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CALLIPHORIDAE
(DIPTERA CYCLORRHAPHA)

Part II : RHINIINI

BY

FRITZ ZUMPT, Ph. D., F.R.E.S. (Johannesburg)

PREFACE

The first part of my revision of the *Calliphoridae* of the Ethiopian region, published in 1956 as part 87 of the « Exploration du Parc National Albert, Mission G. F. DE WITTE (1933-1935) », dealt with the *Calliphorini* and *Chrysomyiini*. I am now presenting the *Rhiniini*, the last tribe of the *Calliphorinae* as far as Africa South of the Sahara is concerned.

The necessary remarks on the higher classification, on the morphological features of taxonomic importance (including the abbreviations), and a few on the variability have already been given in Part I, as well as my thanks to all those institutions and private persons who lent me material or helped in some other respect.

Subfamily CALLIPHORINAE.

RHINIINI.

PERIS (1952) has revised this tribe, which he regards as subfamily, on a world-wide basis. Unfortunately, this author has not taken into consideration the structure of the male terminalia as much as should be done in a modern revision of a fly-group. That this is necessary has become clear during the course of studies of the Palaerctic species (ZUMPT, 1956) and the Ethiopian ones. Several species have been detected which are only recognisable by the structure of this organ, whereas in others, it has been shown that the so-called outer features may vary to a high degree within the same species, that they may overlap within related forms, and that a clear recognition is sometimes only possible if the hypopygium is dissected.

The *Rhiniini* form a specialised group of the *Calliphorinae*, but they are nevertheless so closely related to them, that they should not be regarded as a higher unit than a tribe. There is a strong tendency in this group towards a reduction of the thoracic and abdominal chaetotaxy, and towards a stretching of the whole body, including the protruding of the epistome. The chaetotaxy of the head, however, is not decreased, but more or less increased, especially in the female sex. The male post-abdomen consists in the primitive *Rhiniini* of three distinct and separated (free) segments, but the anterior one is subject to a reduction, becoming more and more rudimentary, and can be totally wanting in some *Rhiniini*.

There are two large genera which contain the most primitive species valued from a combination of a number of outer features and of the male genitalia, namely *Isomyia* and *Rhyncomya*. *Isomyia* has the arista provided with long hairs on both sides. Assuming that the progressive reduction of the thoracic chaetotaxy is a sign of specialization, the evolution appears to have proceeded in two directions. The one leads to genera like *Rhinia* and *Vanemdenia* in which the upper aristal hairs are present, but the lower ones reduced (genera nos. 1-8); the other leads through *Eurhyncomyia* to *Stegosoma* which has the aristal hairs reduced on both sides (genera 9-16).

Very little is known about the bionomics of the *Rhiniini*, but all of them seem to be associated with developing stages of insects, especially termites, hymenoptera and orthoptera, on which the larvae feed as predators or parasites. The adults are commonly found on flowering plants.

LIST OF VALID SPECIES OF *RHINIINI* KNOWN TO ME FROM THE ETHIOPIAN REGION.

Scientific name	Recorded from	
	Belgian Congo	P.N.A.
1. *Isomyia pallens* (CURRAN)	+	—
2. *Isomyia flavida* (VILLENEUVE)	+	—
3. *Isomyia grossa* (VILLENEUVE)	+	—
4. *Isomyia oculosa* (VILLENEUVE)	—	—
5. *Isomyia pubera* (VILLENEUVE)	+	—
6. *Isomyia jactatrix* (VILLENEUVE).	+	+
7. *Isomyia calliphoroides* (MALLOCH)	+	—
8. *Isomyia tristis* (BIGOT)	+	+
9. *Isomyia connivens* (VILLENEUVE)	—	—
10. *Isomyia evanida* (VILLENEUVE)	+	—
11. *Isomyia fasciculata* (VILLENEUVE)	+	—
12. *Isomyia nitida* (CURRAN)	+	—
13. *Isomyia cinerascens* (VILLENEUVE)	+	—
14. *Isomyia dubiosa* (VILLENEUVE)	+	+
15. *Isomyia pendula* (MALLOCH)	?	—
16. *Isomyia deserti* (KARSCH)	+	—
17. *Isomyia eos* n. sp.	—	—
18. *Isomyia natalensis* (VILLENEUVE)	—	—
19. *Isomyia snyderi* ZUMPT	—	—
20. *Isomyia nigripes* (VILLENEUVE).	—	—
21. *Isomyia cuprapex* (VILLENEUVE)	+	—
22. *Isomyia terminata* (WIEDEMANN)	+	—
23. *Isomyia distinguenda* (VILLINEUVE)	+	—
24. *Isomyia darwini* (CURRAN)	—	—
25. *Isomyia cuthbertsoni* (CURRAN)	—	—
26. *Isomyia faini* n. sp.	—	—
27. *Isomyia longicauda* (VILLENEUVE)	—	—
28. *Isomyia angolensis* (PERIS)	—	—
29. *Isomyia ellenbergi* (SÉGUY)	—	—
30. *Isomyia occidentalis* (PERIS)	—	—
31. *Isomyia pharyge* (SÉGUY)	—	—
32. *Isomyia pluvialis* (SÉGUY)	—	—
33. *Isomyia solitaria* (PERIS)	+	—
34. *Thoracites cingulatus* BEZZI	—	—
35. *Idiopsis aenea* (FABRICIUS).	+	+

Scientific name	Recorded from	
	Belgian Congo	P.N.A.
36. *Idiopsis petiolata* (Malloch)	+	—
37. *Idiopsis viridis* (Townsend)	—	—
38. *Idiopsis griseoviridis* (Malloch)	+	—
39. *Idiopsis prasina* Brauer and Bergenstamm ...	—	—
40. *Cosmina punctulata* (Wiedemann)	—	—
41. *Cosmina undulata* Malloch	+	—
42. *Cosmina margaritae* Peris	+	—
43. *Cosmina gracilis* Curran	—	—
44. *Fainia albitarsis* (Macquart)	—	+
45. *Fainia elongata* (Bezzi)	+	+
46. *Stomorhina apta* Curran	—	—
47. *Stomorhina armatipes* (Malloch)	—	—
48. *Stomorhina lunata* (Fabricius)	+	+
49. *Stomorhina atra* (Curran)	+	—
50. *Stomorhina chapini* Curran	+	—
51. *Stomorhina patrizii* (Peris)	—	—
52. *Stomorhina guttata* (Villeneuve)	—	—
53. *Stomorhina rugosa* (Bigot)	+	+
54. *Stomorhina cribrata* (Bigot)	+	+
55. *Stomorhina tristriata* (Becker)	—	—
56. *Stomorhina celibe* (Peris)	—	—
57. *Stomorhina deceptor* (Curran)	+	—
58. *Rhinia apicalis* (Wiedemann)	+	—
59. *Rhinia nigricornis* (Macquart)	+	—
60. *Rhinia coxendix* Villeneuve	+	+
61. *Vanemdenia africana* Peris	—	—
62. *Eurhyncomyia diversicolor* (Bigot)	—	—
63. *Pseudorhyncomyia braunsi* (Villeneuve)	—	—
64. *Rhyncomya dasyops* Bezzi	+	—
65. *Rhyncomya tetropsis* (Bigot)	+	—
66. *Rhyncomya ituriensis* n. sp.	+	—
67. *Rhyncomya elegantula* Villeneuve	+	—
68. *Rhyncomya buccalis* Villeneuve	+	—
69. *Rhyncomya disclusa* Villeneuve	—	—
70. *Rhyncomya depressifrons* Villeneuve	—	—
71. *Rhyncomya currani* n. n.	—	—
72. *Rhyncomya nigra* Peris	—	—
73. *Rhyncomya messoria* Villeneuve	+	—

Scientific name	Recorded from	
	Belgian Congo	P.N.A.
74. *Rhyncomya formosa* PERIS	—	—
75. *Rhyncomya hessei* n. sp.	—	—
76. *Rhyncomya minutalis* (VILLENEUVE)	—	—
77. *Rhyncomya maculata* (MACQUART)	—	—
78. *Rhyncomya interclusa* VILLENEUVE	—	—
79. *Rhyncomya discrepans* VILLENEUVE	—	—
80. *Rhyncomya paradoxa* n. sp.	—	—
81. *Rhyncomya bicolor* (MACQUART)	—	—
82. *Rhyncomya peraequa* VILLENEUVE	—	—
83. *Rhyncomya obtusa* (BIGOT)	+	—
84. *Rhyncomya soyauxi* (KARSCH)	+	—
85. *Rhyncomya stannocuprea* SPEISER	—	—
86. *Rhyncomya tristis* SÉGUY	—	—
87. *Rhyncomya pruinosa* VILLENEUVE	+	—
88. *Rhyncomya io* PERRIS	—	—
89. *Rhyncomya zumpti* PERIS	—	—
90. *Rhyncomya nana* PERIS	—	—
91. *Rhyncomya varifrons* BECKER	—	—
92. *Rhyncomya trispina* VILLENEUVE	—	—
93. *Rhyncomya cassotis* (WALKER)	+	—
94. *Rhyncomya forcipata* VILLENEUVE	+	—
95. *Rhyncomya coelestis* VILLENEUVE	—	—
96. *Rhyncomya echinata* SÉGUY	—	—
97. *Rhyncomya fovealis* BEZZI	—	—
98. *Rhyncomya phasiaeformis* BEZZI	—	—
99. *Rhyncomya proterva* SÉGUY	—	—
100. *Rhyncomya proxima* SÉGUY	—	—
101. *Rhyncomya pseudotetropsis* SÉGUY	—	—
102. *Rhyncomya rugosa* SÉGUY	—	—
103. *Perisiella anchora* (WIEDEMANN)	—	—
104. *Perisiella saba* (PERIS)	+	—
105. *Zumba rhinoidea* PERIS	—	—
106. *Zumba antennalis* (VILLENEUVE)	—	—
107. *Pararhynchomyia cribriformis* BECKER	—	—
108. *Trichoberia lanata* (VILLENEUVE)	+	—
109. *Stegosoma vinculatum* LOEW	—	+
110. *Stegosoma bowdeni* PERIS	—	—
111. *Stegosoma wellmani* (LICHTWARDT)	+	—

KEY TO THE GENERA OF THE ETHIOPIAN REGION.

1 (24) Arista dorsally and ventrally with long or short hairs, or almost bare, but not pectinate 2

2 (17) Arista bare or only pubescent, the longest hairs not or only slightly exceeding one half the width of the 3rd antennal segment 3

3 (4) Hypopleural bristles wanting, instead long yellowish hairs are developed, with which the whole body is densely covered ..... 15. *Trichoberia* TOWNSEND (p. 196).

4 (3) Hypopleural bristles well developed, normally black, rarely white 5

5 (6) Glossy testaceous, stout flies without any pollinosity. Outer *ph* wanting, *pst* present or absent, arista totally bare ..... 16. *Stegosoma* LOEW (p. 198).

6 (5) Not this combination 7

7 (14) Suprasquamal ridge bare 8

8 (11) Prostigmatic bristle present 9

9 (10) Wings with the outer margin not demarcated infuscated. Arista bare or with short setae which rarely exceed the basal diameter ..... 11. *Rhyncomya* ROB.-DESVOIDY (p. 125).

10 (9) Wings with the outer margin demarcated infuscated. Arista with longer setae some of which exceed twice the basal diameter ..... 12. *Perisiella* gen. nov. (p. 187).

11 (8) Prostigmatic bristle absent 12

12 (13) R_5 open. At least one pair of presutural *ac* and two pairs each of pre- and postsutural *dc* present ..... 13. *Zumba* PERIS (p. 192).

13 (12) R_5 closed and petiolate. Only the prescutellar pair of *dc* present ..... 14. *Pararhyncomyia* BECKER (p. 195).

14 (7) Suprasquamal ridge setulose on its posterior part 15

15 (16) Arista long pubescent, longest hairs slightly exceeding one half the width of the 3rd antennal segment. Propleuron bare, *pst* present ..... 9. *Eurhyncomyia* MALLOCH (p. 119).

16 (15) Arista almost bare. Propleuron like the other pleura densely covered with long whitish hairs, *pst* absent ..... 10. *Pseudorhyncomyia* PERIS (p. 122).

17 (2) Arista plumose, the longest hairs are at least as long as the 3rd antennal segment is broad 18

18 (19) Outer *ph* wanting ... 2. *Thoracites* BRAUER & BERGENSTAMM (p. 62).

19 (18) Outer *ph* present 20

20 (21) Propleuron pilose ..... 3. *Idiopsis* BRAUER & BERGENSTAMM (p. 65).

21 (20) Propleuron bare 22

22 (23) Presutural *ac* well developed ..... 1. *Isomyia* WALKER (p. 10).

23 (22) Presutural *ac* wanting or rudimentary and hardly distinguishable from the other hairs ..... 4. *Cosmina* ROB.-DESVOIDY (p. 74).

24 (1) Arista pectinate, with hairs on the dorsal side only 25

25 (26) Lower marginal cross-vein (*m-cu*) strongly angulose inwards, almost forming a right angle; media strikingly curved, R_5 closed and petiolate ..... 8. *Vanemdenia* PERIS (p. 118).

26 (25) Lower marginal cross-vein not angulose, more or less sigmoid; media not so strongly curved, bend rounded or angulose 27

27 (28) Hind tibia without a conspicuous row of antero-dorsal bristles, but with 2-3 *ad* which are as long or longer than the tibial diameter. R_5 always open .... 5. *Fainia* gen.nov. (p. 83).

28 (27) Hind tibia with a conspicuous row of subequal antero-dorsal bristles, sometimes 2 or 3 a little longer than the others. R_5 open or closed 29

29 (30) R_5 petiolate. Mesopleuron densely yellow pollinose, but without distinct setiferous spots; sternopleuron glossy, not pollinose. Abdomen completely or at least predominantly yellow-brown ..... 7. *Rhinia* ROB.-DESVOIDY (p. 111).

30 (29) R_5 open; or if closed or petiolate, sternopleuron like the mesopleuron densely yellow pollinose; or mesopleuron with distinct setiferous spots and the abdomen blackish with a more or less developed yellow pattern ..... 6. *Stomorhina* RONDANI (p. 88).

Genus **ISOMYIA** WALKER.

Isomyia WALKER, Proc. Linn. Soc. Lond., IV, 1860, p. 134; S.-WHITE, AUBERTIN & SMART, Fa. Brit. India, Dipt., VI, 1840, p. 151; SÉGUY, Rev. Brasil., Biol., IX, 1949, p. 136; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 138; ZUMPT, Fliegen pal. Region, 64, i, 1956, p. 108.
Type species : *I. delectans* WALKER from Célèbes.

Strongyloneura BIGOT, Bull. Soc. Ent. France, (6), VI, 1886, p. 14; MALLOCH, Ann. Mag. N. H., (9), XVIII, 1926, p. 520; SÉGUY, Encycl. Ent., A IX, 1929, p. 182; TOWNSEND, Man. Myiol., V, 1937, p. 109; S.-WHITE, AUBERTIN & SMART, Fa. Brit. India, VI, 1940, p. 151; SÉGUY, Rev. Brasil., Biol., IX, 1949, p. 118; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 188; ZUMPT, Ann. Mus. Congo Tervuren, Zool., XXXVI, 1955, p. 325.
Type species : *S. prasina* BIGOT from Japan.

Thelychaeta BRAUER & BERGENSTAMM, Denkschr. Akad. Wiss. Wien, LVIII, 1891, p. 390; VILLENEUVE, Ann. Soc. Ent. France, LXXXV, 1916, p. 337; MALLOCH, Ann. Mag. N. H., (9), XVIII, 1926, p. 521; TOWNSEND, Man. Myiol., V, 1937, p. 112; S.-WHITE, AUBERTIN & SMART, Fa. Brit. India, Dipt., VI, 1940, p. 151; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 137; ZUMPT, Beitr. Ent., IV, 1954, p. 649 et Ann. Mus. Congo Tervuren, Zool., XXXVI, 1955, p. 325.
Type species : *T. chalybea* B. B. from Borneo.

Apollenia BEZZI, Boll. Lab. Zool. Portici, VI, 1912, p. 79; MALLOCH, Ann. Mag. N. H., (9), XVIII, 1926, p. 521; TOWNSEND, Man. Myiol., V, 1937, p. 92; SÉGUY, Rev. Brasil., Biol., IX, 1949, p. 119; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 137.
Type species : *P. nudiuscula* BEZZI from Mozambique.

Chloroidia TOWNSEND, Rec. Ind. Mus., XIII, 1917, p. 196, et Man. Myiol., V, 1937, p. 94; S.-WHITE, AUBERTIN & SMART, Fa. Brit. India, Dipt., VI, 1940, p. 170; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 188.
Type species : *C. flavifrons* TOWNSEND from India.

Anna MALLOCH, Ann. Mag. N. H., (9), XVIII, 1926, p. 520; TOWNSEND, Man. Myiol., V, 1937, p. 91; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 137.
Type species : *A. calliphoroides* MALLOCH from Kenya.

Pachycosmina SÉGUY, Encycl. Ent., Dipt., VII, 1934, p. 18; TOWNSEND, Man. Myiol., V., 1937, p. 104; SÉGUY, Rev. Brasil., Biol., IX, 1949, p. 137; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 127.
Type species : *P. oestracea* SÉGUY from China.

Isomyia subg. *Thelychaetopsis* SÉGUY, Rev. Brasil., Biol., IX, 1949, p. 115; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 137.
Type species : *S. pseudolucilia* MALLOCH from China.

The genus *Isomyia* contains species with the most primitive features within the Rhiniini, but on the other hand, we also find a number of species which already show a more or less high degree of specialization with respect to some features, especially the hypopygium.

Head with bare eyes, upper facets more or less enlarged, width of frons in the Ethiopian species measuring at its narrowest point from 1/5 of eye-

length to nil, in which case the eyes touch one another for a shorter or longer distance. Chaetotaxy of female head complete, parafrontalia with at least two distinct *fo*, parafacialia with or without setae, more or less densely pollinose and sometimes with a glossy, undusted spot in the lower part. In the male, *ev*, *f*, and *fo* are not developed. Antennal groove mostly with a well developed median convexity separating the antennae from each other; this convexity is rarely absent. Arista with long hairs on both sides. Epistome not or only slightly protruded.

