species: *Asilus marginellus* Fabricius, 1781, by designation of Coquillet, 1910.

Emphysomera Schiner, 1866: 845. Type-species: *Ommatius conopsoides* Wiedemann, 1828, by original designation.

Ommatinus Becker, 1925: 84. Type-species: *Ommatius pinguis* Wulp, 1872, by original designation.

As explained under *Cophinopoda*, *Asilus chinensis* Fabricius was long placed in *Ommatius*, though it differed markedly from nearly all other species of this widespread genus. In the mistaken belief that *chinensis* was the type-species of *Ommatius*, and conscious of this difference, Becker (1952) gave the name *Ommatinus* to the rest, ie to the great majority of species. This action was redundant, however, since a type-designation by Coquillet antedated Becker by fifteen years. Hence *Ommatius* (synonymy *Ommatinus*) is the true name of the genus, and it was *chinensis* and its allies that required a new name, for which the genus *Cophinopoda* Hull (1958) was erected.

Emphysomera is a convenient name for a much smaller number of species with a clavate abdomen, and sometimes incrassate hind femora, the latter especially obvious in males (fig. 100). These features result in a robust shape strikingly different from the usually fragile appearance of typical *Ommatius*, but it is difficult to draw the line between the two in practice. So until more dependable characters are discovered, it is better to maintain *Emphysomera* as a subgenus of *Ommatius*. As the figures show, though the male genitalia are peculiar, there is considerable variation even between the Philippine species, and in view of the wide range of structure in *Ommatius* s. stricto (fig. 104–125) it is evident that *Emphysomera* and *Ommatius* cannot be separated by consistent differences in male genitalia.

Ommatius is easily the most prolific genus of Asilidae in the Philippine Islands, with 18 undescribed species in the present collections.

Key to Philippine species of Ommatius

1. Abdomen strongly clavate, narrowest at third segment, fifth to seventh segments much broader..... Subgenus **Emphysomera**, (opposite)
   Abdomen not distinctly clavate, usually cylindrical and often elongate..... Subgenus **Ommatius** s. stricto. 2
2. Frons distinctly wider at vertex than at antennae 3
   Frons at vertex no wider, or even narrower, than at antennae 9
3. A large species (18 mm), distinguished in male by the prominent costal bulge (fig. 104). Both sexes with wings heavily marked from tip of Sc to tip of M_2. Femora black, tibiae yellow, with broad black tip, tarsi black; Hind femora with ventral spines, heavily swollen in male (fig. 119). ..... **dilatipennis** Wulp
4. Femora partly or wholly yellow 5
   Femora entirely black. 6
5. Legs entirely yellow. Abdomen dorsally light brown. Mystax entirely white..... **manipulus** n. sp.
   Apical halves of hind femora and hind tibiae, and most of hind tarsi, black. Mystax with some black bristles..... **epicalus** n. sp.
6. Abdominal tergites covered with yellow hairs, even on dark patches. ..... **chrysopilus** n. sp.
   Abdominal tergites with black hairs on dark patches..... 7
7. No true mystax, but a row of paired black bristles, supplemented by a few others on mouthmargin. Males with silvery pile on fore tibiae and tarsi. ..... **allopoecius** n. sp.
   True mystax on epistoma, as well as paired bristles above. Males without silvery pile on forelegs..... 8
8. Wings with dark patch on costa and at tip, costa dilated a little in male. Robust species..... **epipomus** n. sp.
   Wings without distinct dark patch, costa not dilated in male. Tiny black species..... **dolon** n. sp.
9. Hind femora entirely black 10
   Hind femora partly or wholly yellow..... 13
10. Abdomen dull, tomented, each segment brown with black hairs in middle, posteriorly and laterally gray with rather long yellow hairs. 11
    Abdomen more or less shining, with a bluish bloom and black hairs..... 12
11. Fore and middle tibiae clear, including tip. Male genitalia as in fig. 115 ... **fulvimanus** Wulp
    Fore and middle tibiae darkened at tip. Male genitalia as in fig. 124 ..... **peristus** n. sp.
12. Hind legs long, femora slender, length to breadth about 9 : 1. Male with silvery pile on fore tibiae and tarsi..... **euplocus** n. sp.
    Hind legs shorter and femora less slender, length to breadth 6 : 1. Male without silvery pile on fore legs ..... **dolon** n. sp.
13. Venter of male abdomen with conspicuous strong yellow bristles, especially on third to fifth sternites. 14
    Venter of male abdomen without these conspicuous bristles..... 18
14. Face shining white, with fine silvery hairs..... 15
    Facial tomentum deep yellow. Thorax covered in a pollen-like bloom..... 17
15. Pleura yellow and black in ground color, with black patches on meso-, sterno- and hypopleura. Male genitalia as in fig. 120. ..... **calvus** de Meijere
    Pleura black in ground color, but tomentum may form fugitive silvery and gray stripes. 16

16. Antennae yellowish, first segment especially pale. Frons little darker than face. Proclinate occipital bristles white. Male genitalia as in fig. 121, upper forceps spatulate ..... **hocus** n. sp.
    Antennae dark brown or blackish. Frons darker chocolate-brown, strongly contrasting with face. Proclinate occipital bristles black. Male genitalia as in fig. 125, upper forceps blade-like ..... **hypnus** n. sp.
17. Hind tibiae yellow, with dorsal edge darkened. ..... **daknistus** n. sp.
    Hind tibiae reddish yellow on basal two-thirds, with broad apical black ring. Male genitalia as in fig. 122..... **scinius** n. sp.
18. Coxae yellow in ground color, like femora. 19
    Coxae blackish in ground color, with gray tomentum like pleura..... 20
19. Frons and face (♂) dark chocolate-brown, with 3-4 pairs of long brown bristles, and a silky white mystax concentrated on epistoma. Black patch of hind femora extends basad on dorsal surface. ..... **crypticus** n. sp.
    Frons and face (♂) not of these contrasting colors. Black color of hind femora ending abruptly, not extending basad. ..... **suntius** n. sp.
20. Femora almost entirely reddish brown, with only indistinct brown spots. Male with wings not dilated. Two marginal scutellar bristles..... **docimus** n. sp.
    Femora extensively black, fore and middle femora black on anterior face. Male with wings dilated on costal margin. No marginal scutellars..... **episkeris** n. sp.

Subgenus **Emphysomera** Schiner

Emphysomera Schiner, 1866: 845. Type-species: *Ommatius conopsoides* Wiedemann, 1828, by original designation.

Among the superficially similar species with clubbed abdomen there are well marked genitalic differences, as well as differences in color, and in the degree of swelling of the hind femora, from which the name *Emphysomera* derives. Similar differences, however, occur throughout the genus *Ommatius*, and it is not certain whether or not they have more significance within the limited subgenus *Emphysomera*. There are two Philippine species.

Key to Philippine species of Emphysomera

1. Wing of male strongly dilated and heavily infuscated back to stem of radial fork. Hind femora very strongly inflated in male (fig. 100) and with very strong black ventral bristles. Both sexes with bristles of thorax and legs mainly black. Male genitalia, when seen from below, appear as in fig. 102; lower forceps simple; female eighth tergite black, and its margin scarcely excavated. ..... **peregrina** Wulp
   Wing of male only weakly dilated, and not distinctly infuscated. Hind femora not noticeably inflated, and with bristles white, especially ventrally. Both sexes with bristles of thorax and legs predominantly white. Male genitalia, when seen from below, as in fig. 103, lower forceps strongly bifid; eighth tergite of female partly orange, and its hind margin strongly excavated. ..... **conopsoides** Wiedemann (**aliene** Osten Sacken)

Ommatius (Emphysomera) peregrina Wulp Fig. 100.

Emphysomera peregrina Wulp, 1872: 159.

Head: Face with whitish tomentum, a compact white mystax on epistoma, and a double row

of black bristles, with some black hairs, extending up to antennae. Frons with grayish brown tomentum, becoming grayish white on vertex and occiput. Postoccipital bristles black, long and proclinate; occipital hairs and beard white. Antennae black with black hairs and bristles; proboscis and palpi black, with hairs predominantly white.

Thorax: Mesonotum with dark brown tomentum, more ashy gray around margins; scutellum entirely gray; bristles black, including 2-4 marginal scutellars; clothing hairs black on disc, white on humeral calli; on scutellum and in prescutellar gray patch. Pleura black, covered with gray tomentum. Hairs and bristles mostly yellow, metapleural tuft with one or two black bristles dorsally.

Abdomen: Dorsally, each segment with a large rectangular patch of dark brown tomentum,

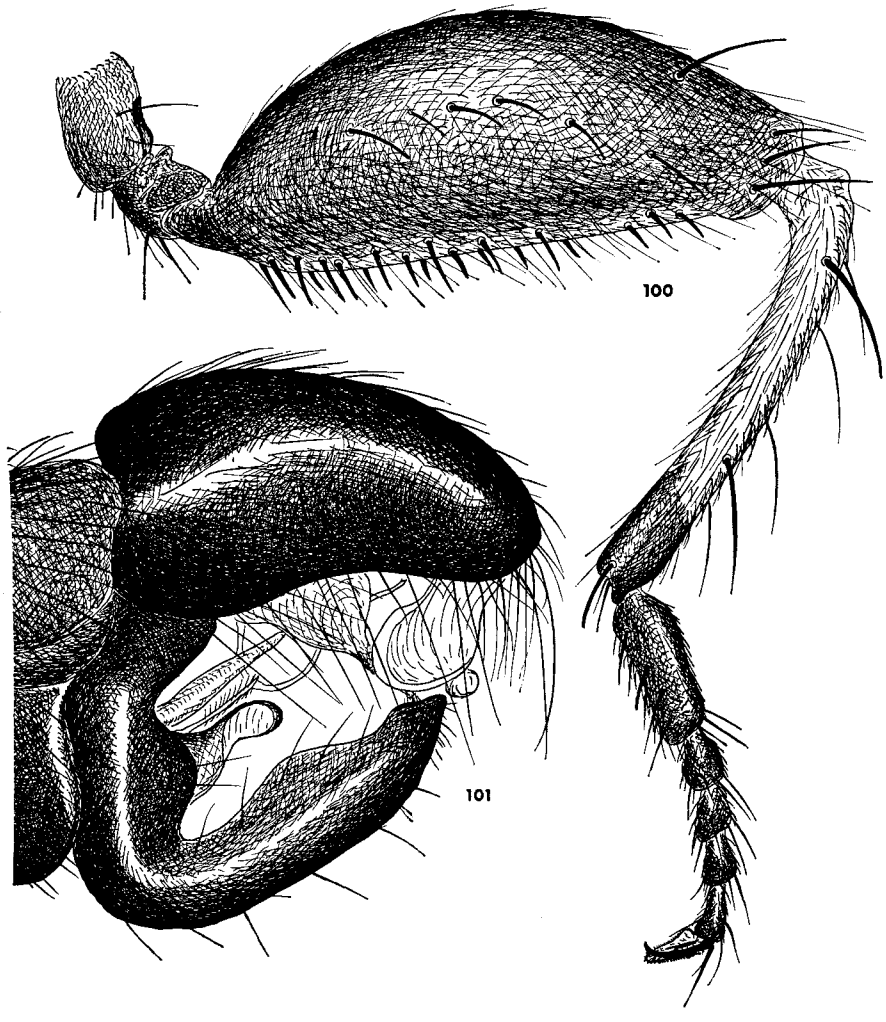


Fig. 100, 101. *Emphysomera peregrina* Wulp; 100, left hind leg of ♂; 101, ♂ genitalia.