Thorax of various colours, often bright metallic, more or less densely pruinose; *ac*=0-2+2-6, *dc*=2-3+4-5, *ia*=1+4, *h*=2-4, *ph*=2-6 (outer bristles always present), *prs*=1, *n*=2, *sa*=3−6, scutellum with normally 3 pairs of marginals which are sometimes increased to 5 pairs, disc with one to several pairs of bristles, *st*=1 : 1, at least one *pst* and one *pp* present, hypo- and mesopleural bristles fully developed; propleuron bare, post-alar declivity in some species with a few setae, suprasquamal ridge always bare; prosternum haired. Wings hyaline or more or less deeply brownish tinged, outer margin sometimes more strongly infuscated and clearly demarcated; costal spine wanting or present, R_5 open, thoracic squama mostly longer than broad, in some species as long as broad or even broader than long. Fore-tibia with several *ad* and one *pv*; mid-tibia with 1-3 *ad*, 1-3 *pd*, 1-4 *pv* and 0-2 *av*; hind-tibia with a few or several *ad* arranged in row, with 2-5 *pd* and 0-3 av.

Abdomen of various colours like the thorax, postabdomen composed of 3 segments, the first being more or less reduced. Hypopygium sometimes greatly increased in size; cerci free or fused. Phallosome with spine, harpes broad and well sclerotized, vesicae membranous and denticulated.

The genus *Isomyia* is well represented in the Ethiopian and Oriental regions. Several species also occur in the Southern Palaearctis and on Madagascar.

Practically nothing is known about the life-histories of *Isomyia* species.

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The Ethiopian species of this genus can be arranged in several groups according to their outer features and the hypopygial structure :

1. *pallens* (CURRAN) ... ... } *pallens*-group.
2. *flavida* (VILLENEUVE) ... ... }

3. *grossa* (VILLENEUVE) ... ... } *grossa*-group.
4. *oculosa* (VILLENEUVE) .. .. }
5. *pubera* (VILLENEUVE) ... ... }
6. *jactatrix* (VILLENEUVE) ... ... }

7. *calliphoroides* (MALLOCH)	*tristis*-group.
8. *tristis* (BIGOT)	
9. *connivens* (VILLENEUVE)	
10. *evanida* (VILLENEUVE)	
11. *fasciculata* (VILLENEUVE)	
12. *nitida* (CURRAN)	
13. *cinerascens* (VILLENEUVE)	*dubiosa*-group.
14. *dubiosa* (VILLENEUVE)	
15. *pendula* (MALLOCH)	
16. *deserti* (KARSCH)	
17. *eos* n. sp.	
18. *natalensis* (VILLENEUVE)	*natalensis*-group
19. *snyderi* ZUMPT	
20. *nigripes* (VILLENEUVE)	
21. *cuprapex* (VILLENEUVE)	*distinguenda*-group.
22. *terminata* (WIEDEMANN)	
23. *distinguenda* (VILLENEUVE)	
24. *darwini* (CURRAN)	
25. *cuthbertsoni* (CURRAN)	
26. *faini* n. sp.	
27. *longicauda* (VILLENEUVE)	*longicauda*-group.

KEY TO THE SPECIES.

1 (4) Body including femora and tibiae predominantly reddish-yellow or red-brown, tarsi blackened 2

2 (3) Abdomen uniformly coloured like the thorax.

Wings hyaline with a yellow tinge, basicosta yellow; *m* broadly rounded. Thoracic squama about as long as broad. 8-10 mm. — Belgian Congo ..... 1. *I. pallens* (CURRAN).

3 (2) Abdomen with a blackish pattern, tergite III showing a broad posterior band which is triangularly dilated in the middle, tergites IV and V also blackened posteriorly.

Wings as in the foregoing species, but *m* with an obtuse and blunt, only °short-rounded angle. 9 mm. — Belgian Congo ..... 2. *I. flavida* (VILLENEUVE).

4 (1) Body with a dark metallic or non-metallic colouring, thorax never reddish or yellow, at most the abdomen partly or predominantly brownish. Femora, except in *I. grossa*, dark coloured 5

5 (6) Legs totally yelllow or red-brown, rarely the femora partly with a blackish shine.

Body stout, dull olive-green, bluish or cupreous, with a slight pruinosity. Wings hyaline, veins including basicosta yellow, *m* broadly rounded; thoracic squama about as long as broad. Male with strongly enlarged upper facets. 10-12 mm. — Tropical Africa. ..... 4. *I. oculosa* (VILLENEUVE).

6 (5) Legs with at least the femora predominantly dark coloured 7

7 (12) Thoracic squama about as broad as long or even broader. Parafacialium with a glossy dark spot and relatively long black bristles. Basicosta blackish 8

8 (9) Anterior part of mesonotum with distinct longitudinal dark bands. Thorax dark olive, cupreous or greyish, with greenish and bluish reflections. Abdomen of the male predominantly reddish-yellow, with an ill-defined black pattern; in the female abdomen coloured like the thorax or only brownish to a small extent.

A very stout species, in shape similar to *I. oculosa*. Wings more or less brownish tinged. 11-15 mm. — Central Afrika ..... 3. *I. grossa* (VILLENEUVE).

9 (8) Anterior part of mesonotum without distinct or with only ill-defined longitudinal dark bands. Thorax and abdomen of equal colouring, grey, olive, cupreous or green, but not partly brownish. More slender species than *I. grossa*, but still relatively stout 10

10 (11) Body predominantly grey or olive, with greenish, bluish or cupreous reflections.

Wings more or less brownish tinged. Chaetotaxy of mid-tibia variable. 10-13 mm. — Central, East and Southern Africa ..... 5. *I. pubera* (VILLENEUVE).

11 (10) Body predominantly green or blue, dull or glossy, with purple and violet reflections.

Wings almost totally tinged, with the anterior margin infuscated to a varying degree. The status of this species is not yet clear, and it may be only a variety of the foregoing one ..... 6. *I. jactatrix* (VILLENEUVE).

12 (7) Thoracic squama distinctly longer than broad. Parafacialium with or without a glossy dark spot, setae present or wanting. Basicosta blackish or pale 13

13 (24) Thorax and abdomen blackish or black-blue, dull olive green or dark cupreous, but not shiny metallic green or bluish-green 14

14 (15) Antennae close together, median convexity not developed. Setae on the parafacialia pale and short, no glossy spot present. See *I. cinerascens*, No. 28 (29).

15 (14) Antennae separated by a distinct median convexity. Setae on the parafacialium black and readily detectable, glossy spot mostly present, rarely indistinct 16

16 (17) Thorax and abdomen dark metallic blue, with a thin whitish pruinosity forming a pattern as in *Calliphora*.

Wings with a cloudy, light-brown tinge; basicosta black. Legs black, tibiae sometimes brown. 9-11 mm. — Central Africa ..... 7. *I. calliphoroides* (MALLOCH).

17 (16) Thorax and abdomen blackish, with an olive, cupreous or greenish shine 18

18 (21) Pruinosity of the body relatively weak, not forming a cloudy abdominal pattern varying with the light incidence; stripes on thorax indistinct or absent. Wings strongly brown tinged 19

19 (20) Body dull olive-green.

Parafacialium with the glossy spot sometimes ill-defined or wanting, setae relatively sparse. Legs dark, tibiae red-brown. 9-11 mm. — Central Africa ..... 14. *I. fasciculata* (VILLENEUVE).

20 (19) Body bluish-black.

Separated from the foregoing species by its quite different hypopygium. The wings are more deeply brown tinged, almost uniformly dark. 8-10 mm. — Central Africa ..... 12. *I. nitida* (CURRAN).

21 (18) Pruinosity of the body thicker forming a cloudy pattern on the abdomen and (indistinct in *I. evanida*) longitudinal stripes on the thorax. Wings less brownish tinged, or almost wholly hyaline 22

22 (23) Thorax metallic black-olive and cupreous, with a slight pruinosity forming only two narrow dark stripes in the presutural area. Basicosta yellow.

Closely related to the following species, from which it is clearly separable by the hypopygial structure. 11 mm. — Belgian Congo ..... 10. *I. evanida* (VILLENEUVE).

23 (22) Thorax blackish, with a grey and olive pruinosity forming broad longitudinal stripes. Basicosta black or black-brown.

Pattern on thorax and abdomen always distinct. Parafacial spot developed, setae long and dense. Wings hyaline or more or less tinged. 5-12 mm. — Ethiopian region ..... 8. *I. tristis* (BIGOT).
9. *I. connivens* (VILLENEUVE).

24 (13) Thorax and abdomen metallic bright green or bluish-green, sometimes cupreous with greenish and purple reflections 25

25 (26) Hypopygium coniform, occupying ventrally half of the abdomen. Fifth abdominal tergite of the female with a triangular emargination at its posterior border.

Body metallic green with purple and coppery reflections, or coppery with greenish reflections; pruinosity thin. Parafacialium with black setae, but no glossy spot developed. Wings brownish tinged, basicosta blackish or brown. Legs with dark femora, tibiae and tarsi more or less yellow-brown. 8-10 mm. — Central, East and Southern Africa .....
27. *I. longicauda* (VILLENEUVE).

26 (25) Hypopygium short, of normal size; fifth abdominal tergite of the female without emargination, posterior margin more or less straight 27

27 (36) Basicosta yellow. Parafacial glossy spot not developed 28

28 (29) Body cupreous, with purple and sometimes also greenish reflections, pruinosity relatively dense, white and greyish.

Antennal groove without a median convexity. Parafacial hairs mostly pale and short. Wings with a yellow tinge. Legs with dark femora and red-brown tibiae and tarsi. 8-10 mm. — Ethiopian region ..... 13. *I. cinerascens* (VILLENEUVE).

29 (28) Body bright metallic green or bluish, sometimes with cupreous reflections; pruinosity slight 30

30 (31) Lower part of parafacialia with pale setae.

Parafacial setae relatively densely placed and long. Wings mostly with an infuscated terminal spot, rarely wholly hyaline. Legs with dark femora and brown tibiae and tarsi. 8-10 mm. — Ethiopian region ..... 14. *I. dubiosa* (VILLENEUVE).

31 (30) Lower part of parafacialia with predominantly black setae 32

32 (33) Parafacial setae partly two or three times as long as the third antennal segment is broad. Vein *m* with an obtuse angle.

Wings hyaline or with a yellow tinge. Legs with the tibiae more or less red-brown. 8-12 mm. — Central, East and Southern Africa ..... 16. *I. deserti* (KARSCH).

33 (32) Parafacial setae not longer than the 3rd antennal segment is broad. Vein *m* broadly rounded 34

34 (35) Outer margin of wing hyaline.

Similar to *I. deserti*, but quite different in its hypopygial structure. 7-9 mm. — Central and Southern Africa .....
17. *I. eos* n.sp.

35 (34) Outer margin of wing infuscated.
Well characterized by the hypopygial structure. Known with certainty only from Nyasaland. 8-9 mm .....
15. *I. pendula* (MALLOCH).

36 (27) Basicosta black or black-brown. Parafacialia with or without glossy spot 37

37 (42) Parafacialia and buccae more or less uniformly pollinose, both without a sharply defined, glossy black spot 38

38 (39) Outer margin of wing deeper brown than the remainig part. Proboscis bulbous, only the terminal part of labellae reaching the tips of the palpi.
I have not seen the male sex. Legs wholly black. 8-9 mm. Tanganyika, S. Rhodesia ..... 20. *I. nigripes* (VILLENEUVE).

39 (38) Outer margin of wing not more deeply infuscated. Proboscis of normal shape, distinctly longer than the palpi 40

40 (41) Parafaciala on the lower part with several black setae, the length of which is greater than the width of the 3rd antennal segment. Frons of male broader.
Wings with a yellow-brown tinge. Legs wholly black. 7-11 mm. — Southern Africa ..... 18. *I. natalensis* (VILLENEUVE).

41 (40) Parafacialis on the lower part with yellow setae which do not surpass the width of the 3rd antennal segment, rarely a few black ones among them. Frons of male narrower.
Very similar to the foregoing species, which it seems to replace in West Africa. 10-12 mm. — Liberia .....
19. *I. snyderi* ZUMPT.

42 (37) Parafacialia and buccae each with a glossy black, undusted spot. The following species are separable from one another with certainty only by the hypopygial structure 43

43 (46) Cerci free 44

44 (45) Cerci elongated triangular, paralobi subparallel, very narrow.
Body metallic green or greenish-coppery. Wing with the outer margin broadly infuscated, remaining part light-brown tinged. Legs wholly black. 6-7 mm. — Belgian Congo .....
21. *I. cuprapex* (VILLENEUVE).

45 (44) Cerci short, forming pincers, paralobi broader than in the foregoing species.
With respect to the outer features, quite similar to *I. distinguenda*, but mid-tibia of the male with an *av* seta. 6-8 mm. — West and Central Africa ..... 22. *I. terminata* (WIEDEMANN).

46 (43) Cerci fused 47

47 (50) Cerci with a terminal incision 48

48 (49) Cerci broad at base, distinctly narrowed towards the tip.
Body metallic green, mostly with coppery and bluish reflections. Wings with a brown tinge, terminal anterior part with a broad, but variable infuscation. Legs wholly black or black-brown. 6-8 mm. — Central and Southern Africa .....
23. *I. distinguenda* (VILLENEUVE).

49 (48) Cerci subparallel.
Characterized by its yellow-brown antennae which are rarely slightly darkened. 8-12 mm. — Southern Africa .....
24. *I. darwini* (CURRAN).

50 (47) Cerci without a terminal incision 51

51 (52) Cerci parallel-sided in the terminal part, paralobi with a few hook-like denticles at the tips.
7-8 mm. — S. Rhodesia ..... 25. *I. cuthbertsoni* (CURRAN).

52 (51) Cerci broadly rounded, triangularly shaped, paralobi without denticles.
6-8 mm. — Togo ..... 26. *I. faini* n. sp.

[1. — **Isomyia pallens** (CURRAN).]

Thelychaeta pallens CURRAN, Amer. Mus. Nov. 248, 1927, p. 5; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 185.

Dr. C. H. CURRAN was kind enough to lend me the holo- and paratype of the species, the only specimens I have seen.

M a l e . — Eyes bare, touching one another in the middle of the frons, upper facets only slightly enlarged. Frontal stripe red-brown, triangular, parafrontalia and -facialia yellow-brown and yellow pollinose, both beset with relatively long black setae; *paf*, *iv* and *oc* well developed. Antennal groove yellow, antennae dark yellow to yellow-brown, separated by a short convexity, 3rd segment almost $2\frac{1}{2}$ times as long as the second. Height of bucca about 1/4 of eye-length, vibrissa and peristomal bristles long, anterior buccal hairs black and short, posterior ones long and yellow. Bucca yellow brown like the face, only the occiput is black. Palpus yellow, broader than the 3rd antennal segment.

Thorax totally orange, coloured. Bristles long, $ac=2+2$, $dc=2+4$, $ia=1+3$, $prs=1$, $ph=3$, $h=3$, $n=2$, $sa=3$, $sc=3+1$, *pst* and *pp* present, $st=1:1$, rows of mesopleural and hypopleural bristles well developed, propleuron and alar declivity bare. Wings hyaline with a yellow tinge,

veins including basicosta yellow, costal spine present, hairs on stem-vein black, *m* broadly rounded, R_5 open; thoracic squama about as broad as long, halter yellow. Legs yellow-brown except tarsi which are black; fore-tibia with several *ad* and a submedian *pv*; mid-tibiae both missing, but the female shows 1*ad*, 1 *pd*, 2 *pv* and 1 *av*; hind-tibia with a row of unequally long *ad*, with 3 *pd* and 2 *av*.

Abdomen coloured like the thorax, a little broader than long. Posterior margins of tergites I+II and III only laterally with a few black bristles, tergite IV with a complete row and tergite V with marginal and discal bristles. Hypopygium yellow.

Female. — Frons at vertex measuring 1/3 of the eye-length, gradually widened towards the antennal groove. Bristles of head strikingly thick and long, *f* and two *fo* well developed; frontal stripe dark-brown, subparallel.

Length : 8-10 mm.

Collection American Museum, New York : Belgian Congo : Stanleyville, III.1915 (holotype ♂), IV.1915 (paratype ♀, leg. LANG & CHAPIN)].

[2. — **Isomyia flavida** (VILLENEUVE).]

Thelychaeta flavida VILLENEUVE, Rev. Zool. Afr., XV, 1927, p. 217; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 185.

This species has remained unknown to me. I am giving a free translation of the original diagnosis :

« ♂ : Similar to a *Tricyclea* and wholly yellow-red, thorax with a grey pruinosity which appears whitish in certain lights. Antennae and palpi yellow, legs reddish yellow. Arista thickened at its extreme base, the greater part darkened. Occiput and tarsi black. Second abdominal segment with a broad and blackish posterior band which is triangularly dilated in the middle; laterally it continues to the ventral side where it disappears; third and fourth segments brownish for the greater part, more or less darkened towards the posterior margins; hypopygium small and black. Abdominal bristles are only present on the lateral edges of the anterior segments and on the hind margin of the third segment where they form a complete row, but they are weak and close to the ground; on the other hand the marginal and discal bristles of the 4th segment are well developed.

» Halters yellowish; squamae and wings with a yellow tinge, bend of vein IV obtuse and blunt, short-rounded, the transverse part slightly curved and apically almost parallel to vein III.

» Eyes of the male touching one another for a long distance, upper facets not distinctly enlarged.

» Length : 9 mm.

» [Stanleyville (Belgian Congo) : one ♂, collected in March 1915 as prey of a Bembex.] »

[3. **Isomyia grossa** (VILLENEUVE).]

(Fig. 1.)

Thelychaeta grossa VILLENEUVE, Ann. Soc. Ent. France, LXXXV, 1917, p. 341; CURRAN, Bull. Amer. Mus. N. H., LVII, 1928, p. 371; PERIS, An. Estac. Aula Dei, III, 1952, p. 157.

? *Thelychaeta pseudogrossa* PERIS, An. Estac. Exp. Aula Dei, II, 1952, p. 231, et III, 1952, p. 157 (syn. nov.).