all four margins gray, more broadly so at sides. Clothing hairs mostly yellow, even on dark areas, but some black ones intermixed. Male genitalia as in fig. 101. Venter with brown tomentum and longish white hairs.

Legs : Coxae like pleura, with gray tomentum, white hairs and yellowish white bristles. Femora black, all with flat ventral surface, and convex dorsally ; hind femora of male, especially, swollen (fig. 100) and with a double row of strong black bristles ventrally. Tibiae reddish, indistinctly darker at tip ; fore tibiae with an indistinct anteroventral dark stripe. Tarsi orange at base, darker towards tip. Bristles of legs predominantly black, some yellowish, and clothing hairs mostly yellow.

Wings : Gray. Costa of male strongly dilated, with dark brown color from costa back to stem of radial fork ; female not so.

Length of body 12-14 mm ; of wing 10 mm.

SYNTYPES in RML

TYPE LOCALITIES. Borneo, Ambon, Ternate, Sumatra

MATERIAL SEEN. LUZON : 17, 34. MINDANAO : 34.5, 36, 39, 40.5, 47, 88. LEYTE : 29.

Ommatius (Emphysomera) conopsoides Wiedemann Fig. 103.

Asilus conopsoides Wiedemann, 1828 : 422.
Emphysomera aliena Osten Sacken, 1882 : 111.

Easily distinguished from *peregrina* Wulp by the very different male genitalia (fig. 102, 103) ; otherwise the most reliable difference is the ventral spines on the hind femora, which are yellow in *conopsoides* and black in *peregrina.*

Head : Tomentum of face and frons a uniform golden brown. Mystax white, and extending into white paired bristles, only the upper pairs being black. Frons with a row of tiny black bristles laterally. Proclinate postoccipital bristles predominantly or wholly yellow. Occiput with grayish tomentum and white hairs, beard white. Antennae black with hairs and bristles mixed black and white. Proboscis and palpi black with white hairs.

Thorax : Mesonotum ashy gray and brown ; more brown medially, with large gray humeral patches and lateral angles, and a large gray prescutellar patch, with traces of brown stripes. Bristles mixed yellow and black ; marginal scutellars usually yellow ; clothing hairs black, much longer and more obvious than in *peregrina.* Pleura black, with dense yellowish gray tomentum and with hairs and bristles usually entirely yellowish.

Abdomen : Dorsum mostly gray black to fourth segment, brown spots becoming bigger after that. Clothing hairs rather long and shaggy, mostly yellow, but black on brown segments. Venter gray with yellow hairs, which in this species are shorter than those on dorsum. Male genitalia as in fig. 103, with lower forceps each deeply cleft into two fingerlike processes. Upper forceps stout, partly reddish.

Legs : Coxae like pleura. Femora black, not as strongly swollen as in male *peregrina* (fig. 100), densely covered with long yellow clothing hairs, and with yellow bristles. Tibiae orange, all three pairs with an anterior dark stripe, with yellow clothing hairs and some yellow bristles, but also some black bristles, especially apically. Tarsi mainly blackish, only indistinctly reddish basally.

Wings : Lightly tinted yellowish gray. Costa of male slightly dilated, but with a rounded

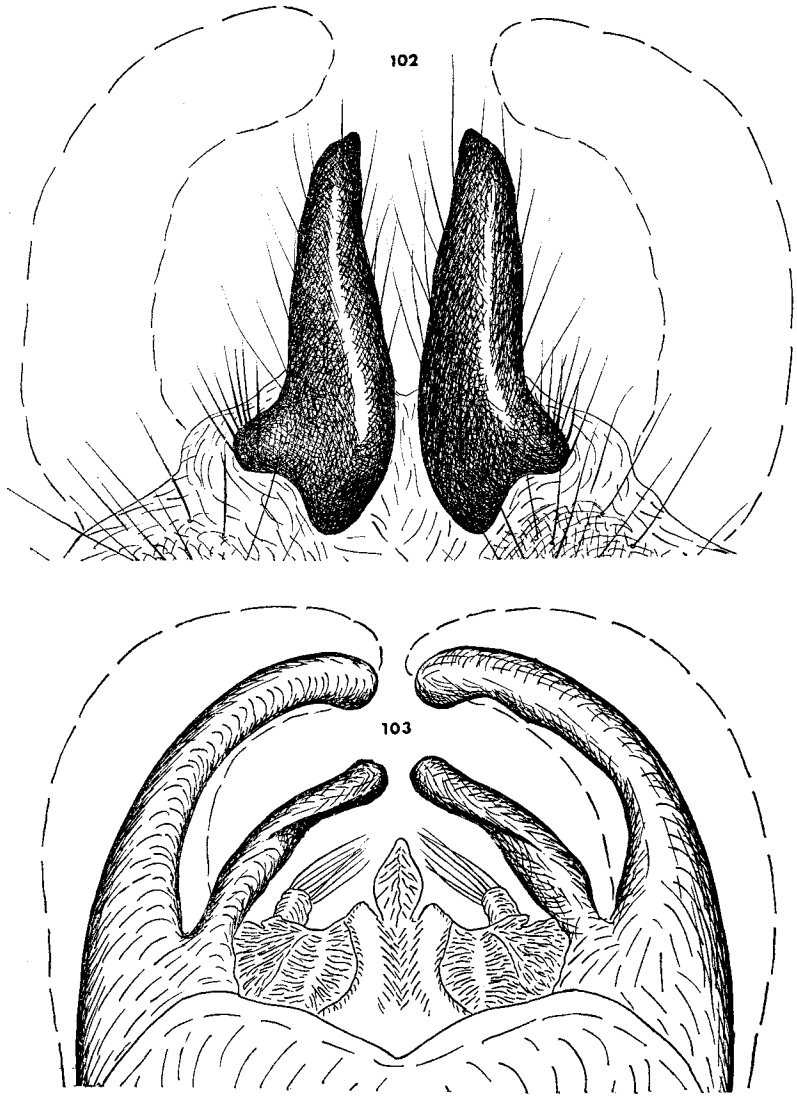


Fig. 102, 103. *Emphysomera*, ♂ genitalia *in ventral view:* 102, *peregrina* Wulp; 103, *conopsoides* (Wiedemann).

margin, less abruptly so than in *peregrina*, and not heavily darkened.

Length of body 11 mm; of wing 10 mm. Usually smaller than *peregrina*.

TYPE MATERIAL. *conopsoides* in DEI. *aliena* probably lost.

TYPE LOCALITIES. *conopsoides* Sumatra; *aliena*, 'Philippines'.

MATERIAL SEEN. LUZON: 1. MINDANAO: 32. NEGROS: 54.5. SULU: 51.

Ommatius dilatipennis Wulp Fig. 104, 119.

Ommatius dilatipennis Wulp, 1872 : 261.

This conspicuous species stands out from all the other Philippine *Ommatius* by its size, dark coloring, and strongly dilated, heavily maculated wings in the male (fig. 104). It differs from *curvimargo* Bezzi, from Fiji, in lacking a distinct pattern on the mesonotum, in having an olive scutellum, with a brown rim, and particularly in the narrower frons, which would put it in the opposite section of the above key to species.

Head: Face and frons with golden brown tomentum. Mystax a cluster of silvery white hairs extending to mid face, continued as a double row of yellow bristles, plus some yellow hairs,