PERIS based his *T. pseudogrossa* on two males from Elizabethville, Belgian Congo, and Bakessa, Liberia, respectively. I have not seen either of these specimens, but according to the description and a male before me from Astrida, Ruanda, which fits PERIS' diagnosis, I suspect very strongly, that *I. pseudogrossa* is a synonym of *I. grossa*.

Male. — Eyes bare, upper facets slightly enlarged, frons at its narrowest point about twice as wide as the anterior ocellus, possibly slightly variable, frontal stripe black, elongated triangular, beneath the ocellus narrowed to a line; parafrontalia and -facialia black or partly reddish with a yellow to whitish pruinosity, but lower part of parafacialium with a sometimes ill-defined glossy spot; *iv* distinct, *oc* accompanied by a great number of bristly hairs, parafrontalium with *paf* diminishing in size towards the ocellar-triangle and densely beset with long black hairs, parafacialium with dense black setae, the longest of which surpass the width of the 3rd antennal segment. Antennal groove reddish-brown or blackish, antennae widely separated by a high and broadly rounded convexity, which is subparallel and about as broad as the second antennal segment, with or without a shallow impression; 3rd segment predominantly orange, relatively short, measuring about $1\frac{1}{2}$ times the length of the second; arista with long hairs on both sides up to the tip. Height of bucca about 3/7 of eye-length, colouring red-brown and partly black to a variable extent, vibrissa long, facial ridge with several black bristles and setae, row of peristomal bristles complete, buccal hairs on the anterior part black, on the post-bucca and occiput longer and yellow. Palpi yellow, only slightly widened terminally and here about as broad as the 3rd antennal segment.

Thorax dark olive or cupreous with greenish and bluish reflections dependent on the incidence of light, with a white pruinosity which leaves free four longitudinal dark bands on the anterior part of the mesonotum. Stigmata yellow to orange. Bristles long but not all acrostichals are clearly distinguishable, and they are probably variable. Two prescutellar *ac* well developed,furthermore, two postsutural and 1-2 presutural are usually present; *dc*=2+4, *ia*=1+3, *prs* and outer *ph* present, *ph* may be increased

up to 6, $h=4$, $n=2$, $sa=5$, scutellum with 3 long marginals, but sometimes 1-2 of the marginal hairs become bristle-like, disc with 1-2 pairs of stronger bristles, *pp* and *pst* present, $st=1:1$, posterior margin of mesopleuron with a dense row of bristles and additional bristly hairs, remaining hairs long and black, row of hypopleurals well developed, sternopleuron with predominantly pale hairs. Propleuron and suprasquamal ridge bare, postalar declivity with a few hairs, prosternum with long pale hairs. Wings slightly or more intensely brownish tinged, veins red-brown, but epaulet

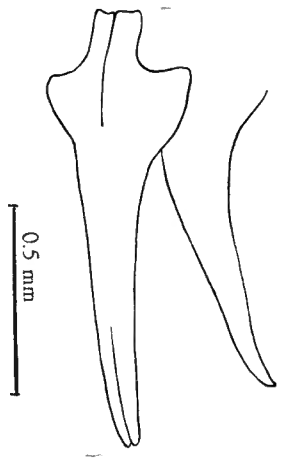

FIG. 1. — *Isomyia grossa* (VILLENEUVE).
Semilateral view of cerci and right paralobus.
Hairs omitted. Specimen from Astrida, Ruanda.

and basicosta blackish, costal spine wanting, stem-vein with black bristly hairs, r_{4+5} at the base with a few black setae, *m* broadly rounded, R_5 open; thoracic squama more or less yellow-brown tinged, slightly broader than long. Legs with dark femora, tibiae yellow-brown, tarsi predominantly blackish; fore-tibia with several *ad* and a submedian *pv*; mid-tibia with 1 *ad*, 1 *pd* and 1 *pv*; hind-tibia with several unequally long *ad*, 2-3 *pd* and a submedian *av*.

Abdomen about as long as broad, predominantly reddish-yellow, a median band and hind margins of the last segment more or less darkened. Hairs and bristles black. Hypopygium (fig. 1) with fused cerci and slender paralobi.

F e m a l e . — The female specimens before me are all darker than the males. The abdomen does not normally show a reddish colouring, but is dark olive-brown and cupreous like the thorax, sometimes partly with greenish and bluish reflections. In one specimen the abdomen is partly

brown. The pruinosity of the body is denser, whitish and yellowish to grey. Frons at vertex measuring about 3/7 of eye-length, parafrontalia and -facialia densely yellow or whitish pollinose, with a complete chaetotaxy, several *fo* present; parafacial glossy spot distinct and also bucca with an ill-defined, but always distinct glossy spot. Bristles on the mid-tibia increased, 2-3 *ad*, 2 *pd*, 2-4 *pv* and 1-2 *av*.

Length : 11-15 mm.

Collection Musée du Congo : [Ruanda : Astrida, 7-10.III.1952 (1 ♂, leg. R. LAURENT)] [Muhavura, 2.100 m 28.I.1953 (3 ♀♀, leg. P. BASILEWSKY)]; [Nord lac Kivu : Ruwankwi, V.1948 (1 ♀, leg. J. V. LEROY)]. — Collection British Museum, London : [Uganda : Kigezi, 5.000 ft., II.1928 (1 ♂, leg. G. D. H. CARPENTER)]; [Kenya : Kitale, VII-VIII.1932 (1 ♀, leg. VAN SOMEREN)]. — Collection American Museum, New York : [Kenya : Ngare Narok, XII.1913 (1 ♀, leg, A. O. LUCKMAN)]. — Collection Museum of Nat. History, Vienna : [Tanganyika : Matengo Mts., nr. Songea, I.1936 (1 ♀, leg. ZERNY)]. — Collection S. A. Institute for Med. Research, Johannesburg : [N. Rhodesia : Ndola, XII.1950 (1 ♀)].

[4. — **Isomyia oculosa** (VILLENEUVE).]

(Fig. 2.)

Thelychaeta oculosa VILLENEUVE, Ann. Soc. Ent. France, LXXXV, 1917, p. 342; MALLOCH, An. Mag. N. H., (9), XVIII, 1926, p. 521; CUTHBERTSON, Proc. Rhod. Sci. Ass., XXXII, 1933, p. 106; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 139.

A well characterized and easily recognizable species which seems to be distributed all over the tropical parts of the Ethiopian region, but it is probably one of the rarer species.

Male. — Eyes bare, touching one another for a long distance, facets in the upper three-fourths strongly enlarged and fairly distinctly separated from the small ones in the lower fourth. Frontal stripe only developed in the lower part, short-triangular, dark-brown or reddish; parafrontalia dark-brown, yellow pollinose, with about 10 pairs of *paf* and additional hairs, *iv* and *oc* distinct; parafacialia reddish brown, with a yellow pollinosity and short black setae on whole extent. Antennal groove yellow or reddish-brown, antennae dark yellow, separated by a broad, but short convexity, which shows a dorsal longitudinal impression; 3rd antennal segment strikingly slender, about twice as long as the second, arista with long hairs on both sides. Bucca nearly 1/3 as high as the eye is long, red-brown and with a yellow pollinosity, post-bucca and occiput more or less blackened.

Buccal hairs predominantly black, but there are also long and thin yellow hairs on the occiput and post-bucca; row of peristomal bristles complete, vibrissa long, above it several short bristles. Palpus yellow, dilated towards apex and broader than the 3rd antennal segment.

Thorax with a dense olive-green, bluish or cupreous, weakly metallic shining pollinosity which almost completely covers the black or brownish underground; superimposed on the pollinosity is a slight white pruinosity, the appearance of which is dependent on the incidence of light. Prostigma

FIG. 2. — *Isomyia oculosa* (VILLENEUVE).
Cerci with paralobi and phallosome.
Specimen from S. Rhodesia.

light-brown or yellow, poststigma dark-brown. Bristles well developed, *ac*=1+5-6, *dc*=2+4, *ia*=1+3, *prs*=1, *ph*=2-3, *h*=2-3, *n*=2, *sa*=5 (two of them shorter), *sc*=4-5+1-2, *pp* and *pst* present, *st*=1 : 1, posterior margin of mesopleuron with a dense row of long black bristles. Propleuron and suprasquamal ridge bare, upper part of alar declivity with a few pale hairs, prosternum with long thin hairs. Wings hyaline, veins including basicosta yellow, hairs on stem-vein black, costal spine wanting, r_{4+5} dorsally with black setae one third to *r-m*, *m* broadly rounded, R_5 open, thoracic squama relatively broad, about as long as wide, halter yellow. Legs yellow to red-brown, rarely the femora partly with a blackish shine; fore-tibia with several *ad* and a submedian *pv*; mid-tibia with 1 *ad*, 1-2 *pd*, 2-3 *pv*, and 0-1 *av*; hind-tibia with several *ad* and *pd* and with 0-1 *av*.

Abdomen distinctly broader than long, coloured and pollinose like the thorax. Hypopygium (fig. 2) with slender paralobi and cerci; the latter are not united.

Female. — Frons at vertex about half as broad as one eye is long; strongly widened towards the antennal groove, with broad parafrontalia and parafacialia which are densely yellow pollinose and densely beset with hairs and setae. The chaetotaxy of the head is complete and normally two *fo* are clearly distinguishable from the otter fronto-orbital hairs. Frontal stripe red-brown, subparallel, at the tip of the ocellar-triangle almost as broad as one parafrontalium.

Length : 10-12 mm.

Collection Zoolog. Museum, Berlin : [Cameroons: Uam distr., 1.V.1914 (1 ♀, leg. G. TESSMANN)]. — Collection Dept. of Agriculture, Pretoria : [S. Rhodesia : Umtali, 8.I.1918 (1 ♂, leg. A. JANSE)]. — Collection Dept. of Agriculture, Salisbury : There are several specimens before me from different localities, but all of them were probably collected in the mountain forests, as published by CUTHBERTSON. This author found the flies « at Chirinda Forest, the Vumba Mountains at Cloudlands, Gatooma and Eastern Victoria ».

PERIS saw specimens also from N. Rhodesia and Sierra Leone.

5. — **Isomyia pubera** (VILLENEUVE).

(Fig. 3.)

Thelychaeta pubera VILLENEUVE, Ann. Soc. Ent. France, LXXXV, 1917, p. 340.

Strongyloneura cupreithorax CURRAN, Amer. Mus. Nov. 506, 1936, p. 1; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 157.

Thelychaeta viridocana PERIS (nec HOUGH), An. Estac. Exp. Aula Dei, III, 1952, p. 157 (syn. nov.).

PERIS synonymised this species with *Pollenia viridocana* HOUGH based on three female specimens from Somaliland. Through the kindness of the authorities of the American Museum of Natural History, New York, I have been able to study one of HOUGH's paratypes. It evidently belongs to *Idiopsis prasina* B. B.

PERIS' description of *viridocana* is most probably based on the true *pubera* of which I have received from the British Museum one pair identified by PERIS as *pubera* (!). They are identical, as PERIS has already suggested, with *cupreithorax* CURRAN, described from two females from Barberton, Transvaal, the holotype of which I have seen.

There are only 6 specimens (1 ♂, 5 ♀♀) before me. They have a predominantly grey and olive coloured thorax and abdomen with cupreous and sometimes also greenish reflections, and a white pollinosity which forms iridescent, ill-defined spots on the abdomen. Should there be

specimens in which these greenish reflections extend giving the body a predominantly metallic green appearance, this species would run down to *I. jactatrix* which it resembles in most of the other outer features. It is possible that when more material is studied the variability in these two species may prove to be overlapping, and *I. jactatrix* therefore a colour variation of *I. pubera*. I dissected the hypopygium of the one male of *pubera* sent to me, and have to state that this organ closely resembles

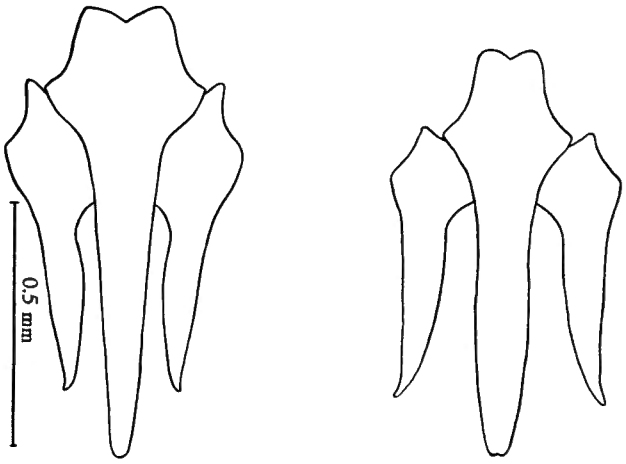

FIG. 3. — Left : *Isomyia pubera* (VILLENEUVE). Specimen from Ulundi, Natal. — Right : *Isomyia jactatrix* (VILLENEUVE). Specimen from Kapanga, Belgian Congo. Cerci with paralobi. Hairs omitted.

the hypopygia dissected from *I. jactatrix* (=*villeneuvei*). The only difference I found (comp. fig. 3) is that whereas it has a slight incision in *I. jactatrix* the tip of the fused cerci is rounded, but this difference may also lie within the variability of both species. However, there is not sufficient material available at present to enable me to decide this question, and I therefore retain these two forms as distinct species.

The male of *pubera* before me shows the following features of taxonomic value.

Eyes with slightly enlarged facets on the inner sides, frons at the narrowest point about one-tenth of the eye-length, frontal stripe black to reddish-brown, complete, but strongly narrowed in the middle and here about as wide as the anterior ocellus; parafrontalia and -facialia black, sometimes partly brownish, with a dense greyish-yellow pollinosity which leaves uncovered a glossy spot level with the tip of the antennae, *iv* and

oc present, *paf* thick and longer near the antennal groove, shorter and thinner further up; parafrontalia besides the *paf* with long black hairs which continue to the parafacialia, gradually diminishing in size towards the lower half where the longest almost reach the antennal diameter. Antennae reddish, third antennal segment about twice as long as the second, arista with long hairs on both sides, carina very broad, equalling the width of the frons at its narrowest point, with a deep median impression; antennal groove black, facial ridge, vibrissarium and buccae yellow to orange, post-buccae and occiput black, peristomal bristles and vibrissa as well as a few bristles on the basal facial ridge black, buccal hairs thin and yellow. Bucca half as high as the eye is long. Palpus yellow-brown, slightly curved and widened terminally.

Thorax with *ac*=1+2, *dc*=2+4, *ia*=1+3, *ph*=3, *h*=3-4, *prs*=1, *n*=2, *sa*=3, *pa*=2, *sc*=4-5+2-3, *pst* and *pp* present, *st*=1 : 1, propleuron bare, prosternum haired, post-alar declivity with a few black setae. Pro- and poststigma yellow-brown to dark-brown. Wings hyaline or more or less brownish tinged with yellow-brown veins, but epaulet, basicosta and base of costa blackish, base of r_{4+5} dorsally with a few black setae, *m* shortly rounded, almost forming an angle, R_5 open, thoracic squama whitish, relatively broad, its longitudinal diameter subequal to the transverse, halter orange. Legs with black femora and hairs, tibiae reddish; fore-tibia with a row of stout *ad* and one submedian *pv*; mid-tibia with 2 *ad*, 1 *pd*, 2 *pv* and 1 *av*; hind-tibia with 2 *ad*, 2 *pd* and 2 *av*.

Abdomen as densely pollinose as the thorax, with iridescent, ill-defined spots, hairs and bristles black.

Female. — Width of frons at the vertex measuring almost half the length of the eye, frontal stripe parallel, breadth at the tip of ocellar triangle about twice that of one parafrontalium at the vertex; height of bucca exceeding half the diameter of the eye, chaetotaxy of head complete. Apart from the colouring of the thorax and the abdomen, the females before me reveal that also in oher respects a variability is quite pronounced. The palpi, for instance, are lightbrown to deep black-brown. The *ac* and *dc* may increase, so that the formula becomes *ac*=1+2-3 and *dc*=2-3+4. The wings are more or less brownish tinged especially in the anterior basal part, and the squamae are more or less yellow-brown. The chaetotaxy of the mid-tibia is strikingly variable and is as follows in the 5 females before me : *ad*=1-2, *pd*=1, *pv*=2-3, *av*=1-2.

Length : 10-13 mm.

Collection Musée du Congo : [Kasai : Shenateke, 12.VII.1946 (1 ♀, leg. V. Lagae). — Collection Dept. of Agriculture,

Pretoria : Transvaal : Barberton, 15.VII.1920 (1 ♀, holotype of *cupreithorax*, leg. H. K. MUNRO). — Collection American Museum, New York : Transvaal : Barberton, 14.VII.1920 (1 ♀, paratype of *cupreithorax*, leg. H. K. MUNRO). — Collection British Museum, London : Natal : Ulundi, IX.1896 (1 ♂, det. PERIS); S. Rhodesia : Vumba Mts., V.1933 (1 ♀, leg. A. CUTHBERTSON). — Collection S. A. Institute for Med. Research, Johannesburg : Transvaal : Pretoriuskop, I.1952 (1 ♀, leg. F. ZUMPT).

VILLENEUVE based this species on material from Kenya, Tanganyika, Uganda and the Cape.

6. — **Isomyia jactatrix** (VILLENEUVE).

Thelychaeta jactatrix VILLENEUVE, Ann. Soc. Ent. France, LXXXV, 1917, p. 343; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 159.

Thelychaeta villeneuvei CURRAN, Amer. Mus. Nov. 246, 1927, p. 3; PERIS, id., ibid. (syn. nov.).

CURRAN separated his *villeneuvei* from *jactatrix* mainly by the bright metallic green colour of thorax and abdomen and by the predominantly black hairs on the abdominal venter. *I. jactatrix* is more densely pollinose and dull metallic green, and the abdominal venter is covered with pale hairs.

I. jactatrix and *I. villeneuvei* were described from the same locality and partly even from the same date. I have, for instance, two paratypes of *villeneuvei* before me, which were caught on the same date as the single female on which VILLENEUVE based his *jactatrix*.