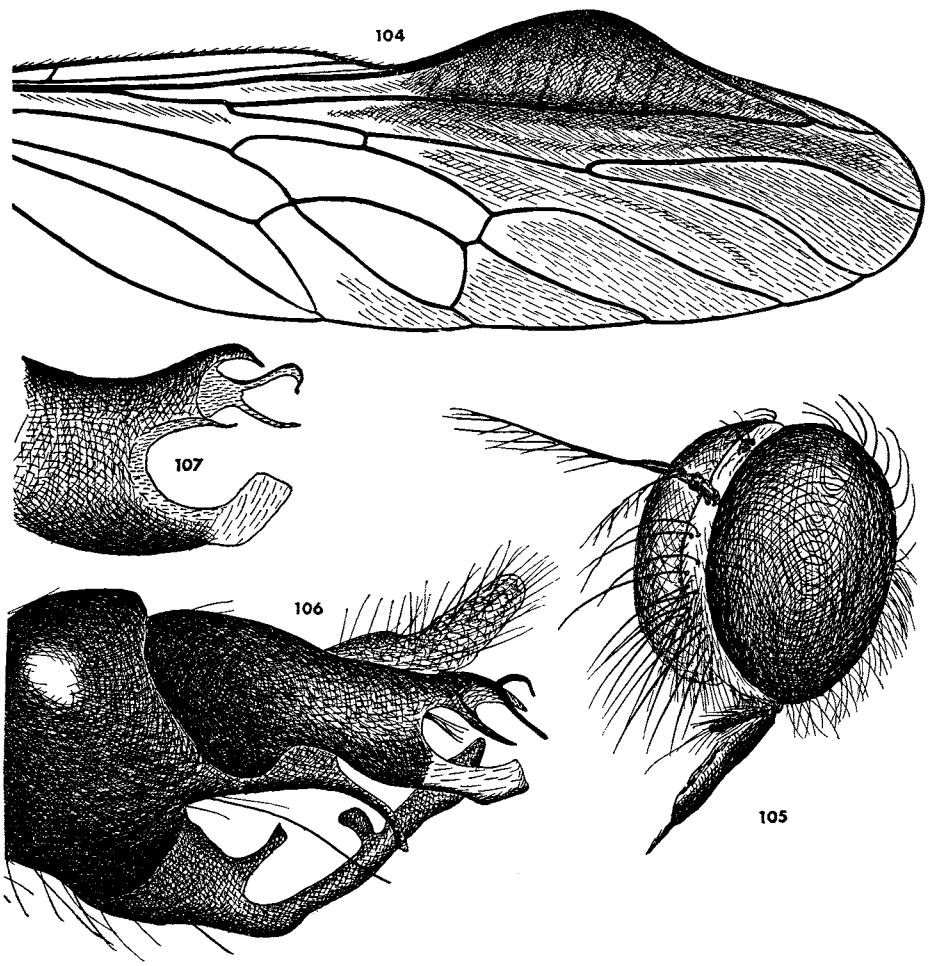
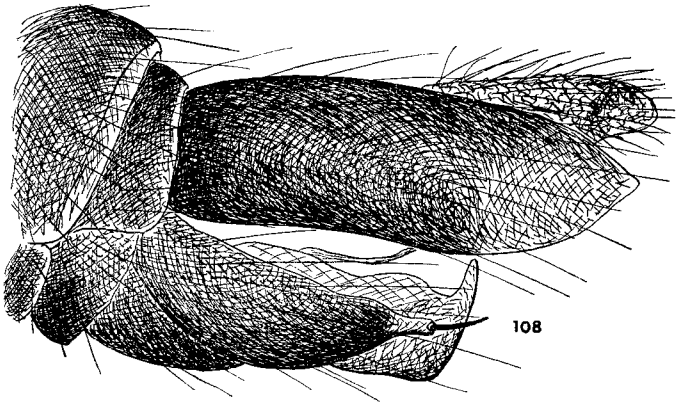


Fig. 104-107. *Ommatius* spp. : 104, *dilatipennis* Wulp, wing of ♂ ; 105, *dilatipennis* Wulp, head ; 106, *epicalus* n. sp., ♂ genitalia in side view ; 107, *epicalus* n. sp., upper forceps in dorsal view.

almost to antennae. Frons with a characteristic circular hollow in middle, between ocelli and antennae, and with a single row of yellow hairs along each eyemargin. Vertex and occiput with thin yellow tomentum, giving a brownish appearance in certain lights. Proclinate bristles black, occipital bristles yellowish, beard white. Antennae black with black hairs. Proboscis and palpi black, palpal hairs mixed black and yellow, hairs at base of proboscis white.

Thorax: Black, completely covered with brown or yellow tomentum. Mesonotum brown, with humeri, large triangular posthumeral patches, broad lateral margins, and a prescutellar square, yellow. Scutellum entirely yellow tomented, and fine erect yellow hairs; scutellar marginal bristles 6-8, some black, some yellow. Bristles and fine hairs of mesonotum black, except for yellow hairs on humeri and postalar calli. Pleura uniformly covered with yellow tomentum, and with yellow hairs and bristles.

Abdomen: Each tergite with a dark brown area and gray-brown lateral and posterior margins. Hairs mostly yellow, rather long and conspicuous, but some short black hairs on brown areas.



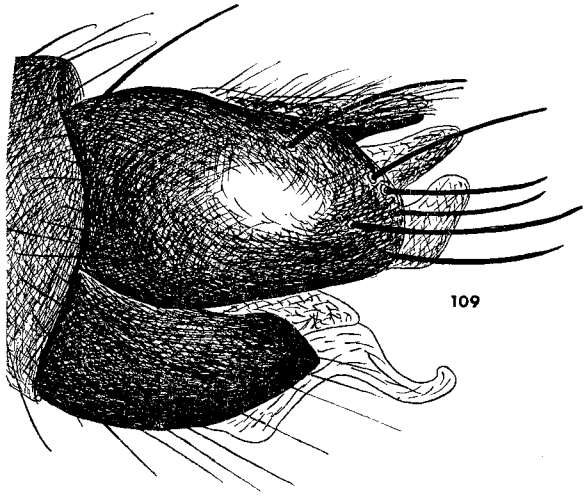


Fig. 108, 109. *Ommatius*, ♂ genitalia. 108, *epipomus* n. sp.; 109, *crypticus* n. sp.

Venter dark gray with long yellow hairs. Male genitalia as in fig. 119.

Legs: Femora black, not specially dilated, covered with fine yellow hairs, mixed with some black, and bristles mostly yellow, a few black. Fore and middle tibiae and basitarsi orange, other tarsomeres black; hind tibiae orange with black tip, and only base of basitarsi dull orange. Bristles of tibiae and tarsi predominantly black, but clothing hairs of tibiae yellow, rather long posteriorly on fore tibiae.

Wings: Male very strongly dilated and heavily marked as in fig. 104; female generally similar, but with these features less strongly developed. The near-alignment of vein M_3 with the end of the discal cell is characteristic.

Length of body 18 mm; of wing 15 mm.

SYNTYPES in RML.

TYPE LOCALITY. JAVA.

MATERIAL SEEN. MINDANAO: 33, 39, 41, 45, 47. LUZON: 7, 12, 88, 92. PALAWAN: 67, 72, 96. LEYTE: 29.

Ommatius allopoecius Oldroyd, new species

Small males, characterised by a silvery pile on fore tibiae and tarsi, which glistens in certain directions of the light (cf. *euplocus*, n. sp.).

Head: Face and frons with chocolate-brown tomentum. No true mystax, but the series of paired black bristles runs from antennae to mouthmargin, supplemented by a few other black bristles at the lower end. Chocolate-brown tomentum of frons continued on to vertex, becoming more blackish on occiput. Recumbent occipital bristles black, occipital hairs and beard white, unusually sparse. Antennae black with black hairs. Proboscis and palpi black with black hairs.

Thorax: Black, entirely covered with tomentum. Mesonotum brown, only indistinctly more yellow in usual pattern. Bristles black, dorsocentrals rather prominent. Pleura diagonally banded gray and brown; one brown band runs from mesopleuron to include fore coxae; second brown band runs from base of wing to include middle coxa. A strong mesopleural and one pteropleural bristle, both black; metapleurals and hypopleurals also black. All three coxae unusual in having some black bristles as well as white hairs.

Abdomen: Dully shining black, through thin ashy brown tomentum; seventh and eighth tergites and genitalia more bare, shining blue-black. Venter ashy brown with long yellow hairs; dorsum with clothing hairs mainly black, but longer, isolated yellow ones at extreme sides, and exceptionally long, fine bristles, mixed black and yellow, at sides of first segment.

Legs: Slender, in strong contrast to the dilated femora of *Emphysomera* (fig. 100). Legs black with black clothing hairs and mainly black bristles, with isolated yellow ones. Tibiae, especially hind pair, reddish at base; tibiae and all tarsal segments externally with a white pile, which gives a silvery sheen in certain directions of lighting.

Wings: Clear, with no more than a trace of infuscation at extreme tip.

Length of body 9 mm; of wing 7 mm.

HOLOTYPE in BPB (BISHOP 8689).

TYPE LOCALITY. MINDANAO: Mt View Colleges, 15 km NW of Valencia, 2,000', Bukidnon, 22–23.IV.1968 (M. D. Delfinado).

MATERIAL SEEN. MINDANAO: 39, 48, 88.

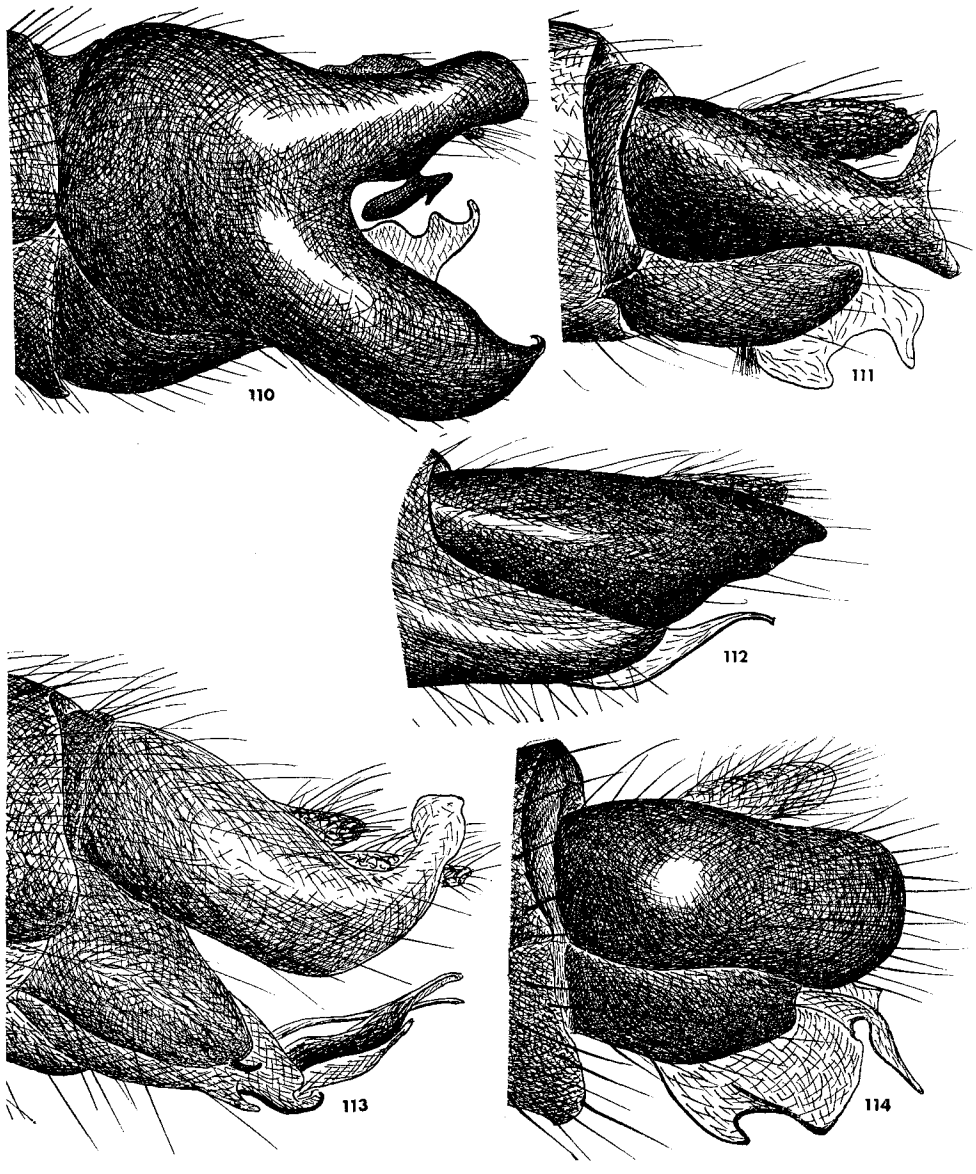


Fig. 110-114. *Ommatius*, ♂ genitalia. 110, *episkeris* n. sp. ; 111, *docimus* n. sp. ; 112, *coptus* n. sp. ; 113, *manipulus* n. sp. ; 114, *suntius* n. sp