The colouring of the specimens before me (6 ♂♂, 7 ♀♀) is quite variable. Thorax and abdomen are bright metallic green or blue, with more or less purple or violet reflections. The abdomen has broad blue or blackish vertical bands and a narrow median line. The pruinosity is slight or relatively dense, in the latter case giving the specimen a dull appearance. The wings may be totally hyaline, or they may be more or less brownish tinged with the anterior margin more or less distinctly infuscated for a variable width. These types of colouring are not sharply defined, but intergrade into one another, so that I am not inclined to regard the dull and darker coloured form (*jactatrix*) as different from the bright metallic one (*villeneuvei*) which normally has a slighter brownish tinge of the wings.

Another striking fact is that the hypopygial structures of *I. jactatrix* and *I. pubera* are very similar, the few differences probably lying within the intraspecific variability (comp. fig. 3). Superficially. *I. pubera* is easily

separable from *jactatrix* by its colouring which is predominantly grey and olive. But more or less extended green reflections occur in *pubera*, and the wings tend to be brownish tinged. On the other hand, there are specimens of *jactatrix* with totally hyaline wings. It is therefore quite probable that *jactatrix* represents only a colour variation of *pubera*, perhaps with a subspecific limitation. But this problem can only be tackled when more and better preserved material becomes available.

The male frons of *jactatrix* varies in width measuring at its narrowest point 1/10-1/15 of eye-diameter; the frontal stripe is therefore present in its whole length as in *pubera* or suppressed to a line in the middle of the frons. In the female the frons at vertex measures from 4/11 to almost half the eye-length, and the parafrontalia and -facialia are white or yellow pollinose. The antennae are reddish or darkened, the basal segments being black and the third dark-brown. The chaetotaxy of the mid-tibia in both sexes is *ad*=1, *pd*=1, *pv*=2, *av*=0-1.

Length : 10-13 mm.

Mission G. F. DE WITTE : Tawira, près Gando, 2.600 m, 11.III.1935, (1 ♀). — Collection Musée du Congo : Sankuru : Lonkala, II.1925 (1 ♂, leg. J. GHESQUIÈRE); Komi, V.1930 (1 ♀, leg. J. GHESQUIÈRE); Lulua : Kapanga, X.1932 (1 ♂, leg. G. F. OVERLAET); Équateur : Noma, VI.1925 (1 ♀, leg. J. GHESQUIÈRE). — Collection American Museum, New York : Belgian Congo : Stanleyville, III.1915 (1 ♂ ♀, paratypes of *villencuvei*, leg. LANG and CHAPIN); III.1915 and 4.IV.1915 (1 ♂ ♀, leg LANG and CHAPIN). — Collection Zoolog. Museum, Berlin : Span. Guinea : Nkolentangan, 21.XI.1907 (1 ♂, leg. G. TESSMANN); Benito distr., I. 1907 (1 ♀, leg. G. TESSMANN). — Collection S. A. Institute for Med. Research, Johannesburg : Natal : Cathkin Peak, II.1954 (1 ♂, leg. H. PATERSON).

[7. — **Isomyia calliphoroides** (MALLOCH).]

Anna calliphoroides MALLOCH, Ann. Mag. N. H., (9), XVIII, 1926, p. 520; PERIS, An. Estac. Exp. Aula Dei, III, 1956, p. 146.

Strongyloneura congensis CURRAN, Amer. Mus. Nov. 506, 1931, p. 151.

I. calliphoroides is superficially so similar to *Calliphora* that, in the field, it could easily be taken for a species of this genus. Unfortunately I have not seen a male. *I. calliphoroides* and *I. congensis* were both based on the female sex, but according to PERIS, the male sex is known.

Female. — Eyes bare, head at vertex measuring about 1/3 of eye-length, frontal stripe red-brown, subparallel, at the tip of the ocellar-triangle a little broader than one parafrontalium; parafrontalia and -facialia with

a pruinosity shining white or bluish depending on the incidence of light, a glossy spot present on the lower part of the parafacialium. Chaetotaxy of head complete, including *f* and two long proclinate *fo*, parafrontalia and -facialia with long black setae, those on the parafacial glossy spot longer than the 3rd antennal segment is broad. Antennae separated from one another by a prominence with a dorsal, longitudinal impression, basal segments red-brown or blackish, the third about twice as long as the second and reddish or brown, arista with long hairs up to the tip. Bucca glossy bluish black, with a slight whitish pruinosity and with black hairs and bristles, height almost 1/2 of eye-length, post-bucca and occiput also with pale hairs; vibrissa and peristomal bristles long, lower part of facial ridge with bristles too. Palpus black, terminally slightly widened, at the tip a little broader than the 3rd antennal segment.

Thorax dark metallic blue with a white pruinosity which is denser in the anterior part of the notum, leaving free 3 longitudinal stripes. Stigmata black-brown. Bristles long, *ac*=1+2, *dc*=2+4, *ia*=1+3, *prs* and outer *ph* present, *h*=3, *n*=2, *sa* increased up to six, scutellum with 3 pairs of long marginals and several discal bristles beside erect hairs, *pp* and *pst* present, *st*=1 : 1. Propleuron and post-alar declivity bare, prosternum haired, rows of mesopleural and hypopleurals complete, pleurae with black hairs. Wings with a cloudy, light-brown tinge, veins brown, but fore-part of costa including basicosta black, costal spine distinct, bristles on stem-vein long and black, *m* rounded, R_5 open; thoracic squama longer than broad. Legs black, tibiae sometimes brown; fore-tibia with several *ad* and a submedian *pv*; mid-tibia with a long *ad* and *pd*, 2-3 *pv* and 1 *av*; hind-tibia with a row of unequally long *ad*, 3 *pd* and 2 *av*.

Abdomen about as long as broad, dark metallic blue like the thorax, with a slight white pruinosity forming a cloudy pattern changing with the light. Long bristles only present laterally and on the last segment.

Length : 9-11 mm.

Collection Musée du Congo : Belgian Congo : Elizabethville, 22.III.1921 (1 ♀, leg. M. Bequaert). — Collection American Museum, New York : Belgian Congo : Burunga (1 ♀, leg. J. Bequaert, holotype of *congensis* Curran). — Collection British Museum, London : Uganda : South Ruwenzori, 1949 (1 ♀, leg. A. J. Haddow).

The type-locality of *I. calliphoroides* is Kenya.

8. — **Isomyia tristis** (BIGOT).

(Fig. 4.)

Curtoneura tristis BIGOT, Bull. Soc. Ent. France, XII, 1887, p. 613; MALLOCH, Ann. Mag. N. H., (9), XVIII, 1926, p. 521; SÉGUY, Rev. Brasil, Biol., IX, 1949, p. 135; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 149.

Pollenia nudiuscula BEZZI (nec. BIGOT), Boll. Lab. Zool. Portici, VI, 1911, p. 79; TOWNSEND, Man. Myiol., V, 1937, p. 92.

? *Apollenia psophis* SÉGUY, Mem. Mus. Zool. Univ. Coimbra, I, n° 67, 1933, p. 72, et Rev. Brasil, Biol., IX, 1949, p. 133; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 149.

A blackish species with a distinctly striped mesonotum, which seems to be common almost everywhere in the Ethiopian region. It is well characterized by the shape of the paralobi.

Male. — Eyes bare, inner facets only slightly enlarged. Frons at its narrowest point measuring 1/9-1/14 (once to twice the width of ocellus) of eye-length. Frontal stripe complete, red-brown to black, parafrontalia and -facialia black, silvery-white or yellowish pollinose, lower part of the parafacialium with a large glossy spot, *iv* and *oc* long, accompanied by a great number of long bristly hairs; *paf* long too, diminishing in size towards the vertex; they are accompanied by black setae which continue onto the parafacialia. The longest of these setae are found on the glossy spot and may reach a length of about twice the width of the third antennal segment. Antennal groove predominantly black and white pruinose, antennae separated from each other by a long and broad convexity which shows a shallow impression at the base, antennal segments black or black-brown, the tip of the second and the base of the third more or less reddish, the third about twice as long as the second, arista with long hairs up to the tip. Bucca about 2/5 as high as the eye is long, black like the occiput and provided with a white pruinosity, vibrissarium more or less reddish; hairs and bristles black, vibrissa long, a few bristles and hairs above it on the base of the facial ridge, peristomal bristles long and strong forming a complete row. Palpi red-brown, gradually widened to the tip and here about as wide as the 3rd antennal segment.

Thorax black, with a grey and olive pollinosity forming five dark, longitudinal vittae on the mesonotum. Stigmata black-brown. Bristles long, *ac*=2+3-5, *dc*=2+4, *ia*=1+3, *prs*=1, *ph*=4, *h*=3, *n*=2, *sa*=5 (two of them shorter and thinner), scutellum with long bristles and erect bristly hairs, among them 3 long and thick marginal and one to several pairs of thicker discal bristles. Normally one thick and one thin *pp* and *pst* bristles present, *st*=1 : 1, pleural hairs and bristles all black, propleuron bare; alar declivity with a few hairs, prosternum with dense pale hairs. Wings hyaline or more or less brownish tinged, veins light-brown, but epaulet, basicosta

and base of costa black or at least black-brown, costal spine indistinct, stem-vein with long black bristles, r_{4+5} slightly curved, R_5 open, m with an obtuse, short-rounded angle. Thoracic squama about as long as broad, brownish tinged, halter yellow. Legs black, tibiae more or less red-brown; fore-tibia with a row of *ad* and a long submedian *pv*; mid-tibia with 1 *ad*, 3 *pd* (the upper 2 bristles could sometimes be taken for *pv*) and 1 *pv*; hind-tibia with a dense row of unequally long *ad*, 4 *pd* and 1-2 *av*.

Abdomen slightly longer than broad, coloured like the thorax and with a grey and yellowish-olive pollinosity forming large spots which change

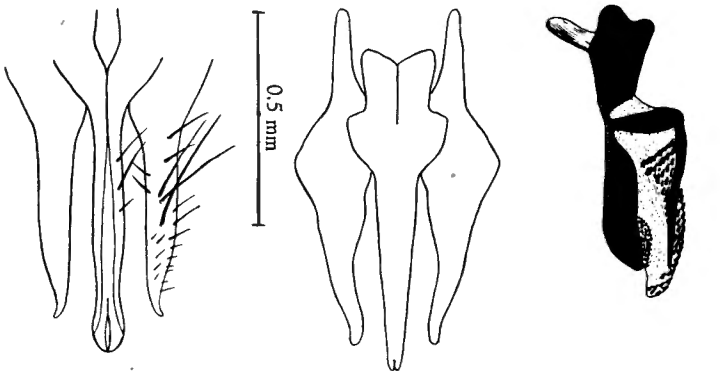

FIG. 4. — Left : *Isomyia evanida* (VILLENEUVE). Cerci with paralobi. Specimen from Muelushi, Katanga. — Right : *Isomyia tristis* (BIGOT). Cerci with paralobi, phallosome. Hairs omitted. Specimen from Johannesburg, Transvaal.

with the incidence of light. Bristles long, forming a complete row at the hind margin of tergites III and IV, tergite V with erect, thick and densely placed marginal as well as discal bristles. Venter also with long black hairs. Hypopygium (fig. 4) with fused cerci which have a slight incision terminally, paralobi relatively broad, with rounded tips. The shape of the paralobi is slightly variable in the different populations.

F e m a l e . — Frons at the vertex measuring 4/9-1/2 of eye-length, frontal stripe parallel, reddish to black, chaetotaxy of head complete, two long proclinate *fo* developed. Palpi hardly broader than in the male. Mid-tibia also with an *av* bristle.

L e n g t h : 5-12 mm.

Remarks. — Specimens from Southern Africa (including S. Rhodesia) are on the average bigger (body-length 9-12 mm) than those from Liberia (body-length 5-9 mm). Furthermore, the wings are hyaline, whereas they are brownish tinged in the West African specimens, and the cerci and paralobi are a little more slender in the southern form. Specimens from the Belgian Congo are intermediate, showing a body-length of 5-11 mm, the wings hyaline or sligthly tinged, and the cerci and paralobi show a variability overlapping that in the Western and Southern forms. The populations appear, therefore, to form a cline from South Africa over East and Central Africa towards Liberia, which, up to now, is the most westerly part of Africa from which *I. tristis* has been recorded. I abstain from splitting this species into subspecies until more material from various parts of Africa becomes available.

Mission G. F. DE WITTE : May-ya-Moto, 950 m, 5-9.XI.1934 (1 ♂, 2 ♀♀); Kalinga, Bitshumbi, 1.082-925 m, 12.XI.1934 (2 ♂♂); Katanda, 950 m, 30.XI.1934 (1 ♂); Rwindi, 1.000 m, 26.XI.1934 (11 ♀♀); [Ruanda : Ruhengeri, 1.800-1.825 m, 6.II.1935 (1 ♂)]. — Mission L. LIPPENS : Sud lac Édouard : Rwindi, 1.000 m, 25.IV. 1936 (21 ♂♂, 18 ♀♀). — Collection Musée du Congo : Belgian Congo : Elisabethville, 26.III. 1933 (2 ♀♀, leg. BEQUAERT); Bonia, II.1934 (1 ♀, leg. J. V. LEROY); Bambesa, VII.1943 (1 ♀, leg. J. VRYDAGH); Ruanda : Kisenyi, 1.460 m, II.1952 (1 ♀, leg. A. BERTRAND); lac Nyakibugu, II-III.1936 (1 ♀, leg. L. LIPPENS); Abyssinia : Irga-Alem, 15.IX.1935 (1 ♂, leg. SASKA). — Collection American Museum, New York : Liberia : Robertsport, 30.XI.1943 (2 ♂♂, leg. F. M. SNYDER); Reppo's Town, IX. (1 ♂ ♀); Banga, X.1926 (1 ♂ ♀); Lenja Town, 15.VIII.1926 (2 ♀♀); Moala, 31.X.1936 (1 ♂); Uganda : Kampala, 7.XI.1915 (1 ♀, leg. C. H. CURRAN). — Collection Museum Stuttgart : Tanganyika : Msinga, I.1952 (3 ♂♂, 3 ♀♀, leg. E. LINDNER). — Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Salisbury, XI.1933-III.1937 (2 ♂♂, 4 ♀♀, leg. A. CUTHBERTSON); Vumba Mts., III.1935 (1 ♀, leg. A. CUTHBERTSON); Inyanya, XI.1933 (3 ♀♀, leg. A. CUTHBERTSON). — Collection Dept. of Agriculture, Pretoria : Transvaal : Barberton, 7.X.1919 (3 ♂♂, leg. H. K. MUNRO); Pretoria, XI.1914-II.1915 (4 ♂♂, 1 ♀, leg. H. K. MUNRO). — Collection S. A. Institute for Med. Research, Johannesburg : Transvaal : Johannesburg, X-III (7 ♂♂, 6 ♀♀, leg. F. ZUMPT); Potchefstroom, 30.XII.1951 (1 ♀, leg. F. ZUMPT); Natal : Harding, II.1951 (1 ♂ ♀, leg. J. MUSPRATT). — Collection S. African Museum, Cape Town : Cape Province : van Stadens Pass, III.1954 (2 ♂♂, 1 ♀).

[9. — **Isomyia connivens** (VILLENEUVE).]

(Fig. 5.)

Thelychaeta connivens VILLENEUVE, Ann. Soc. Ent. France, LXXXV, 1917, p. 343; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 149.

Strongyloneura varians CURRAN, Amer. Mus. Nov., 506, 1931, p. 2; PERIS, id., ibid.

? *Apollenia exomma* SÉGUY, Rev. Brasil., Biol., IX, 1949, p. 129; PERIS. An. Estac. Exp. Aula Dei, III, 1952, p. 185 (syn. nov.).

I. connivens is closely related to *I. tristis* and superficially very similar to it. The male terminalia definitely prove that we are dealing with two good species (comp. fig. 5). The separating outer features, however, are few and perhaps not always reliable, owing to a certain variability in both species.

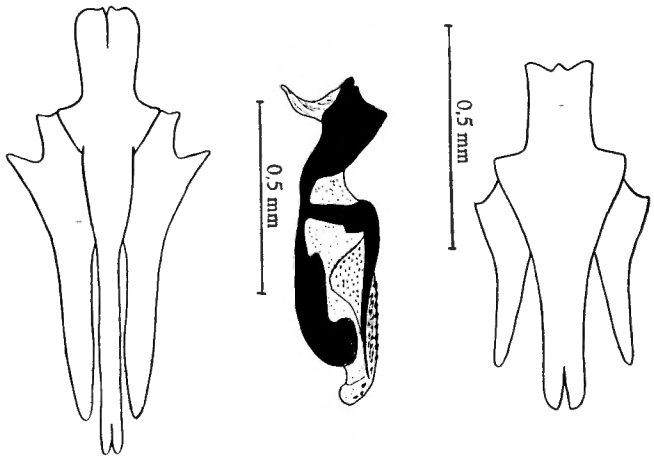

FIG. 5. — Left : *Isomyia connivens* (VILLENEUVE). Cerci with paralobi, phallosome. Hairs omitted. Holotype of *I. varians* (CURRAN) from S. Rhodesia. — Right : *Isomyia cinerascens* (VILLENEUVE). Cerci with paralobi. Hairs omitted. Specimen from Stanleyville, Belgian Congo.

I have 4 ♂♂ and 9 ♀♀ before me, which have the wings sligthly tinged and show only 2 postsutural *ac*. The 3rd antennal segment is 2½-3 times as long as the second; the median convexity of the antennal groove without or with only a slight impression. In the male, the frons at its narrowest point measures 1/7-1/10 of eye-length, and the parafacial hairs are in the average a little shorter than in *I. tristis*, only slightly exceeding the width of the 3rd antennal segment.

Length : 8-10 mm.

Collection Dept. of Agriculture, Pretoria : S. Rhodesia : Victoria Falls, 25-26.VIII.1920 (1 ♂ ♀, holo- and allotype of *varians* CURRAN, leg. H. E. IRVING). — Collection American Museum, New York : S. Rhodesia : Victoria Falls, 29.VIII.1920 (1 ♀, paratype of *varians* CURRAN, leg. H. E. IRVING). — Collection Museum of Nat. History, Stuttgart : Tanganyika : Usangi, Pare Mts., 1.700-2.000 m, VI.1952 (1 ♂, 2 ♀♀, leg. E. LINDNER). — Collection British Museum, London : Kenya : Katamayo, 8.000 ft., X.1934 (1 ♂, leg. F. W. EDWARDS); Uganda : Kilembe, 4.500 ft., XII.1934 (1 ♀, leg. F. W. EDWARDS). — Collection Museum of Nat. History, Vienna : Tanganyika : Ugano, Matengo Mts., IV.1936 (1 ♂, 4 ♀♀, leg. ZERNY).

Remarks. — When I studied the material of the German Zoological Expedition to East Africa 1951/52, LINDNER's group, the status of *I. nitida* and related species was not clear. The specimens collected by Prof. LINDNER at Usangi belong to *I. connivens* and not to *I. nitida*, as do those from Ugano, received from the Museum in Vienna. The two males and the female from Mbamba Bay, however, must be assigned to *I. fasciculata* (comp. ZUMPT, Beitr. Ent., IV, 1954, p. 648).

[10. — **Isomyia evanida** (VILLENEUVE).]

(Fig. 4.)

Apollenia evanida VILLENEUVE, Rev. Zool. Afr., III, 1913, p. 151; PERIS, An. Estac. Exp. Aula Dei, III,1952, p. 151.

I have before me one of the two males which PERIS refers to this species and which he used in compiling the key.

Male. — Eyes bare, upper facets slightly larger than the lower ones, frons at the narrowest point measuring 1/6-1/7 of eye-length, frontal stripe red-brown, not interrupted, at the tip of the ocellar-triangle about as broad as one parafrontalium. Parafrontalia and -facialia black, densely whitish-grey pollinose, *iv* long and thick, one pair of shorter *pvt*, ocellar triangle with two pairs of long *oc* and great number of densely placed black hairs, 13 pairs of *paf*, which are accompanied by long bristly hairs; parafacialia also beset with dense hairs which are mixed with a few bristles near the bucca. Facial ridge and vibrissarium red-brown, anterior part of bucca yellow-brown, posterior part black. Vibrissa very long and thick, above it a second thick bristle which is about half as long as the vibrissa, and several short bristles and hairs restricted to the base of the facial ridge;

peristome beset with a dense row of long thick bristles mixed with a few shorter bristly hairs; bucca about 2/5 as high as the eye is long, beset with black and pale hairs, the latter are sparse in the anterior part, but increase in number towards the post-bucca, where they almost totally replace the black ones. Occiput black. Antennal groove yellow-brown, antennal bases separated from each other by a very short and flat carina which shows a longitudinal shallow groove, basal segments of antennae reddish-brown, the third black-brown, about twice as long as the second, arista with long hairs. Palpi red-brown terminally dilated, reaching the width of the 3rd antennal segment.

Thorax metallic black-olive and cupreous, slightly white dusted, only in the presutural area with two narrow dark stripes. Pro- and poststigma black-brown. Bristles long, *ac*=2+4, *dc*=3+4, *ia*=1+3, *h*=3, *ph*=4, *prs*=1, *n*=2, *sa*=3, *sc*=3+1, but accompanied by several long bristly hairs, *pp* consisting of a longer and a shorter bristle, *pst*=1, *st*=1 : 1, pleurae with black hairs, 6 thick mesopleurals and a row of long hypopleurals present. Propleuron bare, alar declivity with a few black setae, prosternum haired. Wings hyaline, veins red-brown, epaulet black, basicosta yellow. Costal spine indistinct, bristles of stem-vein long and black, r_{4+5} dorsally with several black setae in the anterior third, *m* with an obtuse angle, R_5 open. Thoracic squama light coloured with a yellow margin, longer than broad. Legs with black femora and dark reddish-brown tibiae and tarsi; fore-tibia with a row of *ad* of varying size and one long submedian *pv*; mid-tibia with 2 *pv* and one long submedian *ad* and *pd*; hind-tibia with 2 long *pd*, a row of *ad* of varying length, *av* wanting.

Abdomen of the same colouring as the thorax, with a white pollinosity forming large spots, which changes with the light incidence. Tergites, besides the short black hairs with long marginal bristles, with discals on the whole of the last tergite and on the lateral sides of the remaining tergites. Hypopygium (fig. 4) similar in structure to those of *I. tristis* and *I. connivens*, two species which are also similar to *I. evanida* in their general appearance. The cerci of *I. evanida*, however, have a spoon-shaped tip and the paralobi are hook-like and sharply pointed terminally.

Length : 11 mm.

Female. — Unknown to me.

VILLENEUVE described this species from three different localities in the Belgian Congo. I have not seen any of these type specimens. The male before me (referred by PERIS to *I. evanida*) belongs to the collection of the Musée du Congo and was collected at Muelushi, Katanga, II.1931 (leg. H. J. BRÉDO).

[11. — **Isomyia fasciculata** (VILLENEUVE).]

(Fig. 6.)

Thelychaeta fasciculata VILLENEUVE, Ann. Soc. Ent. France, LXXXV, 1917, p. 346; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 154.

Strongyloneura lancifer MALLOCH, Ann. Mag. N. H., (9), XVIII, 1926, p. 522, et ibid., (10), I, 1927, p. 489; SÉGUY, Rev. Brasil., Biol., IX, 1949, p. 130; PERIS, id., ibid.

Thelychaeta caudata CURRAN, Amer. Mus. Nov., 248, 1927, p. 6; PERIS, id., ibid. (syn. nov.).

? *Apollenia anthracites* SÉGUY, Rev. Brasil., Biol., IX, 1949, p. 127; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 184 (syn. nov.).

This species is well characterized by its hypopygium (fig. 6) which shows free cerci, whereas the paralobi are similar in shape to those of *tristis*. The body is dull olive-green and the wings are strongly tinged.

M a l e . — Eyes bare, inner facets slightly enlarged; frons at its narrowest point measuring once to twice the width of the anterior ocellus, frontal stripe narrowed to a line in the middle and forming a black-brown and reddish coloured triangle in the lower part. Parafrontalia and -facialia with a silvery or yellowish pollinosity, a glossy black spot in the lower part of the parafacialium is wanting or only poorly developed, small and ill-defined (but normally distinct in the female); *paf* accompanied by black setae which continue onto the parafacialium, but they are sparse and much shorter than in *tristis*. Antennal groove predominantly black, median carina as in *connivens*, without a dorsal impression or with only an indication of it; antennae with the basal segments normally blackish, the 3rd segment more or less reddish-brown, 2½-3 times as long as the second. Bucca about 1/3 as high as the eye is long, with a grey-olive pollinosity, which leaves free an ill-defined glossy spot in the anterior part, hairs and bristles black, post-bucca and occiput with pale hairs. Palpus black-brown, slightly widened terminally and here about as wide as the 3rd antennal segment.

Thorax dull olive-green, with a weak metallic shine and a slight white pruinosity; dark longitudinal vittae are not present. Stigmata black-brown. Bristles well developed, *ac*=1+2, *dc*=2+4, *ia*=1+3, *prs*=1, *ph*=2-3, *h*=3, *n*=2, *sa*=5, *sc*=3+1-2. Pleurae with predominantly black hairs, *st*=1 : 1, *pp* and *pst* present, row of mesopleural bristles well developed, alar declivity with a few dark setae, propleuron bare, prosternum with pale hairs. Wings strongly brownish tinged, with a deeper infuscation at the anterior margin and on the terminal part, veins brown, but epaulet, basicosta and base of costa black, costal spine distinct, stem-vein with black bristly hairs, R_5 open, *m* obtuse and short-rounded. Thoracic squama yellow-brown, about as long as broad or slightly longer, halter dark yellow. Legs dark, with red-brown tibiae; fore-tibia with 3-4 longer *ad* and a submedian *pv*; mid-tibia and hind-tibia as in *tristis*.

Abdomen slightly longer than broad, coloured like the thorax, last tergite laterally with a dense brush of stiff bristles (lacking in the female). The length of the marginal bristles of tergites IV, which PERIS used for separating *caudata* from *fasciculata*, is variable.

Female. — Frons at vertex measuring 1/3 of eye-length, frontal stripe parallel, reddish to black-brown. Chaetotaxy of head complete, with 2 long proclinate *fo*. A parafacial glossy spot is ill-defined, but at least traces of it are normally present. Palpus a little broader than the 3rd antennal segment. There is no lateral brush of bristles on the last abdominal tergite.

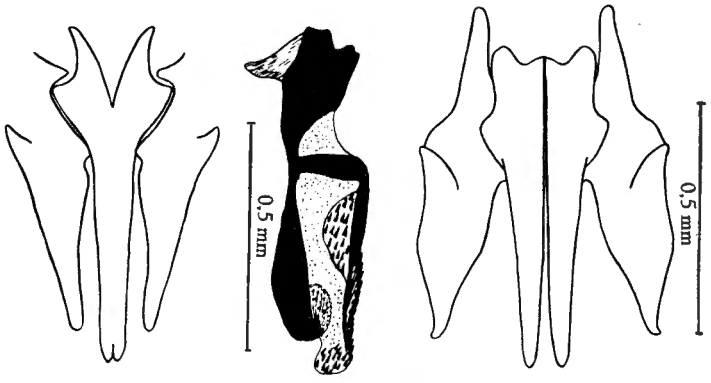

FIG. 6. — Left : *Isomyia nitida* (CURRAN). Cerci with paralobi, phallosome. Hairs omitted. Paratype from Stanleyville, Belgian Congo. — Right : *Isomyia fasciculata* (VILLENEUVE). Cerci with paralobi. Hairs omitted. Paratype of *I. caudata* (CURRAN) from Stanleyville, Belgian Congo.

Length : 9-11 mm.

Collection Musée du Congo : Katanga : Elizabethville, IV.1930 (1 ♂, ♀ by M. BEQUAERT); Kilo : Kere-Kere, II.1948 (1 ♂, leg. TURCO); Mayumbe : Makala N'Tete, 1912 (1 ♀, by R. MAYNÉ); Bangala : Diobo, 29.XI.1927 (1 ♀, leg. A. COLLART); Lomani-Luputa, V.1935 (1 ♀, leg. BOUVIER); Uele : Bambesa, III-IV.1938 (1 ♀, by P. HENRARD). — Collection American Museum, New York : Belgian Congo : Stanleyville, III. 1915 (1 ♂, ♀, paratypes of *caudata* CURRAN, 1 ♂, det *fasciculata* VILLENEUVE by Dr. CURRAN, leg. LANG and CHAPIN). — Collection Zoolog. Museum, Berlin : Span. Guinea : Alcu Benito distr., 16-31.VIII.1906 (1 ♂, leg. G. TESSMANN). — Collection British Museum, London : Uganda : Entebbe, 21.VIII.1911 (1 ♂ ♀, leg. C. C. GODWEY); Angola : (1 ♂, leg. I. C. WELLMAN). — Collection S. A. Institute for Med. Research, Johannesburg : Tanganyika : Lake Nyasa, Mbamba Bay (1 ♂, ♀).

[12. — **Isomyia nitida** (CURRAN).]

(Fig. 6.)

Thelychaeta nitida CURRAN, Amer. Mus. Nov. 248, 1927, p. 6; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 151.

This species is closely related to *I. fasciculata*, but the body is deep bluish-black, with only a slight whitish pruinosity. Wings in the average more deeply tinged with brown, almost uniformly dark. The specimens before me have 1-2 presutural *ac*. The structure of the hypopygium (fig. 6) is quite different from that in *I. fasciculata*.

Length : 8-10 mm.

Collection Musée du Congo : Équateur : Bokuma, 1938 (1 ♀, leg. R. P. HULSTAERT). — Collection American Museum, New York : Belgian Congo : Stanleyville, III.1915 (1 ♂ ♀, paratypes, leg. LANG and CHAPIN). — Collection Zoolog. Museum, Berlin : Cameroons : Victoria, 5.VII.1890 (1 ♀, leg. PREUSS); nr. Congo river, X.1913 (2 ♂♂, 4 ♀♀); Span Guinea : Alcu Benito distr., X.1906 (1 ♂, leg. G. TESSMANN).

[13. — **Isomyia cinerascens** (VILLENEUVE).]

(Fig. 5.)

Thelychaeta cinerascens VILLENEUVE, Ann. Soc. Ent. France, LXXXV, 1917, p. 340; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 176.

This species is related to *I. dubiosa*, but the thorax and abdomen are totally cupreous, with purple and sometimes also greenish reflections.

Male. — There is only one male specimen before me on which the following description is based. Eyes bare, upper facets only slightly larger than the lower ones, frons at its narrowest point measuring 1½ times to twice the width of the anterior ocellus; parafrontalia and -facialia black and densely greyish white pollinose; *iv* well developed as well as the pair of *oc*, which is accompanied by several short bristles, 7 pairs of *paf*, parafrontal setae black, sparsely placed, parafacial hairs mostly pale and short. Antennal groove yellow-brown, antennae close together, a median carina is not developed, antennae light-brown, tip of the second segment yellow, length of the 3rd segment twice that of the second, arista with long hairs on both sides. Height of bucca 1/3rd the eye-length, occiput and post-bucca black, bucca for the greater part dark brown, only the anterior part broadly orange, facial ridge above the vibrissa with a few black bristles, row of peristomal bristles complete, bucca and post-bucca with yellow hairs. Palpus yellow, narrower than the 3rd antennal segment.

Thorax with a white and greyish pruinosity, *ac*=1+3, *dc* asymmetrically developed, 2+2 right and 2+4 left, *ia*=1+3, *prs*=1, *ph*=3, *h*=3, *n*=2, *sa*=3, *sa*=3+1, *pp* and *pst* present, *st*=1 : 1, propleuron bare, mesosternum with black hairs, only the posterior margin with a row of yellow hairs behind the mesosternal bristles, hypo- ptero- and sternopleuron with yellow hairs, but the bristles are black. Alar declivity bare. Wings hyaline with a yellow tinge, epaulet black, basicosta and veins yellow to yellow-brown, costal spine hardly distinguishable, stem-vein with black hairs, *m* broadly rounded, R_5 open; thoracic squama longer than broad, halter yellow. Legs with blackish coppery femora and red-brown tibiae and tarsi; fore-tibia with several *ad* and a submedian *pv*; mid-tibia with one *ad*, one *pd* and 2 *pv*; hind-tibia with 2 long *ad* and *pd*, *av* are wanting.

Abdomen longer than broad, densely grey and white pruinose . Hypopygium (fig. 5) similar to that of *I. dubiosa*, but cerci and paralobi are slender.

Female. — There are 15 females before me, which show that the chaetotaxy is variable. The *ac* may be increased up to 2+4 and the normal formula for the *dc* is 2+4. Antennae sometimes wholly yellow. Palpus almost as broad as the 3rd antennal segment. The wing, as in *I. dubiosa*, may show a terminal infuscation, and the costal spine is often quite long. Frons at vertex measuring 3/7 to 1/2 of eye-length, pollinosity of parafrontalia and -facialia mostly yellow, sometimes more whitish, chaetotaxy complete, two long *fo* developed, parafrontalia with long hairs and setae, those on the parafacialia also more distinct than in the male. A parafacial spot is ill-defined or absent. Mid-tibia with *av* and hind-tibia with 1-3 *av*.

Length : 8-10 mm.

Collection Musée du Congo : Ituri : Arara-Aru, 1.IV.1952 (1 ♀, leg. M. WINAND); Aba, 1937 (1 ♀, leg. R. BELOT); Elizabethville, 1921 (1 ♀, leg. M. BEQUAERT); Bambesa, 16.V.1938 (1 ♀, leg. P. HENRARD). — Collection American Museum, New York : Nigeria : Idapia (1 ♀, leg. J. W. SCOTT MACFIE); Belgian Congo : Stanleyville, III.1915 (1 ♂ ♀, leg. LANG & CHAPIN); Nyasaland : Mt. Mlandji, 25.XI.1912 (1 ♀, leg. S. A. NEAVE); Zomba (1 ♀, leg. H. S. STANNUS); S. Rhodesia : Melsetter distr., 7.II.1939 (1 ♀, leg. W. L. WILLIAMS). — Collection Zoolog. Museum, Berlin : Togo : Bismarckburg. 15-21.XI.1892 (1 ♀, leg. L. CONRADT); Tanganyika : Langenburg, 19-30.III.1898 (1 ♀, leg. FÜLLEBORN). — Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Vumba, 24.IX.1935 (1 ♀, leg. DRYSDALE); Melsetter, distr., 6.VII.1939 (1 ♀, leg. W. L. WILLIAMS). — Collection S. A. Institute for Med. Research, Johannesburg : Tanganyika : Kigonsera, 1.000 m, IV.1936 (1 ♀); Mbamba, IV.1936 (1 ♀).

14. — **Isomyia dubiosa** (VILLENEUVE).

(Fig. 7.)

Thelychaeta dubiosa VILLENEUVE, Ann. Soc. Ent. France, LXXXV, 1917, p. 350; SÉGUY, Rev. Brasil., Biol., IX 1949, p. 128; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 175, figs. 42 & 44.

Thelychaeta dubiosa var. *claripennis* VILLENEUVE, id., ibid.; SÉGUY, id., ibid., p. 127; PERIS, id., ibid., p. 176 (syn. nov.).

Strongyloneura sheppardi CURRAN, Amer. Mus. Nov. 985, 1938, p. 3; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 188 (syn. nov.).

? *Apollenia nasica* SÉGUY, Rev. Brasil., Biol., IX,1949, p. 131; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 185.

A widespread and not uncommon species, which is distributed all over the tropical parts of the Ethiopian region, but is probably restricted to the forests.

Male. — Eyes bare, upper facets only slightly enlarged, frons at the narrowest point measuring 1/16-1/10 of eye-length, frontal stripe reddish-brown, normally narrowed to a line in the upper part near the ocellar-triangle, parafrontalia and -facialia with a blackish underground and a white or yellow pollinosity, *iv* and *oc* well developed, the latter with a few additional short bristles, 8-11 pairs of *paf*, setae on the parafrontalia black, on the parafacialia pale, but almost as long as the 3rd antennal segment is broad, and relatively densely placed; a parafacial glossy spot is not developed. Antennal groove reddish or yellow-brown, antennae close together, a median convexity is only weakly developed, segments predominantly yellow-brown, sometimes partly darkened, 3rd segment 2-2½ times as long as the second, arista with long hairs on both sides. The shape of the 3rd segments, with respect to the ratio length : width, is slightly variable. This inspired CURRAN and PERIS to split this species in two (*dubiosa* s. str. and *claripennis*=*sheppardi*). Occiput and postbucca black, bucca densely yellow-pollinose on a predominantly reddish or yellow-brown underground, its height measuring 3/8-1/2 of eye-length, buccal hairs yellow, peristomal bristles black and forming a complete row, vibrissa long, with a few bristles above it. Palpus yellow, as broad or slightly narrower than the 3rd antennal segment.