Ommatius calvus de Meijere Fig. 120.

Ommatius calvus de Meijere, 1911 : 319.

One of a group of species characterised by male genitalia of the elaborate form

shown in fig. 120–122. The males also have a pattern of unusually strong bristles ventrally on the third to fifth segments.

Head: Face and frons tapering steadily from epistoma to vertex, which is exceptionally narrow, and deeply cleft. Face with brownish gray tomentum; mystax consists of 10–12 strong white bristles on lower third of frons, with the usual two or three other pairs of black bristles above, and among these a scattering of very short white hairs. Frons with darker brown tomentum, more velvety. Vertex and occiput with thick white tomentum. Proclinate occipital bristles black, but below these there is a row of slender white bristles, mingled with white hairs, merging into the white beard. Antennae orange except for most of arista, which is black; hair black. Palpi very slender, with black hairs; proboscis, with white hairs basally.

Thorax: Pronotum and humeri yellow in ground color, rest of mesonotum and scutellum black. Tomentum ashy gray and brown, without definite pattern other than slight indication of a median stripe; prescutellar area and base of scutellum with lighter brown tomentum. Two marginal scutellar bristles, and two pairs of dorsocentrals, normally yellow; other mesonotal bristles usually black, but variation occurs. Pleura in ground color mainly yellow, but with black patches on meso-, sterno- and hypopleura. Tomentum and hairs white; bristles yellowish, except for black fringe on metapleuron.

Abdomen: Dorsally black, covered with rather thin dark brown tomentum, except for a narrow strip of shining black at base of each segment (sometimes concealed by previous tergite) and for seventh and subsequent segments and genitalia, which are also shining black, or mahogany. Short hairs black, longer at sides, where sutures are reddish. Venter yellowish, with brown spot on each sternite, smaller in male, which has a pattern of strong yellow bristles on third to fifth segments.

Legs: Fore and middle coxae pale, hind coxae partly brown. Fore femora and tibiae entirely yellow, without dark tips; basitarsi yellow, black tipped, other tarsomeres black. Hind femora yellow on basal half, black on apical half, extreme tip more reddish. Hind tibiae yellow on basal two-thirds, black on apical third. Hind tarsi black, basitarsus as long as the other tarsomeres combined. Bristles of legs black and yellow, very long, both on tibiae and ventrally on hind femora.

Wings: Not inflated, nor strongly marked, but tip is grayish from microtrichiae on apical third.

Length of body 13 mm; of wing 10 mm.

HOLOTYPE in ZMA.

TYPE LOCALITY. JAVA, Depok.

MATERIAL SEEN. LUZON: 1, 6, 10, 16. MINDANAO: 47, 47.5.

Ommatius chrysopilus Oldroyd, new species Fig. 123.

A black species, rather resembling *epipomus* sp. n., but with quite different male genitalia.

Head: Face with yellow tomentum and yellow hairs; mystax pale yellow, rather extensive, with numerous hairs and bristles, and surmounted by several pairs of black bristles. Frons dull brown, with very short but rather abundant black hairs along each eyemargin. Vertex and occiput grayish. Proclinate bristles black, lower occipital hairs and bristles, and beard, white. Antennae black with black hairs; proboscis and palpi black with white hairs.

Thorax: Mesonotum and scutellum black with brown tomentum. Scutellum with sparse white hairs and a pair of yellow marginal bristles. Bristles of mesonotum black. Pleura entirely

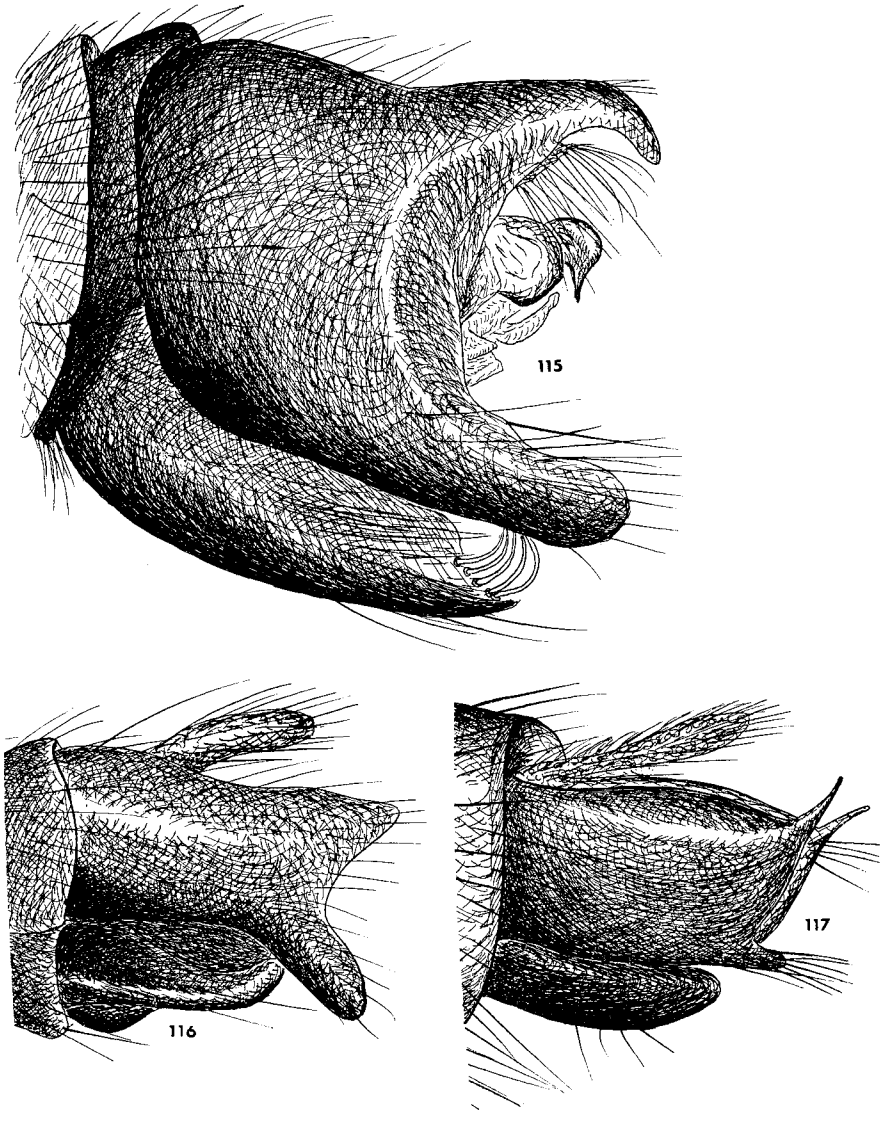


Fig. 115-117. *Ommatius*, ♂ genitalia: 115, *fulvimanus* Wulp; 116, *hercites* sp. n. 117, *allopoecius* n. sp.

black in ground color, with yellow hairs and bristles; some bristles in metapleural tuft black.

Abdomen: Tergites and sternites black with narrow yellow hind margins, dully shining through thin gray tomentum. Clothing hairs mainly yellow, longer at sides and ventrally. Male genitalia as in fig. 123, black basally, reddish apically.

Legs: All legs alike, with femora black and basitarsi orange with black tips; other tarsomeres black. Clothing hairs largely yellow, but bristles black.

Wings: Scarcely dilated, even in males, but extensively blackened over apical half from Sc round to 1A.

Length of body 9 mm; of wing 7 mm.

HOLOTYPE in BPB (BISHOP 8690).

TYPE LOCALITY. LUZON: Albay Province, Libon, Caquscos, 200 m. 15.V.1965 (H. M. Torrevillas).

MATERIAL SEEN. LUZON: 4, 20.

Ommatius crypticus Oldroyd, new species Fig. 109.

This species is best recognised by the way in which the dark color of both middle and hind femora extends basally in a dorsal stripe, and by the chocolate-brown face of the male, which contrasts with the snow-white mystax. In these respects it differs from *despectus* Wulp, but as that species was described from a female the two may be synonymous.

Head: Distinctive in male, with the face and frons dark chocolate-brown, against which the paired black bristles are almost invisible, but the small, shining white mystax is very conspicuous. Females have a more normal appearance, with tomentum of frons and face golden brown, and mystax yellowish white. Occiput in both sexes whitish or grayish, with proclinate bristles black, others white. Beard white. Antennae dark brown with black hairs. Palpi and proboscis black, hairs mainly black.

Thorax: Mesonotum dull blackish, with some trace of stripes in well preserved specimens; margin more brown, sometimes light brown. Scutellum black, with a pair of black bristles (sometimes one or both may be duplicated). Bristles of mesonotum black, a tuft of short white hairs on humeri and on disc of scutellum. Pleura whitish, a brown patch on mesopleuron; hairs and bristles pale yellowish.

Abdomen: Dull blackish with short black hairs on tergites, longer yellowish ones laterally and ventrally.

Legs: Yellow-brown. All femora extensively blackish anteroapically, and on hind femora there is a dorsal extension towards base. Hind tibiae yellowish basally, with dark brown color apically and along anterior face. Hind tarsi blackish, basitarsi darkened at tip, other tarsomeres black. Clothing hairs and most bristles black, some yellow ones, especially ventrally on hind femora.

Wings: Clear, or lightly browned, especially, but no distinct dark patches, and no costal dilation. Males are unusual in having conspicuous silvery pile on the underside of the wing, from base to humeral vein.

Length of body 10 mm; of wing 12 mm.

HOLOTYPE in BPB (BISHOP 8691).

TYPE LOCALITY. MINDANAO: Misamis Or., Minalway, 1050 m, 24.III-4.VI.1961 (H. M. Torrevillas).

MATERIAL SEEN. MINDANAO: 38, 42, 94.

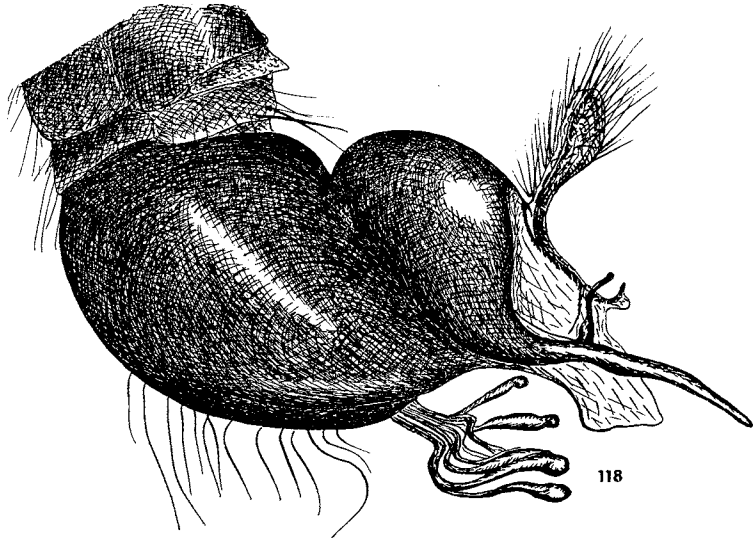
Ommatius daknistus Oldroyd, new species Fig. 118.

The male genitalia are perhaps the most remarkable of any species so far figured

(fig. 118), but the species is also distinctive for the golden pollen-like tomentum of the thorax, and for the coloring of the hind tibiae.

Head: Face and frons very narrow, converging from epistoma to vertex, tomentum of both golden yellow. Mystax white, surmounted by paired black bristles. Vertex and occiput also golden yellow, together with most of other bristles and hairs, though some of the inconspicuous proclinate bristles are black; beard whitish. Antennae yellow, especially second segment, but hairs black. Proboscis and palpi black with yellow hairs.

Thorax: Black in ground color, except for reddish humeri and postalar calli. Mesonotum,



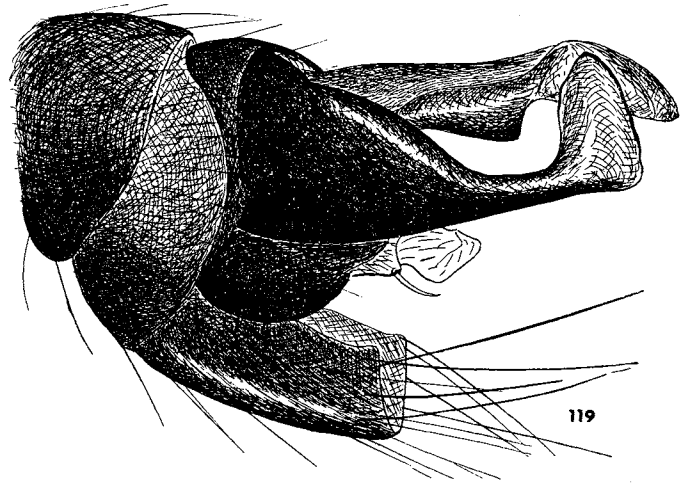


Fig. 118, 119. *Ommatius*, ♂ genitalia: 118, *daknistus* n. sp.; 119, *dilatipennis* Wulp.

scutellum and mesopleuron covered with dense yellow tomentum, looking like pollen. Bristles yellow, including a pair of marginal scutellars. Pleura with mostly yellowish white tomentum, but mesonotum golden. Hairs and bristles yellow.

Abdomen: Tergites black, with red posterior and lateral margins on segments 2-4, covered with a brownish 'bloom' which becomes weaker posteriorly, so that segments 5-7 are shining black with thin red-brown tomentum. Clothing hairs black, short. Venter similar, with few clothing hairs, but with a pattern of strong yellow bristles on segments 3-5. Male genitalia as in fig. 118.

Legs: Fore and middle femora, tibiae and basitarsi clear yellow; tips of basitarsi, and all other tarsomeres, black. Hind femora black, with only basal third yellow; hind tibiae yellow, black at base, and dorsally, along full length; basitarsus yellow with black tip; other tarsomeres black. Bristles mixed black and yellow, many long ones, especially ventrally on hind femora.

Wings: Not dilated, nor strongly marked, but a small smoky patch at tip.

Length of body 11 mm; of wing 10 mm.

HOLOTYPE in BPB (BISHOP 8692).

TYPE LOCALITY. LUZON: Ifugao Province, Jacmal, Bunhian, 24 km E Mayoyao, 800-1000 m, 7-8.IV.1967 (H. M. Torrevillas).

MATERIAL SEEN. LUZON: 4.

Ommatius docimus Oldroyd, new species Fig. 111.

The male genitalia (fig. 111) are small and inconspicuous, and are a modification of the same form as those of *euplocus* and *allopoecius*.

Head: Face and frons broader than some, but tapering steadily from mouthmargin to vertex. Face with white tomentum, a compact mystax of white bristles, with paired black bristles extending nearly up to antennae. Frons more brownish gray, vertex and occiput gray. Proclinate postoccipitals black; lower occipitals mixed black and white, beard white. Antennae dark brown with black hairs. Proboscis and palpi black with white hairs.

Thorax: Mesonotum ashy gray and brown; gray particularly on humeri, in large triangular posthumeral patches, at sides, and in a prescutellar rectangle; inset into the last is a velvety gray triangle, conspicuous to the naked eye. Short black hairs, and one pair of black marginal scutellars. Mesonotal hairs and bristles black, rather abundant, with three or four dorsocentrals, and a distinct series of paired acrostichals, as well as other tracts of fine black hairs. Gray tomentum, white hairs, and yellow bristles, cover pleura, except on metapleural tuft, which is all black.

Abdomen: Dorsum black, with a thin purplish bloom on first five tergites, shining black on rest, each tergite with a narrow yellow hind margin. Clothing hairs black, longer and whitish at sides, especially basally. Venter similar, with longer, yellowish hairs. Male genitalia as in fig. 111.

Legs: Coxae like pleura, no more than faintly yellow beneath gray tomentum (cf. key). Femora clear brown, covered with short black clothing hairs, and tips of hind femora also narrowly dark brown. Some yellowish bristles and hairs ventrally and isolated black bristles elsewhere. Tibiae similar, hind tibiae darker brown, except at base. Basitarsi yellow with black tips, other tarsomeres black

Wings: Almost hyaline, covered with microtrichiae, giving a uniformly grayish appearance. No dilatation of costa, and no darkening of membrane.

Length of body 11 mm; of wing 9 mm.

HOLOTYPE in BPB (BISHOP 8693).

TYPE LOCALITY. LUZON: Camarines Sur, Mt. Isarog, 500-600 m, 13.IV.1963 (H. M. Torrevillas).

MATERIAL SEEN. LUZON: 8. MINDANAO: 40.

Ommatius dolon Oldroyd, new species

A tiny species, almost entirely black except for small areas on the legs, listed below, and the orange halteres. It has affinities with *fulvimanus* Wulp, but is distinguished by the much smaller size and the different male genitalia.

Head: Face converging from mouth to antennae, then frons expanding up to ocellar tubercle, and again to vertex. Face with yellowish tomentum, a small white mystax, continued into a row of paired black bristles, among which are short silvery hairs which glisten in the light. Frons dark chocolate-brown, vertex brown (deeply cleft), merging into a white occiput. Proclinate bristles black; a rather strong and numerous series of white lower occipitals, merging into a white beard. Antennae black with black bristles. Palpi black with black bristles; proboscis black with scanty white hairs at base.

Thorax: Mesonotum black in ground color, dully shining through thin tomentum, only lateral margins grayish. Scutellum with uniformly brown tomentum and two black marginal bristles. Bristles of mesonotum black, and a few white hairs on humeri. Pleura with white tomentum and white hairs and bristles, with one or two black bristles dorsally in metapleural tuft.

Abdomen: Dorsum black, dully shining through thin bloom of blackish tomentum, and with narrow yellow posterior margin to each segment. Clothing hairs mostly black; longer and yellowish laterally and at base. Venter blackish, with longer yellowish hairs.

Legs: Femora black, hind femora with a very narrow red ring at base. Clothing hairs and bristles mainly black, but some are yellow. Fore and middle tibiae reddish yellow, with broad black ring apically, extending to anterior face. Hind tibiae more extensively blackish, obscurely reddish only at base. Tarsi black, fore and middle basitarsi reddish with black tips.

Wings: Unremarkable, neither dilated nor obviously marked.

Length of body 6-7 mm; of wing 6 mm.

HOLOTYPE in BPB (BISHOP 8694).

TYPE LOCALITY. PALAWAN: Mt Beaufort, Irawan River, 17.IV.68 (D. E. Hardy).

MATERIAL SEEN. PALAWAN: 68, 70, 71, 71.5, 72, 100. CULION: 64. BUSUANGA: 65.

Ommatius epicalus Oldroyd, new species. Fig. 106, 107.

A black and gray species, with extensively clear yellow legs, the apical two-thirds of the hind femora black. Male genitalia very distinctive (fig. 106, 107), and male abdomen with strong yellow bristles on third to fifth segments. In markings resembling *retrahens* Walker, but with less black on the hind femora, and quite different male genitalia.