Thorax bright metallic green or blue, with a white pruinosity. Stigmata black or black-brown. Bristles long, *ac* normally 1+2, but not rarely increased up to 3+5 (sometimes irregularly), *dc*=2+4, *ia*=1+3, *prs*=1, *ph*=3, *h*=3-4, *n*=2, *sa*=3, *sc*=3+1-2, *pp* and *pst* present, *st*=1 : 1, propleuron bare, mesosternum with predominantly black hairs, posterior margin with 6-8 long black bristles; hypo-, ptero- and sternopleuron with predominantly pale hairs; under the root of the wing several stiff black bristles; prosternum with pale hairs. Alar declivity and suprasquamal

ridge bare. Wings normally with a more or less infuscated terminal spot; sometimes this infuscation is faint or absent. Epaulet dark brown, basicosta yellow, veins yellow or brown, costal spine varying in size, sometimes hardly distinguishable, hairs on stem-vein black, *m* broadly rounded, R_5 open, thoracic squama yellow, slightly longer than broad, halter yellow, legs with the the femora metallic dark green or blackish, tibiae and tarsi brown; fore-tibia with several *ad* and a long submedian *pv*; mid-tibia with one *ad* and *pd* and 1-2 *pv*; hind-tibia with 2 long *ad* and *pd*, *av* are wanting.

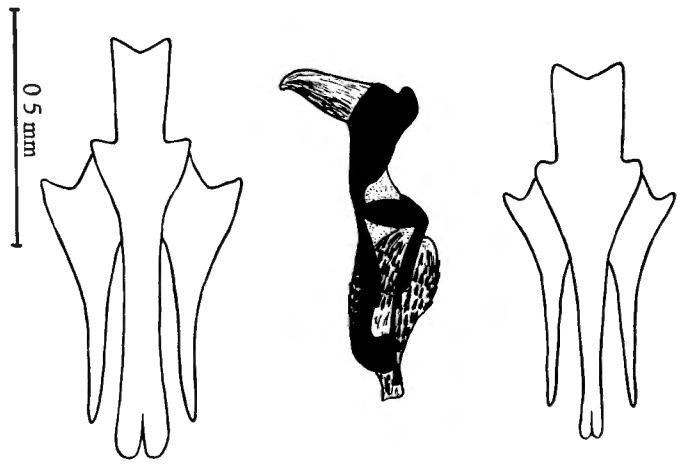

FIG. 7. — *Isomyia dubiosa* (VILLENEUVE). Cerci with paralobi and phallosome. Hairs omitted. Specimens from Msingi, Tanganyika (left) and from Rutshuru, Belgian Congo (right).

Abdomen longer than broad, wholly metallic green, bluish or coppery and relatively densely pruinose, with a darker median line. Marginal bristles weak and appressed except on the sides and on tergite V, which also shows a few strong discals. Hypopygium (fig. 7) slightly variable with respect to the slenderness of the fused cerci, paralobi thin.

Female. — Frons at the vertex measuring about 2/5 of eye-length, frontal stripe subparallel, reddish or darkbrown. Chaetotaxy complete, with 2 strong proclinate *fo*, parafrontal and parafacial setae as in the male. Mid-tibia with *av* bristle and hind-tibia with 1-2 *av*.

Length : 8-10 mm.

Mission G. F. DE WITTE : Kivu : Rutshuru (riv. Musugerezza), 1.100 m, 4.VII.1935 (2 ♂♂, 1 ♀); Rutshuru (riv. Lubirici), 1.285 m, 13.VII.

1935 (1 ♀). — Mission L. LIPPENS : Sud lac Édouard : riv. Rwindi, 1.000 m, 24.IV.1936 (1 ♂ ♀). — Collection Musée du Congo : Ituri : Arara-Aru, IX.1952 (2 ♂♂, 5 ♀♀, leg. M. WINAND); Bunia, VI.1938 (1 ♂, leg. P. LEFÈVRE); Haut-Uele : Mauda, III.1925 (1 ♀, leg. H. SCHOUTEDEN); Ibembo, X. 1949 (1 ♂, leg. R. F. HULSTAERT); Équateur : Boende, 18.II.1926 (1 ♀, leg. R. P. HULSTAERT); Bokuma, 1951 (1 ♀, leg. P. LOOTENS); Sankuru : Komi, 31.III.1930 (1 ♀, leg. H. GHESQUIÈRE); Lukuga : Niemba, XI.1917-I.1918 (1 ♂); Rutshuru : Kilinga, 20.VI.1936 (1 ♂, leg. L. LIPPENS); Mayumbe : Kasanivu, 29.XII.1935 (1 ♂, leg. A. COLLART); Katanga : Kamina, I.1926 (1 ♀, leg. C. SEYDEL); Kivu : Mal'ungu près Shabunda, 1939 (1 ♀, leg. HAUTMANN); Ruanda : Kibungu, X-XII.1937 (1 ♀, leg. R. VERHUIST); Urundi : Rumonge, 1934-1935 (4 ♂♂, 3 ♀♀, leg. A. LESTRADE); Kanyinya, VII.1947 (1 ♀, leg. D. DE MARIE); Stanleyville, 8.V.1926 (1 ♂, leg. H. SCHOUTEDEN); Terr. Yahoma, XII.1948 (1 ♀, leg. L. G. BENOIT); Nyangwe, IV-V.1918 (1 ♂, leg. R. MAYNÉ); Eala, 20.VII.1939 (1 ♀, leg. GHESQUIÈRE); Gandayika, 1947 (2 ♀♀, leg. P. HENRARD); Mayidi, 1914 (5 ♀♀, leg. P. VAN EYEN). — Collection American Museum, New York : Liberia : Robertsport, X-XII.1943 (1 ♂, 5 ♀♀, leg. F. SNYDER); Reppo's Town, IX (1 ♀, leg. F. SNYDER); S. Rhodesia : Balla-Balla, III.1931 (1 ♀, allotype of *sheppardi*, leg. A. CUTHBERTSON); Umtali distr., 26.II.1931 (1 ♂, paratype of *sheppardi*, leg. A. CUTHBERTSON); — Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Balla-Balla, IV.1933 (1 ♀, leg. A. CUTHBERTSON); Vumba Mts., III.1935 (1 ♀, leg. A. CUTHBERTSON). — Collection Zoolog. Museum, Berlin : Togo : Bismarckburg, VI.1891 (1 ♂, 7 ♀♀, leg. R. BÜTTNER); Cameroons : Kumba, 11.X.1896 (1 ♀, leg. L. CONRADT); Lolodorf (1 ♀, leg. L. CONRADT).

[15. — **Isomyia pendula** (MALLOCH).]

(Fig. 8.)

Strongyloneura pendula (MALLOCH), Ann. Mag. N. H., (10), I, 1928, p. 488; SÉGUY, Rev. Brasil., Biol., IX, 1949, p. 132; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 176.

Similar to *I. eos*, but the costal area of the wing is distinctly infuscated. Hypopygium of characteristic structure, the cerci being broad, leaf-like and fused except in the terminal part.

Male. — Eyes bare, upper facets only slightly enlarged, frons at the narrowest point almost as wide as the anterior ocellus, frontal stripe dark-brown, only developed in the lower half; parafrontalia and -facialia with whitish and yellowish pollinosity on a black ground, and with black setae, those on the lower part of the parafacialia not being longer than the 3rd antennal segment is broad. Antennae yellow-brown, the third segment more or less darkened, about twice as long as the second, arista with long hairs on both sides. Bucca 2/5 of eye-length, partly blackish, with white

pollinosity and fine black and greyish hairs, vibrissa and peristomal bristles black, *iv* and *oc* present, about 10 pairs of *paf*, facial ridge with a few black bristles at the base. Palpi yellow-brown, slightly curved and dilated terminally.

Thorax metallic green with cupreous reflections, slightly whitish dusted, especially behind the head, on the scutellum and the pleura. Chaetotaxy : *ac*=1+2, *dc*=2+4, but with a more or less developed additional bristle behind the suture and behind the head, *ia*=1+3, *ph*=3, *h*=2-3, *prs*=1, *n*=2, *sa*=3, *sc*=3+1, *pst* and *pp* present, *st*=1 : 1, propleuron and post-alar

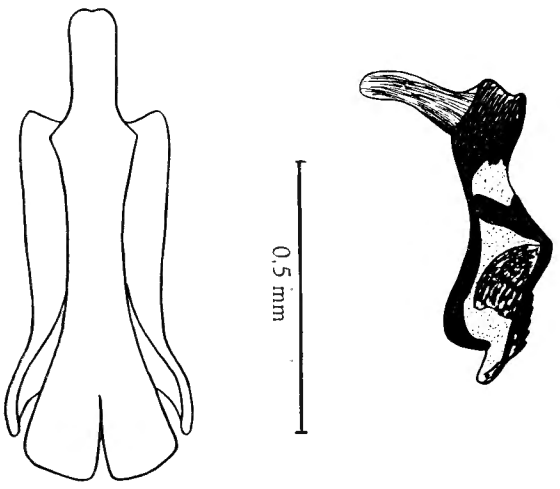

FIG. 8. — *Isomyia pendula* (MALLOCH).
Cerci with paralobi, phallosome. Hairs omitted.
Specimen from Nyasaland.

declivity bare, prosternum haired. Pro- and poststigma black-brown. Wings with the costal area brownish, a dark longitudinal spot at the end of r_{2+3} distinct, but the outlines as well as the anterior part of the costal area ill-defined; remaining part of wing yellowish tinged, veins including basicosta yellow-brown, r_{4+5} terminally slightly bent downwards, *m* broadly rounded and terminally bent inwards, R_5 narrowly open, thoracic squama yellowish, lobulate, dorsally bare, halter yellow-brown. Legs with black femora and brown tibiae and tarsi; front-tibia with a row of *ad* and one long submedian *pv*; mid-tibia with 2 *pd* and 1 submedian *ad*; hind-tibia with 2 *pd*, 2 *ad* and one submedian *av*.

Abdomen coloured like the thorax, pollinosity quite distinct but not hiding the ground, fourth tergite with long marginal bristles and, like

the foregoing ones, with a few lateral discals, fifth tergite also with dorsal discal bristles in addition to the marginals. Hypopygium (fig. 8) quite characteristic, with terminally broadened and truncate cerci which are fused, except in the extreme terminal part, paralobi almost as long as the cerci.

Female. — Frons at the vertex almost half as wide as the eye is long, distinctly widened towards the antennal groove, frontal stripe parallel, dark red-brown; ocellar triangle, parafrontalia and -facialia yellowish dusted, frontal stripe at the tip of the ocellar triangle about twice as wide as one parafrontalium at the vertex; chaetotaxy of head complete, with *iv*, *ev*, *oc*, *f* and 2 proclinate *fo*, buccae nearly half as high as the eye is long.

Length : 8-9 mm.

Collection British Museum, London : Nyasaland : Mlave, 16.IV.1913 (1 ♂, leg. S. A. NEAVE); Maivale, 16.XI.1931 (1 ♀, leg. S. A. NEAVE).

It is doubtful whether the two females recorded by PERIS, from the Belgian Congo, really belong to this species.

[16. — **Isomyia deserti** (KARSCH).]

(Fig. 9.)

Somomyia deserti KARSCH, Berl. Ent. Ztschr., XXXI, 1887, p. 378.

Thelychaeta versispellis VILLENEUVE, Ann. Soc. Ent. France, LXXXV, 1917, p. 344; SÉGUY, Rev. Brasil, Biol., IX, 1949, p. 135; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 174 (syn. nov.).

Superficially similar to *I. eos* m., but this latter species has shorter parafacial bristles and *m* is broadly rounded, not obtuse-angled as in *I. deserti*.

Male. — Eyes bare, upper facets only slightly enlarged, frons at its narrowest point measuring 1/6-1/7 of eye-length. Frontal stripe complete, reddish to dark-brown, parafrontalia and -facialia with a blackish underground and densely silvery-white pollinose, without bare glossy spots, *iv* long and strong, ocellar triangle with one pair of long proclinate *oc* and a second shorter one, posteriorly a great number of additional black bristly hairs are present; about 10 pairs of strong *paf* accompanied by black hairs and shorter bristles which continue onto the parafacialia where they are partly still 2 or 3 times as long as the 3rd antennal segment is broad; these parafacial hairs are predominantly black, but pale ones are also present. Antennal groove yellow to orange-brown, with a narrow convexity separating the antennae from each other; basal segments predominantly dark-brown, the 3rd segment 1½ times to twice as long as the second, dark-brown, more or less lightened at the base, arista with long dorsal and ventral hairs.

Occiput and postbucca black, bucca reddish or yellow brown, yellow pruinose and 4/9-2/5 as high as one eye is long; vibrissa long and surrounded by several black bristles on the lower part of the facial ridge, row of black peristomal bristles well developed, buccal hairs predominantly pale, mixed with only a few black ones. Palpus slender, yellow-brown, not broader than the 3rd antennal segment.

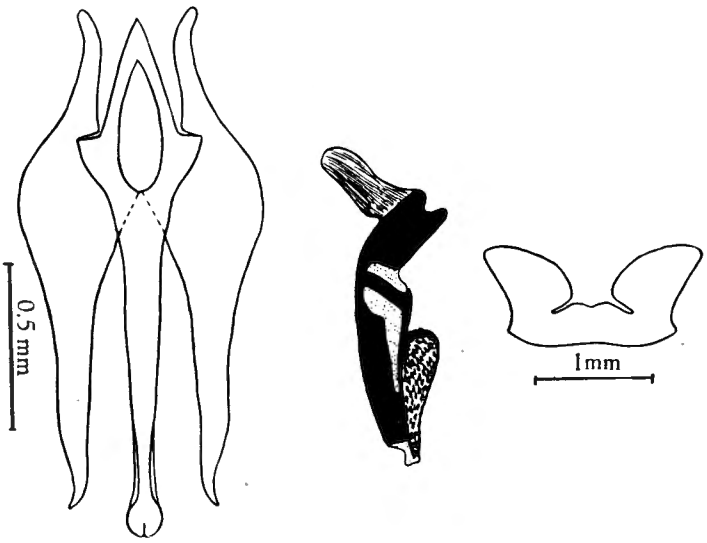

FIG. 9. — *Isomyia deserti* (KARSCH).
Cerci with paralobi, phallosome and 5th sternite. Hairs omitted.
Specimen from the Transvaal.

Thorax bright metallic green or bluish, with cupreous reflections and a white pruinosity which changes according to the incidence of light. Stigmata black-brown. Bristles long, *ac*=2+4, *dc*=3+4, *ia*=1+4, *prs*=1, *ph*=4-5, *h*=3, *n*=2, *sa*=5, (two of them short), scutellum with 3 long and thick and 3 short and thin marginals, disc with several pairs of bristly hairs, of which one pair is as long and thick as the long marginal bristles; 2 *pp* and *pst* each, *st*=1 : 1, posterior margin of mesopleuron consisting of 8 thick and several thinner bristles, hairs on mesopleuron black, propleuron bare, sternopleuron with black and pale hairs; pteropleuron under the wing-root with several black bristles, otherwise with pale hairs; row of hypopleural bristles black and well developed. Alar declivity with a few black and pale hairs, prosternum with long pale hairs. Wing hyaline, sometimes with a yellow tinge, veins including basicosta yellow, but epaulet black, costal spine short, hairs of stem-vein long and black, *m* with an

obtuse angle, R_s open; thoracic squama about as long as broad, halter dark yellow. Legs black, tibiae more or less red-brown; fore-tibia with a dense row of *ad* and a long submedian *pv;* mid-tibia with a submedian *ad* and *pd* and 2 *pv*; hind-tibia with a row of unequally long *ad* and 2 long *pd*, *av* are wanting.

Abdomen a little longer than broad, metallic green or bluish and white pruinose like the thorax, but hind margins of the tergites and a median line blackish or dark cupreous, lateral and marginal bristles long, last tergite also with long discal bristles. Hypopygium (fig. 9) with slender paralobi and fused cerci.

Female. — Frons at the vertex measuring almost half of eye-length frontal stripe slightly narrowed towards the antennal groove. Chaetotaxy of head complete, beside parafrontal hairs with one *f* and two well-developed *fo*. Palpus about as broad as the 3rd antennal segment. Mid-tibia with one *av* and hind-tibia with 2 *av*. Abdomen about as long as broad.

Length : 8-12 mm.

Collection Musée du Congo : Urundi : Kanyinya, VII.1947 (1 ♂, leg. D. DE MARIE); Ituri : Bubia, II.1934 (3 ♂♂, leg. J. V. LEROY); Elisabethville, II.1921 et IV.1930 (1 ♂, 2 ♀♀, leg. M. BEQUAERT). — Collection American Museum, New York : Belgian Congo : Faradje, XI.1912 (1 ♀, leg. LANG & CHAPIN); S. Rhodesia : Melsetter distr., 24.V.1939 (2 ♂♂, leg. W. L. WILLIAMS); Transvaal : Barberton, V.1913-X.1914 (3 ♂♂, leg. H. K. MUNRO). — Collection Zoolog. Museum, Berlin : Tanganyika : Bondei, I.1886 (1 ♂, 2 ♀♀, leg. V. W. SCHMIDT, types of *deserti*). — Collection Dept. of Agriculture, Pretoria : Transvaal : Barberton, V. 1913 &1914 (3 ♂♂, leg. H. K. MUNRO). — Collection S. A. Institute for Med. Research, Johannesburg : Transvaal : Tzaneen, III.1953 (1 ♂, leg. H. PATERSON); Pongola, XII.1952 (4 ♂♂, leg. H. PATERSON); White River, 6.III.1953 (1 ♂, leg. F. ZUMPT); Johannesburg, 8.XII.1951 (1 ♀, leg. H. PATERSON); S. Rhodesia : Marandella, IV.1939 (1 ♀, leg. A. CUTHBERTSON); Balla-Balla. V.1931 (1 ♀, leg. A. CUTHBERTSON).