Head: Face and frons converging steadily from mouth to vertex. Face with white tomentum,

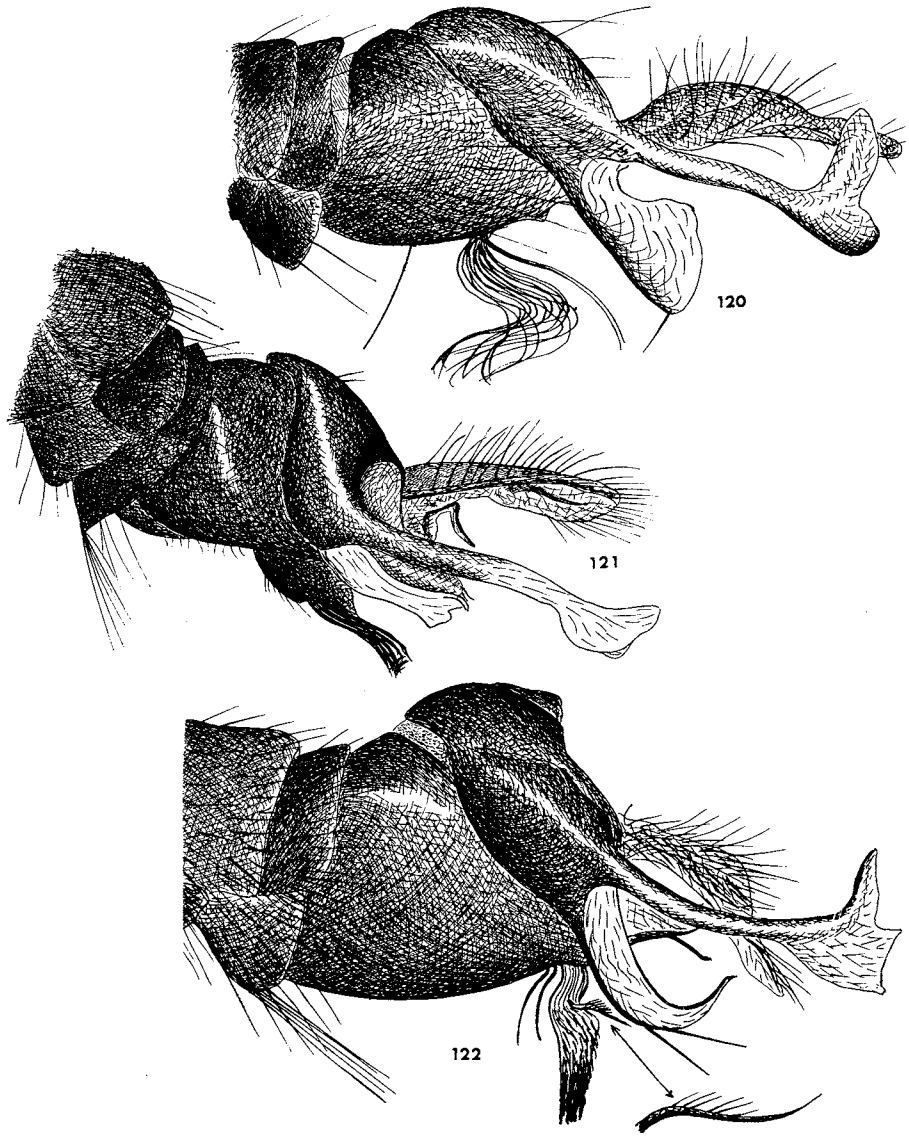


Fig. 120-122. *Ommatius*, ♂ genitalia: 120, *calvus* de Meijere; 121, *hocus* n. sp; 122, *scinius* n. sp.

a silky white mystax, and three pairs of black bristles, with very short white hairs between them. Frons with coppery brown tomentum, vertex light brownish. Occiput white; proclinate bristles black, power occipitals white, merging into white beard. Antennae and palpi black hairs; proboscis black with white hairs.

Thorax: Black. Mesonotum with thin brown tomentum, unpatterned, merging into gray tomentum laterally and posteriorly. Scutellum uniformly gray with erect white hairs, and two

white marginal bristles. Mesonotum with black bristles and short hairs on disc, white hairs on gray areas. Pleura gray with white hairs and bristles.

Abdomen: Dorsum black, with very narrow posterior margins, covered with thin grayish tomentum giving it a 'bloom'. Clothing hairs yellow, event the short ones on disc, not noticeably longer at sides, except for clump on first segment, which includes three or four strong yellow ones. Venter rather bare of hairs, but with a pattern of long yellow bristles on third to fifth sternites. Male genitalia as in fig. 106, 107.

Legs: Coxae like pleura, gray with white hairs. Legs clear yellow, with apical third of hind femora, apical fifth of hind tibiae, tips of basitarsi, and all other tarsomeres, black. Bristles mixed black and yellow, hairs mainly concolorous with area on which they stand.

Wings: Without any special features. Clear, colorless, not dilated, without any darker pattern.

Length of body 10 mm; of wing 7 mm.

HOLOTYPE in BPB (BISHOP 8695).

TYPE LOCALITY. CULION I., 6 km W of Culion, 10.VI.1962. Malaise trap (H. Holtmann).

MATERIAL SEEN. CULION: 64. NEGROS OR.; 54.5, 63. PALAWAN: 97. ?LUZON: 11, 16.

Ommatius epipomus Oldroyd, new species Fig. 108.

A black, or mainly black species, with darkened and dilated wings in the male. Close to *fulvimanus* Wulp, but distinguished by the divergent vertex and by having the hind femora entirely black, without any red base.

Head: Face convergent, covered with dull yellow tomentum. Mystax consisting almost entirely of black bristles and hairs, with only one or two white ones on epistoma. Frons slightly darker, vertex with blackish tomentum and black proclinate bristles; lower occiput with white tomentum and white hairs and bristles; beard white. Antennae black with black hairs. Palpi and proboscis black with yellow and white hairs.

Thorax: Black in ground color. Mesonotum with brown tomentum, densely yellowish laterally, but brown posteriorly. Scutellum with brown tomentum and long, curved, erect, pale yellow hairs, and one pair of black marginal bristles. Hairs and bristles of mesonotum black, except for yellow hairs on humeri. Pleura all black in ground color, with yellow hairs and bristles except for black metapleural tuft.

Abdomen: Shining black, with dull red hind margins, and brown tomentum only obvious laterally. Clothing hairs mostly yellow, somewhat longer posteriorly on each tergite, and laterally. Male genitalia (fig. 108) black basally, red apically. Venter like dorsum, but tomentum a little thicker, and yellow hairs longer.

Legs: Coxae like pleura. Femora shining black, with clothing hairs mainly yellow. Fore and middle tibiae and basitarsi reddish yellow, other tarsomeres blackish; long tibial bristles black, but rather long clothing hairs of tibiae yellow. Hind tibiae dull yellowish on basal half, apical half of tibiae, and all tarsi, black. Hairs and bristles black.

Wings: Dilated in male, with marginal and first submarginal cells darkened, sometimes extending to all cells apicad of anterior crossvein (r-m).

Length of body 12 mm; of wing 10 mm.

HOLOTYPE in BPB (BISHOP 8696).

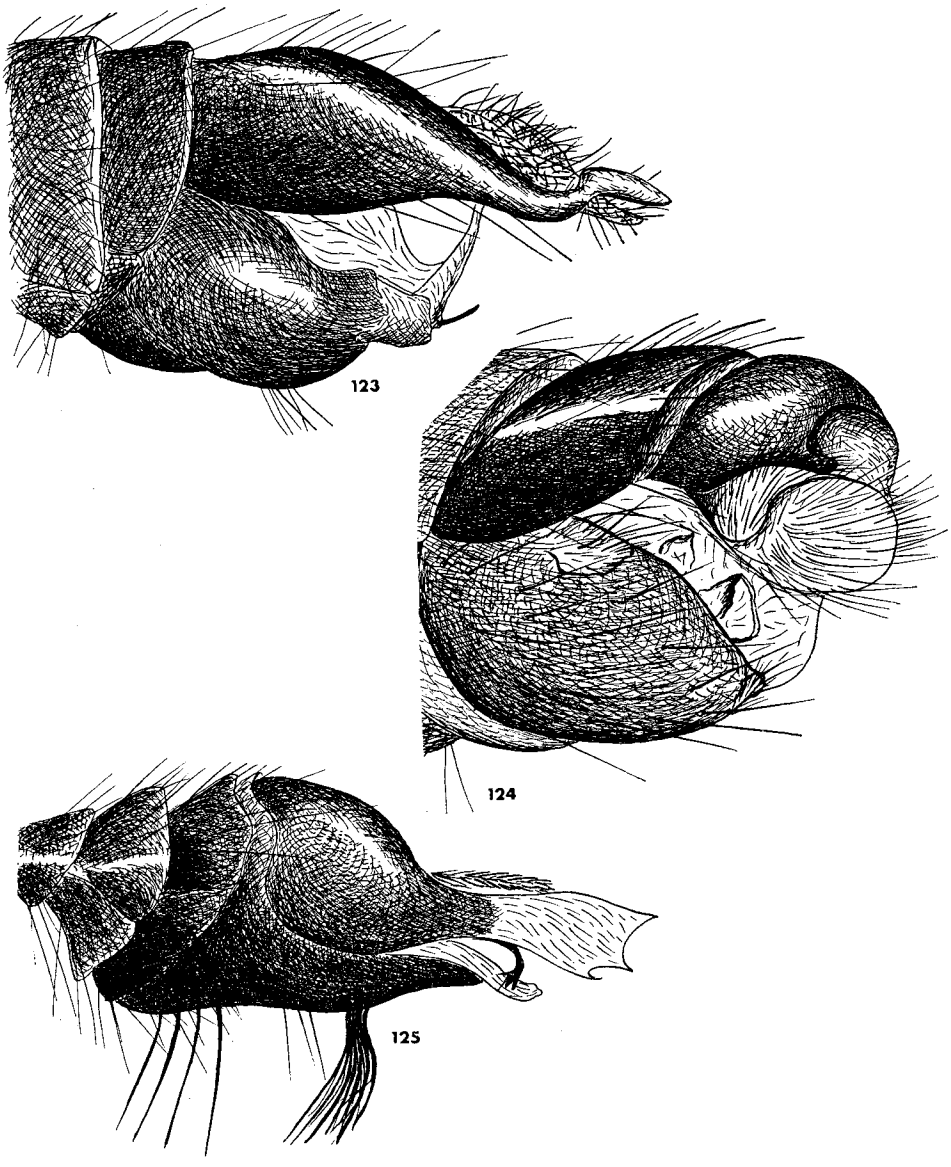


Fig. 123-125. *Ommatius*, ♂ genitalia : 123, *chrysopilus* n. sp ; 124, *peristus* n. sp. ; 125, *hypnus* n. sp.

TYPE LOCALITY. LUZON, Albay Province, 10 km NW of Legaspi, 100-1800 m, 5. V.1962 (H. M. Torrevillas).

MATERIAL SEEN. LUZON : 4, 18.

Ommatius episkeris Oldroyd, new species Fig. 110.

Apart from the distinctive male genitalia (fig. 110) this species is characterised by the unusual feature of having the fore and middle femora extensively black on the anterior face.

Head: Face and frons converging steadily from epistoma to vertex. Face with thick white tomentum. Mystax white, surmounted by two pairs of black bristles. Frons yellow-brown. Occiput with white tomentum, black proclinate bristles, and white occipital hairs, merging into white beard. Antennae and palpi black with black hairs; proboscis black with white hairs.

Thorax: Black in ground color. Mesonotum with uniformly thin brown tomentum, gray at sides and on scutellum. Apparently no scutellar bristles in any specimen that I have seen; bristles of mesonotum black. Pleura with white tomentum, white hairs and pale yellow bristles.

Abdomen: Black with red hind margins on each tergite, covered with brownish gray tomentum, giving it a purplish bloom. A few black hairs, but hairs predominantly yellow, longer at sides and basally. Venter with long, erect yellow hairs. Male genitalia shining black, upper forceps deeply cleft (fig. 110).

Legs: Femora almost entirely black when seen from in front, but posterior faces of fore and middle femora orange except for an apical black ring. Fore and middle tibiae and basitarsi entirely orange, other tarsomeres black. Hind femora black on both sides, except for a bright red base; hind tibiae orange on basal half, black on apical half; hind tarsi entirely black. Leg bristles mostly black, but some yellow ones, especially long bristles on fore and middle tarsi; hairs short and black dorsal longer and white ventrally.

Wings: Rather elongate, costa dilated in male, and darkened in both sexes. Stem of R_{4+5} very short, fork beginning basad of end of discal cell.

Length of body 16 mm; of wing 14 mm.

HOLOTYPE in BPB (BISHOP 8697).

TYPE LOCALITY. LUZON: Camarines Sur, Mt. Isarog, 800 m, 27-30.IV.1863 (H. M. Torrevillas).

MATERIAL SEEN. LUZON: 7, 11, 15, 18, 20.

Ommatius euplocus Oldroyd, new species

Another species in which the male has silvery pile on the fore legs (cf. *allopoecius*), though less intensively on the tarsi than on the tibiae.

Head: Face with dense golden yellow tomentum. Mystax limited to a few yellow bristles on epistoma, with paired black bristles above extending up to antennae. Frons more bronze, with fine black hairs laterally. Proclinate postoccipital bristles black, standing on a blackish strip, otherwise occipital region with bronze tomentum and yellowish hairs, merging into white bear. Antennae black with black hairs; palpi and proboscis black with mixed black and white hairs.

Thorax: Black, entirely covered with tomentum. Mesonotum brown with indistinct yellowish brown margins. Scutellum grayish, especially apically, with two black marginal bristles. Bristles and fine hairs of mesonotum black, yellowish hairs only on humeri. Pleura gray, with hairs and bristles mainly yellow, a few black, especially dorsally, and in metapleural tuft.

Abdomen: Dorsum dull black, with a purplish bloom, becoming shining black on sixth to eighth tergites, and genitalia. Clothing hairs mostly short, black; first tergite with long black

and yellow bristles at sides. Venter similar with longer yellow hairs.

Legs: Slender. Femora and entire hind legs except for the obscurely reddish base of hind tibiae, black or blackish red, with black clothing hairs and bristles. Fore and middle tibiae reddish yellow, with very long bristles, mostly black, and with a dorsal whitish pile which is thicker and more conspicuous on fore tibiae. Tarsi blackish, with black hairs and bristles, and little trace of silvery pile.

Wings: Uniformly light smoke-brown, not dilated, and with no special features.

Length of body 10 mm; of wing 9 mm.

HOLOTYPE in BPB (BISHOP 8698).

TYPE LOCALITY. LUZON, Camarines Sur, Mt. Isarog, 20 km E of Naga, 1000–1500 m, 23.IV.1963 (H. M. Torrevillas).

MATERIAL SEEN. LUZON: 6, 10, 16, 19, 24.5, 25, 27. MINDANAO: 35, 40, 43, 47, 48. PALAWAN: 67. NEGROS OR.: 62. SULU: 73.

Ommatius fulvimanus Wulp

Ommatius fulvimanus Wulp, 1872: 264.

The male is easily recognised by the characteristic genitalia (fig. 115); upper forceps large, square in side view, bulbous in dorsal view, and with acute corners posteriorly.

Head: Face and frons narrowing steadily from epistoma to vertex. Face with yellow tomentum. Mystax confined to vicinity of mouthmargin, consisting of white bristles only, and continued by pairs of black bristles and very fine black hairs. Frons with brown tomentum, ocellar tubercle almost touching eyes. Vertex very deeply incised, with white tomentum. Proclinate postverticals black, few and week, occipital hairs and beard snow-white. Antennae and palpi black with black hairs; proboscis black with white hairs at base.

Thorax: Black, entirely covered with ashy tomentum, gray and brown. Mesonotum brown, except for gray humeri and indistinct posthumeral patches, lateral margins and prescutellar patch. Scutellum black with thin gray tomentum; no marginal bristles visible in the two males available to me. Bristles and hairs of mesonotum black, except for white humeral tuft. Pleura with white tomentum, white hairs and yellowish bristles.

Abdomen: Dorsally ashy gray and black, each tergite with a brown patch anteriorly, and broad gray lateral and posterior margins. Clothing hairs rather long, and predominantly yellow. Venter gray with long yellow hairs. Male genitalia as in fig. 115, with large quadrangular upper forceps and an undivided, shovel-like hypandrium [♀ at present unknown to me].

Legs: Femora black; hind femora with a small, fiery red spot at extreme base, with sparse yellow clothing hairs and yellow bristles, but a prominent black anteroapical bristle on hind femora. Fore and middle tibiae and basitarsi orange, rest of tarsomeres black. Hind tibiae orange, with broad black tip. Tarsi black, basitarsus only indistinctly reddish at base. Hairs concolorous. Fore and middle tibiae with one or two very long yellow bristles posteriorly, other bristles mainly black.

Wings: Costa slightly dilated, marginal cell transversely ridged. No area of dark pigment, but extreme tip of wing, from stigma to beginning of fifth posterior cell, is infuscated with gray microtrichiae, as in many Asilini.

Length of body 13 mm; of wing 11 mm.

HOLOTYPE in RML.

TYPE LOCALITY. OBI I.

MATERIAL SEEN. LUZON : 31.

Ommatius hocus Oldroyd, new species Fig. 121.

Besides the distinctive male genitalia (fig. 121), this species has the small but significant feature of white proclinate postoccipital bristles. It is very close to *pinguis* Wulp, but that species was described from a female, and is said to have black proclinate bristles.

Head: Face and frons narrowing steadily from epistoma to vertex. Face with white tomentum and a sparse mystax of white bristles on epistoma, surmounted by two to three pairs of black bristles, the uppermost only little above middle of face. Frons and vertex brownish, not contrasting strongly with face; occiput white. Proclinate bristles *white*, an unusual feature. Other postoccipital bristles and hairs, as well as beard, white. Antennae light brown or even yellowish, with black hairs. Proboscis and palpi black with white hairs.

Thorax: Black in ground color, entirely tomented. Mesonotum uniformly covered with thin brown tomentum; extreme sides and scutellum more gray. Hairs and bristles predominantly *white*, though a few bristles may be black. Pleura gray with white hairs and bristles.

Abdomen: Tergites black, each rather conspicuously reddish laterally and posteriorly. Tomentum brown, with black hairs on a broad median stripe; more grayish with white hairs laterally. Sternites black with narrow hind margins, uniform gray tomentum, and few hairs, but third to fifth sternites have a pattern of strong white bristles. Male genitalia as in fig. 121

Legs: Coxae, fore and middle legs clear pale yellow, with yellow hairs and bristles; only extreme tips of basitarsi and rest of tarsi black. Hind femora basally yellow, with almost the apical half black, extending basad on ventral surface, less so in female; apical third of hind tibiae, and entire hind tarsi, including all basitarsi, black; hairs and bristles of hind legs black.

Wings: Clear, faintly dusky at extreme tip, without any dilatation of the costa.

Length of body 10 mm; of wing 8 mm.

HOLOTYPE in BPB (8699).

TYPE LOCALITY. MINDANAO : Mt. View Colleges, 15 km N.W. Valencia, 2,200 Ft, Bukidnon, 22-23.IV.1968 (M. D. Delfinado).

MATERIAL SEEN. LUZON : 11, 12, 18. MINDANAO : 48.

Ommatius hypnus Oldroyd, new species Fig. 125.

A distinctive feature of this species in well-preserved specimens, is the appearance of vertical silvery stripes on the pleura, caused by the pile effect of the tomentum. Another fairly reliable feature is that the ring on the hind femora does not reach to the tip, but leaves a yellow band there.

Head: Face and frons narrowing from epistoma to antennae, then parallel-sided to upper limit of eye. Face pale yellowish, mystax consisting of only about a half-dozen yellow bristles on mouthmargin, with two pairs of black bristles above. Vertex dark chocolate-brown. Proclinate postoccipital bristles black. Occiput with ashy gray/brown tomentum, and sparse black and white bristles, extending into white beard. Antennae dark brown with black hairs; palpi and

proboscis black with black hairs.