[17. — **Isomyia eos.** n. sp.]

(Fig. 10.)

This new species differs from *I. deserti* in only a few features. The parafacial setae are shorter, the length of the longest being approximately equal to the breadth of the 3rd antennal segment. Vein *m* of the wing is broadly rounded and not obtuse-angled as in *I. deserti.* The greatest difference, however, lies in the structure of the hypopygium (fig. 10) which has the cerci completely fused forming a triangular plate.

Length : 7-9 mm.

Collection Musée du Congo : Urundi : Rumonge, 1935 (1 ♀, leg. A. LESTRADE). — Collection American Museum, New York : S. Rhodesia : Farfell Farm, Melsetter distr., 14.VI.1939 (1 ♂, holotype, leg. A. CUTHBERTSON). — Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Inyanya, 30.I.1939 (1 ♀, paratype, leg. A. CUTHBERTSON). — Collection S. African Museum, Cape Town : Cape Province : Bethel (1 ♀). — Collection S. A. Institute for Med. Research, Johannesburg : S. Rhodesia : Melsetter distr., 3.VI.1939 (1 ♂, leg. A. CUTHBERTSON).

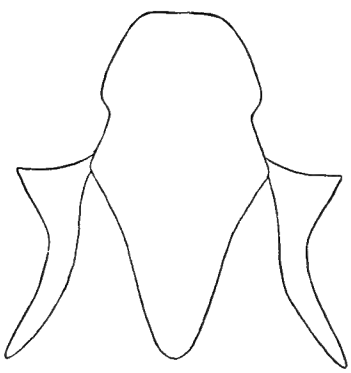

FIG. 10. — *Isomyia eos* n. sp.
Fused cerci with paralobi. Specimen from the Melsetter district, S. Rhodesia.

[18. — **Isomyia natalensis** (VILLENEUVE).]

(Fig. 11.)

Thelychaeta natalensis VILLENEUVE, Ann. Soc. Ent. France, LXXXV, 1917, p. 347; MALLOCH, Ann. Mag. N. H., (9), XVIII, 1926, p. 522; SÉGUY, Rev. Brasil, Biol., IX, 1949, p. 131; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 178.

I. natalensis, restricted to southern Africa, is related to *I. snyderi*, from which it is separable without difficulty by the features given in the key.

Male. — Eyes bare, upper facets only slightly enlarged. Frons at its narrowest point measuring 1/5-1/6 of eye-length; frontal stripe black or more or less reddish, underground of parafrontalia and -facialia blackish, covered by a dense silvery or yellowish pollinosity, parafacial glossy spot not developed. Ocellar triangle black, with one pair of long proclinate *oc* and densely placed shorter bristles and hairs, *iv* long and thick, usually 7-8 pairs of *paf*, which are accompanied by several short and long parafrontal hairs, para-

facialia with densely placed black setae, some of which are a little longer than the 3rd antennal segment is broad. Antennal groove yellow-brown to reddish, antennae separated from one another by a well developed convexity having a dorsal longitudinal impression, basal segments predominantly orange, third segment blackish or dark-brown with the base narrowly yellow, its length about twice that of the second segment, arista with long hairs on both sides. Height of bucca measuring about 3/8 of eye-length, occiput and post-bucca black, bucca blackened posteriorly, reddish to a variable extent anteriorly, pollinosity dense, white or yellowish,

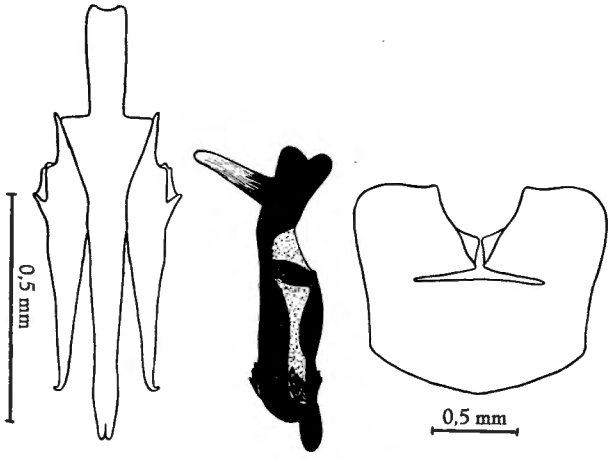

FIG. 11. — *Isomyia natalensis* (VILLENEUVE).
Cerci with paralobi, phallosome and 5th sternite.
Specimen from Johannesburg, Transvaal.

vibrissa black, with several long bristles above it on the facial ridge, peristomal bristles long and forming a complete row, buccal hairs black, occiput predominantly with yellow hairs. Palpi yellow, terminally more or less brown, slightly dilated, narrower than the 3rd antennal segment.

Thorax bright metallic green, with bluish and bronze reflections, pruinosity slight, pro- and poststigma blackish; *ac*=2+4-5, *dc*=3+4-5, *ia*=1+3, *ph*=4, *h*=3, *prs*=1, *n*=2, *sa*=3 (plus 1-2 shorter ones), scutellum with 3 pairs of long marginals and one or more pairs of discal bristles, normally 2 *pp* and 2 *pst*, *st*=1 : 1. Propleuron and post-alar declivity bare, prosternum haired, mesopleuron with black hairs and long posterior bristles, pteropleuron under the root of wing with a bunch of black bristles, otherwise with pale hairs. Hypo- and sternopleuron also predominantly pale-haired. Wings with a yellow-brown tinge, but anterior margin not more deeply infuscated, epaulet and basicosta black, veins orange or dark brown, costal spine well developped, stem-vein with long black hairs, media with

an obtuse angle, R_5 open; thoracic squama whitish yellow, about as long as broad, halter yellow. Legs wholly black, fore-tibia with 4-5 *ad* and submedian *pv*; mid-tibia with 3 *ad* and 3 *pd*, one submedian *av* and *pv*; hind-tibia with a row of unequally long *ad*, 3-5 *pd* and 2-3 *av*.

Abdomen longer than broad, coloured like the thorax; lateral bristles long and thick, tergite IV with a complete row of long marginals and last tergite also with strong discal bristles. Hypopygium (fig. 11) similar to that of *I. snyderi*, but paralobi more slender.

Female. — Frons at vertex about half as wide as the eye is long, frontal stripe reddish or dark brown, slightly narrowed towards the antennal groove. Chaetotaxy of head complete with 2 long proclinate *fo* and several long parafrontal setae, parafacial setae densely placed. Chaetotaxy of legs as in the male.

Length : 7-11 mm.

Collection American Museum, New York : S. Rhodesia : Tandai, 16.IX.1927 (1 ♀, leg, R. H. R. STEVENSON); Transvaal : Pretoria, 25.XII.1912 (1 ♂, ♀, leg. H. K. MUNRO). — Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Salisbury, 30.X.1937 (1 ♂, leg. A. CUTHBERTSON); Wedza, 26.XII.1938 (2 ♀♀, leg. A. CUTHBERTSON); Marandella, 7.IV.1939 (1 ♂♀); Inyanga, 30.I.1939 (1 ♀, leg. A. CUTHBERTSON); Chipinga, 25.I.1939 (1 ♂, leg. A. CUTHBERTSON). — Collection S. African Museum, Cape Town : Cape Province : Knysna, X.1916 (1♂♀, leg. L. PÉRINGUEY); Orange Free State : Goedemoed, XI.1939 (1 ♀). — Collection S. A. Institute for Med. Research, Johannesburg : Transvaal : Johannesburg, XI.1948-IV.1949 (numerous ♂♂ and ♀♀); Potchefstroom, XI.1951-IV.1953 (numerous ♂♂ and ♀♀); Natal : Howick, 15.XI.1954 (1 ♂).

[19. — **Isomyia snyderi** ZUMPT.]

(Fig. 12.)

Isomyia snyderi ZUMPT, J. Ent. Soc. S. Africa, XIX, 1956, p. 72, fig. 3.

This species was fully described by me recently. It is related to *I. natalensis*, but, apart from the facial setae, is separable by the following features :

Male. — Width of frons at its narrowest part 1/8-1/10 of eye-length. Antennal groove with a less developed median convexity, which is flatter and shorter than in *natalensis*. Antennae almost wholly yellow-brown,

third segment at most slightly darkened. Costal spine of wing short, hardly distinguishable from the neighbouring setae. Tibiae red-brown, mid-tibia with a row of unequally long *ad*, 2 *pd* and with 1-2 *av*. Hypopygium (fig. 12) with broader paralobi.

Female. — Width of frons at vertex measuring about 2/5 of eye-length; frontal stripe subparallel. Mid-tibia also with a submedian *av* and hind-tibia with 2-3 *av*.

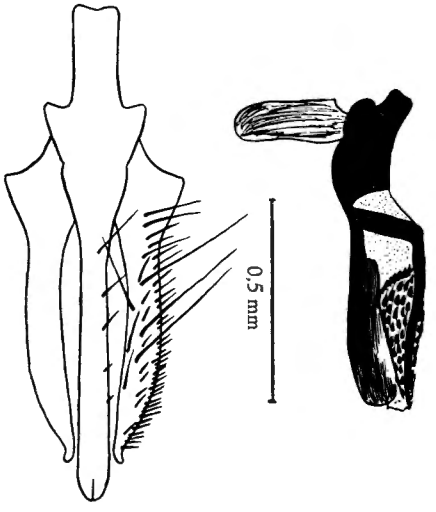

FIG. 12. — *Isomyia snyderi* ZUMPT.
Cerci with paralobi and phallosome.
Paratype from Liberia.

Length : 10-12 mm.

The species was based on 3 ♂♂ and 3 ♀♀ from Bendu nr. Robertspoort, Liberia, II & III, 1943, leg. F. M. SNYDER (in collections of the American Museum, New York, and the S. A. Institute for Med. Research, Johannesburg). No additional material has been received.

[20. — **Isomyia nigripes** (VILLENEUVE).

Thelychaeta nigripes VILLENEUVE, Ann. Soc. Ent. France, LXXXV, 1917, p. 348; SÉGUY, Rev. Brasil, Biol., IX, 1949, p. 131; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 174, fig. 41.

I have seen one female specimen, identified by Dr. CURRAN, on which the following description is based.

Female. — Eyes bare, frons at vertex measuring 4/7 of eye-length, frontal stripe red-brown, slightly narrowed towards the antennal groove, at the tip of the ocellar triangle about as broad as one parafrontalium; parafrontalia and -facialia densely silvery-white pollinose on a blackish underground, parafacial glossy spot not developed; chaetotaxy complete with two long proclinate *fo*, setae present, those on the parafacialium not or hardly longer than the 3rd antennal segment is broad, antennal groove orange like the antennae, the latter separated from each other by a broad, well developed median convexity which shows a longitudinal, shallow impression; 3rd antennal segment about twice as long as the second, arista with long hairs on both sides. Height of bucca measuring 3/7 of eye-length, occiput and post-bucca black, bucca predominantly reddish, with black hairs and long peristomal bristles, facial ridge above vibrissa with a few black bristles. Palpus yellow, a little broader than the 3rd antennal segment. Proboscis black, bulbuous, only the extreme tip of the labellae reaching the tip of the palpus.

Thorax bright metallic green, with purple reflections and a white pruinosity. Stigmata black-brown. Bristles long, $ac=1+2$, but there are weaker and shorter ones in addition to these long bristles, namely one pair in front of the presutural pair and 2 pairs in front of the postsutural long bristles; $dc=2+4$, $ia=1+3$, $prs=1$, $ph=4$, $h=3$, $n=2$, $sa=3$, $sc=3+1$, *pp* and *pst* present, $st=1:1$. Propleuron and postalar declivity bare, mesopleuron with black setae and bristles, row of mesopleurals complete, pteropleuron under the root of the wing with several black bristles, but otherwise with pale hairs. Wings with a yellow tinge, anterior margin weakly infuscated, epaulet and basicosta black, veins yellow-brown, costal spine indistinct, stem-vein with black hairs, *m* broadly rounded, R_5 open; thoracic squama about as long as broad, halter yellow. Legs wholly black; fore-tibia with 4 *ad* and a submedian *pv*; mid-tibia with 2 *pv* and one *ad*, *pd* and *av*; hind-tibia with 2-3 *ad* and *pd* and 2 *av*.

Abdomen slightly longer than broad, metallic green with a purple shine, pruinosity slight. Tergite III with a row of appressed marginal bristles, tergites IV and V with discal and semi-erect marginal bristles.

Length : 9 mm.

Collection American Museum, New York : S. Rhodesia : Que Que, 4.IX.1921 (1 ♀).

The type-locality is the Kilimanjaro district.

[21. — **Isomyia cuprapex** (VILLENEUVE).]

(Fig. 13.)

Thelychaeta cuprapex VILLENEUVE, Ann. Soc. Ent. France, LXXXV, 1917, p. 353; SÉGUY, Rev. Brasil, Biol., IX,1949, p. 127; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 174.

I have before me two specimens, on which PERIS based his key. *I. cuprapex* belongs to the « *distinguenda*-group » and is well characterized by the shape of the cerci and paralobi.

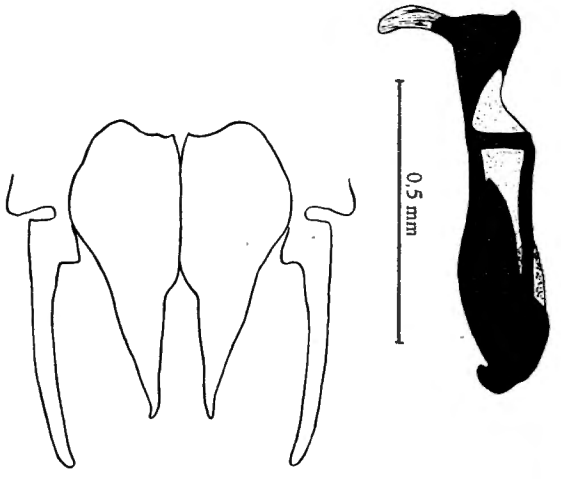

FIG. 13. — *Isomyia cuprapex* (VILLENEUVE).
Cerci with paralobi, phallosome. Hairs omitted.
Specimen from the Belgian Congo.

Male. — Eyes with the upper facets moderately enlarged, frons at the narrowest point about once to twice as broad as the anterior ocellus, frontal stripe black, long-triangular in the lower part, narrowed to a line in the middle. Parafrontalia and -facialia black, silvery dusted, the latter with a large glossy spot in the lower terminal part; *iv*, *oc* and 8 pairs of *paf* present, odd black and pale setae are recognizable on the parafrontalia as well as on the parafacialia. Bucca 1/3-1/2 as high as the eye is long, glossy black and undusted in the anterior half, densely white pollinose and

beset with long pale hairs posteriorly. Vibrissa and peristomal bristles black, long and thick, facial ridge with a few bristles above the vibrissa. Antennal groove black and whitish dusted in the upper part, glossy near the epistome; carina broad, but flat and short, dorsally with a narrow, longitudinal cavity. Basal segments of antennae black, the 3rd reddish to dark-brown and about twice as long as the second, arista with long hairs up to the tip. Palpi for the greater part black, only the base more or less lightened, distinctly broader than the 3rd antennal segment.

Thorax metallic green or greenish-coppery, with a slight whitish pruinosity and two narrow black presutural lines following the *dc*. Pro- and poststigma black-brown. Bristles long, *ac*=2+4, *dc*=2+4, *ia*=1+3, *h*=3, *ph*=2 (outer present), *prs*=1, *n*=2, *sa*=3, scutellum with 3 long and 2 short marginals and 2 pairs of relatively weak discals, *pst* and *pp* present, *st*=1 : 1, propleuron bare, prosternum with long pale hairs, alar declivity bare. Wings with the outer margin broadly infuscated, remaining part light-brown tinged, epaulet and basicosta black, veins red-brown, bristles of stem-vein black, root of r_{4+5} dorsally with a few setae, *m* with a rounded bend, R_5 open, thoracic squama light yellow, longer than broad, halter yellow. Legs wholly black, fore-tibia with 2 *ad* and a submedian *pv*; mid-tibia with one submedian *ad*, *pd* and 2 *pv*, *av* wanting; hind-tibia with several *ad* and *pd*, but evidently no *av* are present.

Abdomen metallic coloured like the thorax and with a slight pollinosity which does not hide the underground. Hypopygium (fig. 13) with slender paralobi and triangular cerci.

Length : 6-7 mm.

The female sex is not known to me.

Collection Musée du Congo : Mahagi Niarembe, IX.1935 (2 ♂♂, leg. C. Scops).

[22. — **Isomyia terminata** (WIEDEMANN).]

(Fig. 14.)

Musca terminata WIEDEMANN, Ausser. Zweifl. Ins., II, 1830, p. 414; CURRAN, Bull. Amer. Mus. N. H., LVII, 1928, p. 372; SÉGUY, Rev. Brasil, Biol., IX, 1949, p. 134; PERIS, An Estac. Exp. Aula Dei, III, 1952, p. 173.

Strongyloneura nigrohirta MALLOCH, Ann. Mag. N. H., (10), I, 1928, p. 487; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 173.

Thelychaeta obumbrata VILLENEUVE, Rev. Zool. Bot. Afr., XXVI, 1935, p. 416; SÉGUY, Rev. Brasil, Biol., IX, 1949, p. 132; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 186 (syn. nov.).

I. terminata is well characterized by its hypopygial structure (fig. 14), but with respect to the outer features, it is almost identical with *I. distinguenda*. The male mid-tibia shows 1 *ad*, 1 *pd*, 2 *pv*, no *av*, whereas in

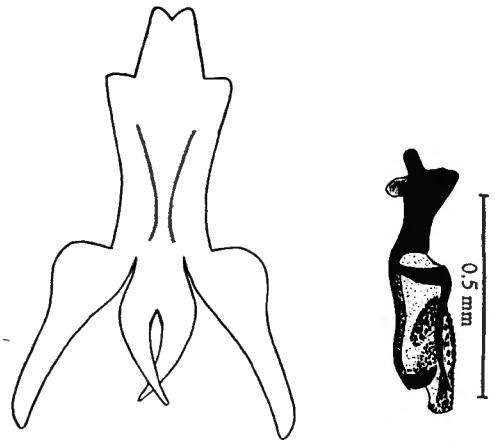

FIG. 14. — *Isomyia terminata* (WIEDEMANN).
Cerci with paralobi, phallosome. Hairs omitted.
Specimen from Liberia.