Thorax: Mesonotum with golden brown tomentum, only slightly whitish laterally. Scutellum with thin brown tomentum. Paired scutellar bristles may be either yellow or brown; other bristles and hairs of mesonotum black, sparse, with only one well developed pair of dorsocentrals. Pleura covered with white tomentum in the form of pile, which gives the effect of vertical white stripes through prothorax and propleuron, and through posterior mesopleuron, anterior pteropleuron and posterior sternopleuron, leaving intermediate areas contrasting dull gray. Hairs white, some metapleural bristles black.

Abdomen: Black, first five segments covered with muddy brown tomentum, sides of sixth and all subsequent segments, and genitalia (fig. 125) shining black. Clothing hairs black, yellow only laterally near base, where they are also longer. Venter with brown tomentum, few hairs, but a pattern of strong yellow bristles on third to fifth sternites.

Legs: Coxae form part of pattern of pleura. Femora yellow, fore femora light brown apicodorsally; hind femora with a broad brown band, leaving a yellow area both basad and apicad, and with knee narrowly black. Fore and middle tibiae and basitarsi yellow; hind tibiae and basitarsi brown, except for base of tibia. All other tarsomeres black. Bristles white in usual way posteriorly on fore and middle femora, and posterodorsally on tibiae; otherwise black. Short clothing hairs black.

Wings: Only faintly grayish, a little darker at extreme tip; costa neither dilate nor stained.

Length of body 9 mm; of wing 8 mm.

HOLOTYPE in BPB (BISHOP 8700).

TYPE LOCALITY. MINDANAO: Misamis Or., Minabanan, 1050–1200 m, 5–9.IV.1961. (H. M. Torrevillas).

MATERIAL SEEN. MINDANAO: 37, 43, 45, 47, 48.

Ommatius manipulus Oldroyd, new species Fig. 113.

Apart from the male genitalia (fig. 113) this species is recognised by the entirely white mystax, and the clear yellow legs, only the tarsomeres being somewhat darkened.

Head: Face narrowing to just below antennae, then broadening, and upper margins of eyes diverging strongly. Face with white tomentum and an all-white mystax, even the paired bristles above it being white. Frons grayish white, a little brownish on vertex, behind ocellar tubercle. Proclinate postoccipitals mostly black, one or two whitish lower occipitals, and beard white. Antennae black-brown, with mainly black hairs. Proboscis and palpi black with white hairs.

Thorax: Mesonotum black, with only thin brown tomentum, a little gray above wings, and thicker brown tomentum before and on scutellum. One or both paired scutellars may be either black or yellow; other bristles black, fine black hairs sparse. Pleura black, entirely covered with white tomentum, white hairs and yellow bristles.

Abdomen: Brown, darker on tergites, except for more yellowish lateral margins and genitalia (fig. 113). Clothing hairs mainly short, black; longer and yellow at sides and basally. Venter yellow-brown with longer yellow hairs.

Legs: Almost entirely clear yellowish. Femora have narrow but distinct black tips; hind tibiae and all tarsomeres dull brownish at tip. Clothing hairs black, bristles mainly black, but some yellow ones, especially very long yellow bristles posteriorly on fore and middle tibiae.

Wings: Costa not dilated, but veins crowded together, and marginal cell ribbed and transversely wrinkled, slightly darkened.

Length of body 10 mm; of wing 8 mm.

HOLOTYPE in BPB (BISHOP 8701).

TYPE LOCALITY. MINDANAO, Zamboanga del Norte, 11 km E of Sindangan, 20.VII.1958 (H. E. Milliron).

MATERIAL SEEN. (paratypes). MINDANAO: 34, 41.

Ommatius peristus Oldroyd, new species Fig. 124.

Closely related to *euplocus* sp. n., but bigger and more robust, and with a development of the terminalia quite unlike those of either sex in other *Ommatius*.

Head: Face rather broad, narrowing progressively from epistoma to vertex. Face with brassy yellow tomentum, only a few hairs on epistoma, mystax otherwise consisting of stiff black bristles in pairs, interspersed with fine black hairs. Frons with dark brown tomentum and fine black bristles. Occiput with yellowish tomentum, black proclinate bristles, and white hairs and bristles which merge into white beard. Antennae and palpi black with black hairs; proboscis black, with white hairs basally.

Thorax: Black in ground color, with dense tomentum. Mesonotum dark brown, more yellowish gray laterally, posteriorly, and on scutellum; with erect whitish hairs on paler areas. No sign of any marginal scutellars. Bristles of mesonotum strong, and black, with conspicuous, long black hairs laterally and posteriorly. Pleura with light brassy tomentum and yellow hairs and bristles.

Abdomen: Tergites black with red hind borders, covered with ashy black/gray tomentum, more gray posteriorly and laterally on each tergite. A few short black hairs, but most clothing hairs are longer and yellow, especially laterally. Venter similar. Eighth segment shining black (fig. 124).

Legs: Femora black except for a small red patch at extreme base. Fore and middle tibiae and basitarsi yellow; tips of basitarsi and all other tarsomeres black. Hind tibiae yellow, with apical one third black, and all tarsomeres black. Bristles mostly black, some long tibial bristles yellow; clothing hairs mixed black and yellow.

Wings: Costa not dilated, but membrane covered with dark microtrichiae from tip of Sc round to tip of M_4

Length of body 13 mm; of wing 11 mm.

HOLOTYPE in BPB (BISHOP 8702).

TYPE LOCALITY. LUZON. Mountain Province, Ifugao, Mayoyao, 100–1500 m, 4. VIII.1966 (H. M. Torrevillas).

MATERIAL SEEN. LUZON: 2, 3. MINDANAO: 38.5. NEGROS OR.: 62.

Ommatius scinius Oldroyd, new species Fig. 122.

Closely allied to *daknistus*, sp. n., but distinguished by the male genitalia (fig. 122) and by the coloring of the hind tibiae.

Head: Face and frons converging strongly from epistoma to vertex. Face with thin yellow tomentum. A stiff mystax of about ten strong yellow bristles, surmounted by three pairs of black bristles, but fine yellow hairs are very sparse. Frons with bronze tomentum, contrasting with face. Occipital tomentum brassy yellow. Proclinate bristles black, and of usual

length (cf. *daknistus*). Lower postoccipital bristles yellow, beard white. Antennae yellow with black hairs. Proboscis and palpi black, with mainly yellow hairs, some black.

Thorax: Dorsum black, humeri and postalar calli reddish. Mesonotum covered with thin brownish tomentum, more brassy yellow at sides and posteriorly. Scutellum with brassy tomentum and a pair of black marginal bristles. Bristles and hairs of mesonotum mainly black. Pleura mostly yellow, with a broad vertical black band through mesopleuron and sternopeluron. Tomentum mixed white and yellowish, more brassy yellow on mesopleuron. Hairs and bristles yellow.

Abdomen: Ground color of tergites black with brown tomentum, each with a broad posterior margin that is red with yellow tomentum. Clothing hairs short, black towards middle of each tergite, but longer, yellow ones predominate, especially laterally. Venter similarly patterned, with conspicuous red hind margins to sternites. Sternites 3-5 with a pattern of strong yellow bristles.

Legs: All coxae yellow in ground color, with yellowish white tomentum, and yellow bristles and hairs. Fore and middle femora, tibiae and basitarsi clear yellow, with yellow hairs and bristles, except for black hairs dorsoapically. Femora with stiff yellow bristles ventrally, longer basally. Tips of basitarsi and all other tarsomeres black. Hind femora mostly black, with about their basal quarter yellow; hind tibiae two-thirds yellow, basal third black; hind tarsi entirely black. Hairs and bristles mostly black.

Wings: Not dilated, nor heavily marked, but becoming gradually more smoky towards tip.

Length of body 15 mm; of wing 9 mm.

HOLOTYPE in BPB (BISHOP 8703).

TYPE LOCALITY. LUZON: Mountain Province, Ifugao, Mayoyao, 1100-1500 m, 6. VII.1966 (H. M. Torrevillas).

MATERIAL SEEN. LUZON: 2 (a single male).

Ommatius suntius Oldroyd, new species Fig. 114.

An undistinguished species, with small, simple male genitalia (fig. 114)

Head: Face converging to just below antennae, then almost parallel to vertex. Face with yellowish tomentum, and a very sparse yellowish mystax, surmounted by three pairs of bristles, some whitish, upper ones brown or black, and interspersed with rather long white hairs. Frons more bronze. Occiput white. Proclinate bristles mostly black, perhaps isolated white ones; postoccipital hairs and beard white. Antennae brown, third segment paler than others, hairs black. Palpi and proboscis black, hairs brown or black on palpi, white ventrally on proboscis.

Thorax: Black in ground color, except perhaps narrowly round margins of mesonotum and scutellum; covered with dense tomentum: mesonotum with light brown tomentum, more grayish at sides; scutellum brownish gray, with short white hairs and a pair of pale yellow bristles. Bristles of mesonotum mixed yellow and brown or black. Pleura yellowish white, more brownish on mesopleuron, with yellow hairs and bristles.

Abdomen: Dark brown, with narrow yellow posterior margins to segments, especially 2-4. Covered with brown tomentum. Some short black hairs in middle, but mostly yellow, longer on posterior margins, at sides and anteriorly. Venter more yellowish, with long yellow clothing hairs. Male genitalia, fig. 114.

Legs: Coxae yellow in ground color, and distinctly more translucent than pleura, even though they are covered with white tomentum. Fore and middle legs clear yellow, only tips of femora dorsally a little brownish, and tarsomeres 2-5 brown. Hind femora and tibiae each

black on apical half, yellow on basal half; tarsi all black, including basitarsi. Bristles mostly black, except for long yellow bristles on tibiae.

Wings: Not dilated, nor heavily marked; lightly smoky, deeper color towards tip.

Length of body 9 mm; of wing 7 mm.

HOLOTYPE in BPB (BISHOP 8704).

TYPE LOCALITY. MINDANAO: Misamis Or., Mt Empagatao, 1050-1200 m, 19-30. IV.61 (H. M. Torrevillas).

MATERIAL SEEN. MINDANAO: 43, 45, 88.

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