I. distinguenda, the *av* bristle is present. The female of *I. terminata* has this *av* bristle, and is at present not separable from *I. distinguenda*. Tibiae and tarsi are sometimes more or less brownish, especially in the female.

Collection Musée du Congo : Nyangwe, IV-V.1918 (4 ♂♂, 2 ♀♀, leg. R. MAYNÉ). — Collection American Museum, New York : Liberia : Reppo's Town, IX (1 ♂); Bendu, Robertsport, III, IV, XI, XII.1943 (4 ♂♂, 5 ♀♀, leg. F. M. SNYDER); Zu, 19.XII.1943 (1 ♀, leg. F. M. SNYDER).

Described from Sierra Leone, PERIS also saw a few specimens from the Gold Coast and Nigeria.

[23. — **Isomyia distinguenda** (VILLENEUVE.)]

(Fig. 15.)

Thelychaeta distinguenda VILLENEUVE, Ann. Soc. Ent. France, LXXXV, 1917, p. 352; CURRAN, Bull. Amer. Mus. N. H., LVII, 1928, p. 372; SÉGUY, Rev. Brasil, Biol., IX, 1949, p. 128; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 173.

I. distinguenda belongs to a group of species which are well characterized by the hypopygial structure, but which are not clearly separable by outer morphological features.

Male. — Eyes bare, upper facets hardly larger than the lower ones, frons at its narrowest point measuring once to twice the width of the anterior ocellus, frontal stripe reddish or dark-brown, normally complete, parafrontalia and -facialia black, the latter with a large glossy spot on the lower part, remaining parts densely white pollinose, besides the *paf* with long black setae, the length of some of the parafacial ones reaching the width of the 3rd antennal segment; *iv* well developed, *oc* accompanied by a number of short and long hairs. Antennal groove black, sometimes partly reddish, a relatively broad median convexity is developed; 3rd antennal segment 1 ½ to twice as long as the second, colouring reddish to dark-brown, arista with long hairs on both sides. Bucca black, with a narrow reddish band at the anterior peristomal margin and below the eye, posterior part of bucca densely white pollinose, the upper anterior part glossy black, hairs and bristles predominantly black, on the postbucca mixed with pale hairs; vibrissa long, facial ridge above it with a few black bristles. Palpus yellow to orange, terminally as broad as the 3rd antennal segment.

Thorax metallic green, mostly with coppery and bluish reflections, and with a slight whitish pruinosity. Stigmata black brown. Bristles long, *as*=1-2+3-4, *dc*=2+4, *ia*=1+3, *prs* present, *ph*=2-3, *h*=2-3, *n*=2, *sa*=3 (in addition to them 2 shorter ones are normally recognizable), scutellum with 3 long marginals and mostly one pair of discals, *pst* and *pp* present, *st*=1 : 1. Propleuron and alar declivity bare, mesosternum with black hairs and a complete row of posterior bristles, remaining pleura also predominantly with black hairs. Wings with a brown tinge, the terminal anterior part with a broad, but ill-defined and variable infuscation which sometimes covers the whole anterior margin; epaulet and basicosta blackish, veins brown, costal spine developed, *m* gently rounded, R_5 open, r_{4+5} slightly curved terminally; thoracic squama longer than broad, halter yellow. Legs totally black or black-brown; fore-tibia with a row of unequally long *ad* and a submedian *pv*; mid-tibia with 1 *ad*, 2 *pd*, 1-2 *pv* and 1 *av* (*pd* and *pv* sometimes not clearly located); hind-tibia with 3-4 long *ad* and *pd* bristles and with 1-2 *av*.

Abdomen longer than broad, coloured and slightly pruinose like the thorax, with lateral and marginal bristles, the last tergite also with discal bristles. Hypopygium (fig. 15) with fused cerci, which show a slight incision at the tip.

Female. — Frons at the vertex measuring about 1/3-5/12 of eye-length, widened towards the antennal groove; frontal stripe red-brown, subparallel. Chaetotaxy complete, with *f* and 2 long *fo*, setae as well as bristles located in large glossy spots. Pollinosity of parafrontalia and -facialia sometimes yellowish.

Length : 6-8 mm.

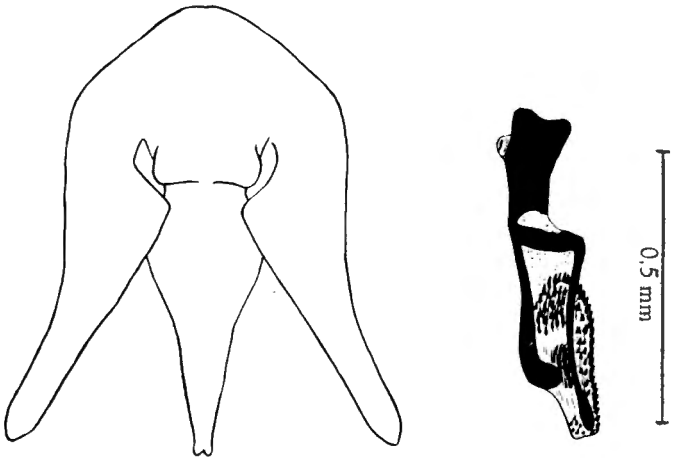

FIG. 15. — *Isomyia distinguenda* (VILLENEUVE).
Cerci with paralobi, phallosome. Hairs omitted.
Specimen from Johannesburg, Transvaal.

Collection Musée du Congo : Kivu : Ibanda, 1952 (1 ♂♀, leg. VANDELANOTTE); Tshishulue (Kabare), 1.800-2.000 m, VII.1951 (1 ♂, leg. A. E. BERTRAND); Costermansville, 1948 (1 ♂, leg. P. H. VERCAMMEN); Urundi : Bururi, 1.800-2.000 m, 2-12.III.1953 (8 ♂♂, 7 ♀♀, leg. P. BASILEWSKY). — Collection American Museum, New York : Belgian Congo : Stanleyville, IV.1955 (1 ♀, leg. LANG & CHAPIN, det. VILLENEUVE); Transvaal : Pretoria, 5.I 1919 (1 ♂, leg. H. K. MUNRO). — Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Salisbury, 26.III.1919 (1 ♂, leg. A. CUTHBERTSON); 30.IV.1938 (1 ♀, leg. A. CUTHBERTSON); Victoria,

16.VI.1939 (1 ♂, leg. A. CUTHBERTSON); Inyamadzi, Melsetter distr., 25.V.1939 (2 ♂♂, leg. W. L. WILLIAMS); Umtali, IX.1927 (1 ♂, leg. A. CUTHBERTSON). — Collection Dept. of Agriculture, Pretoria : Transvaal : Pretoria, 5.I.1919 (3 ♂♂, leg. H. K. MUNRO). — Collection S. A. Institute for Med. Research, Johannesburg : Transvaal : Johannesburg, XII.1948 (1 ♀♂, leg. F. ZUMPT); Pretoriuskop, I.1952 (1 ♀, leg. F. ZUMPT); Natal : Mtubatuba, Zululand, V.1941 (1 ♂, leg. H. K. MUNRO).

PERIS listed this species from Kenya and Uganda.

[24. — **Isomyia darwini** (CURRAN).]

(Fig. 16.)

Strongyloneura darwini CURRAN, Amer. Mus. Nov., 985, 1938, p. 3; CUTHBERTSON, Trans. Rhod. Sci. Ass., XXXVII,1939, p. 144; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 174.

This species is known only from Southern Africa. It belongs to the *distinguenda*-group wherein it is characterized by the hypopygial structure and the bright orange antennae. But it is evidently a rare species.

Male. — Eyes bare, upper facets hardly larger than the lower ones, frons quite variable in width, measuring at its narrowest part from 1/7 of eye-length to twice the width of the anterior ocellus, frontal stripe reddish or dark-brown, complete or line-shaped in the middle; parafrontalia and -facialia black, the latter with a large glossy spot in the lower part, otherwise densely white pollinose, some of the black parafacial setae almost as long as the 3rd antennal segment is broad; *iv* well developed, *oc* accompanied by a number of short and long hairs. Antennae and antennal groove yellow-brown or orange, terminal part of the 3rd segment sometimes slightly darkened; median carina broad, dorsally with a longitudinal impression; 3rd antennal segment 1½ times to twice as long as the second. Bucca glossy black, with a slight white pruinosity, anterior peristomal part and a band below the eye reddish, hairs and bristles black, post-bucca also with pale hairs; vibrissa long, facial ridge above it with a few black bristles, row of peristomal bristles well developed. Palpus yellow or red-brown, terminally about as broad as the 3rd antennal segment.

Thorax totally metallic green, sometimes more or less bluish with a slight white pruinosity. Stigmata black brown. Chaetotaxy generally as in *I. distinguenda*, but the variability seems to be greater and the tendency towards an increased number of bristles is more pronounced. Colouring and venation of wing as in *distinguenda*. Legs black or black-brown; fore-tibia with a row of unequally long *ad* and 1-2 submedian *pv*; mid-tibia with 1 *ad*, 1-2 *pd*, 2-4 *pv*, 1 *av*; hind-tibia with several *ad* and *pd* bristles and 1-2 *av*.

Abdomen longer than broad, with the same colouring and pruinosity as the thorax. Hypopygium (fig. 16) with the cerci fused except the utmost tip which shows a short incision.

Female. — Head at vertex measuring 4/7 of eye-length, strongly widened towards the antennal groove; parafrontalia and -facialia broad, with a large glossy spot on the lower part and another one at the antennal base. Chaetotaxy complete.

Length : 8-12 mm.

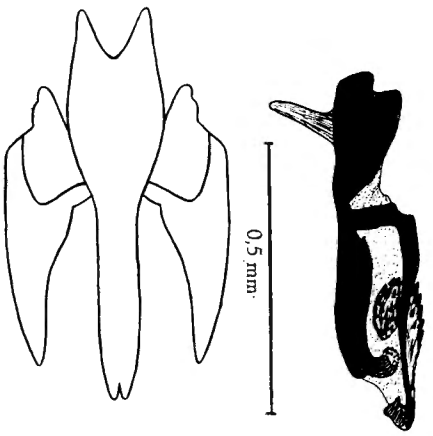

FIG. 16. — *Isomyia darwini* (CURRAN).
Cerci with paralobi, phallosome. Hairs omitted.
Specimen from Wedda, S. Rhodesia.

Collection American Museum, New York : S. Rhodesia : Darwin, III.1933 (1 ♂, holotype); Wedza, 26.XII.1938 (1 ♂ ♀, leg. A. CUTHBERTSON). — Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Salisbury, II.1910 (1 ♂). — Collection Dept. of Agriculture, Pretoria : Transvaal : Barberton, 17.XI.1927 (1 ♂, leg. H. K. MUNRO). — Collection S. A. Institute for Med. Research, Johannesburg : Natal : Warner Beach, 20.I.1951 (1 ♂, leg. H. MUSPRATT); Bechuanaland : Tsessebe, I.1956 (1 ♂, leg. F. ZUMPT).

[25. — **Isomyia cuthbertsoni** (CURRAN).]

(Fig. 17.)

Strongyloneura cuthbertsoni CURRAN, Amer. Mus. Nov., 985, 1938, p. 2; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 174.

This species is known only from a few specimens from the type-locality and seems to be identical with *I. distinguenda*, in almost every respect, with the exception of the very characteristic hypopygium (fig. 17). In the males before me, the *av* seta of the mid-tibia is not developed, but it is questionable whether this feature is constant. In the female sex, this seta is present.

Length : 7-8 mm.

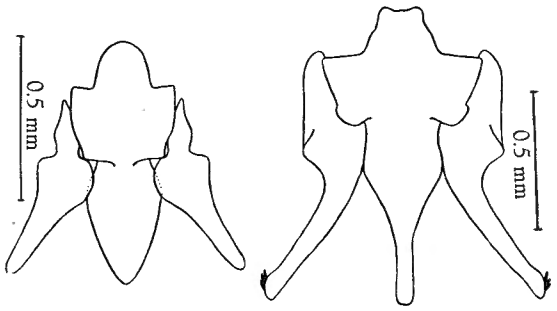

FIG. 17. — Left : *Isomyia faini* n. sp. Cerci with paralobi. Hairs omitted. Specimen from Togo. — Right : *Isomyia cuthbertsoni* (CURRAN). Cerci with paralobi. Hairs omitted. Specimen from S. Rhodesia.

Collection American Museum, New York : S. Rhodesia : Vumba Mts., III.1935 (holo- and allotype, leg. A. CUTHBERTSON). — Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Vumba Mts., 18.I.1935 (1 ♂, paratype, leg. DRYSDALE); 1.III.1935 (1 ♂, leg. A. CUTHBERTSON).

[26. — **Isomyia faini** n. sp.]

(Fig. 17.)

With respect to the structure of the cerci and paralobi, this species is very similar to *I. eos* m., but it belongs to the *distinguenda*-group, having a black basicosta and a broadly brown, demarcated wing-margin. In all outer features, *I. faini* resembles *I. distinguenda* in both sexes, and I was not able to detect any features other than those of the hypopygium (fig. 17), which could be used to separate these two species.

It is an honour for me to name this species after the meritorious Belgian entomologist, Dr. A. FAIN.

Collection Zoolog. Museum, Berlin : Togo : Bismarckburg, XI-XII.1890 (holotype ♂, leg. R. BÜTTNER); I et X.1891 (2 ♀♀, leg. R. BÜTTNER). — Collection S. A. Institute for Med. Research, Johannesburg : Togo : Bismarckburg, IX.1891-X.1892 (paratype ♂, leg. L. CONRADT). — Collection R. Museum Hist. Nat., Bruxelles : Belgian Congo: Eala, VII.1936 (paratype ♂, leg. J. GHESQUIÈRE).

[27. — **Isomyia longicauda** (VILLENEUVE).]

(Fig. 18.)

Thelychaeta longicauda VILLENEUVE, Ann. Soc. Ent. France, LXXXV, 1917, p. 350; SÉGUY, Rev. Brasil, Biol., IX. 1949, p. 130; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 174, fig. 40.

? *Apollenia promula* SÉGUY, Rev. Brasil, Biol., IX, 1949, p. 133; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 187.

This species is quite oustanding in the genus *Isomyia* on account of the large hypopygium covering half the male abdomen and showing an unusual structure of the phallosome, so that a generic separation from *Isomyia* would be worth discussing.

Male. — Eyes bare, upper facets hardly larger than the lower ones, frons at its narrowest point measuring 1/7-1/8 of eye-length. Frontal stripe black to red-brown, complete. Parafrontalia and -facialia black, with a dense yellowish or white pollinosity, no glossy parafacial spot, ocellar triangle with a pair of long proclinate *oc*, which are accompanied by several bristly hairs, *iv* and in the average 10 pairs of strong *paf* present, parafrontal and parafacial setae black and densely placed, the latter not longer than the 3rd antennal segment is broad. Antennal groove yellow-brown, median convexity indistinct, antennae with the basal segments orange and the 3rd dark-brown, the 3rd segment 1½ times as long as the second, arista with long hairs on both sides. Bucca measuring 3/8-3/7 of eye-length, greater part black, anteriorly more or less orange; vibrissa and peristomal bristles long and thick, lower part of facial ridge with several short bristles, buccal hairs black and densely placed, post-bucca with yellow hairs. Palpus yellow-brown, slightly dilated terminally and about as broad as the 3rd antennal segment.

Thorax metallic green with purple and coppery reflections, or coppery with greenish reflections; white pruinosity thin, its appearance depending on the incidence of light. Stigmata black-brown. Bristles long, *ac*=1-2 +2-3, *dc*=2+4, *ia*=1-3, *prs*=1, *ph*=3-4, *h*=3, *n*=2, *sa*=3, *sc*=3+1, *pp* and *pst* present, *st*=1 : 1, propleuron bare, mesopleuron with black hairs and a dense row of posterior bristles, ptero- and sternopleuron with black and

pale hairs; alar declivity and suprasquamal ridge bare. Wings brownish tinged, but the anterior marginal part is not demarcated by a darker colouring, basicosta blackish or brown, veins yellow-brown, costal spine normally small, but varying in size, hairs on stem-vein black, *m* terminally broadly rounded, its upper part slightly curved inwards, R_5 open; thoracic squama about as broad as long or slightly longer, yellow or brown, halter yellow-tipped or totally yellow. Legs with blackish or bronze femora, tibiae and tarsi more or less yellow-brown; fore-tibia with several *ad* and

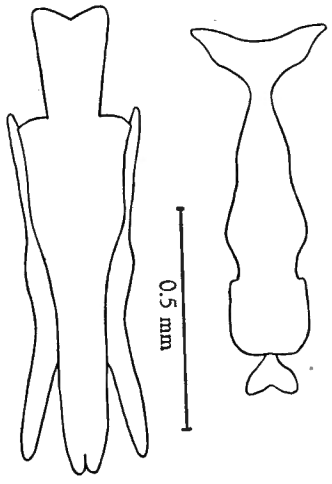

FIG. 18. — *Isomyia longicauda* (VILLENEUVE).
Cerci with paralobi and phallosome in frontal view. Hairs omitted.
Specimen from N. Transvaal.

a submedian *pv*; mid-tibia with 1 *ad*, 1 *pd* and 2 *pv*; hind-tibia with a row of unequally long *ad* and 2 *pd*, but *av* are wanting.

Abdomen slightly longer than broad, coloured like the thorax, with marginal and lateral bristles. Hypopygium strongly enlarged and covering about half of the abdomen, sternites and the corresponding ventral parts of the tergites shortened. Cerci fused, paralobi slender, phallosome with a broad, bifurcated spinus (fig. 18).

Female. — Characterized by the triangularly incised hind-margin of the abdominal tergite V. Frons at vertex measures 3/8-1/3 of eye-length, chaetotaxy complete, *f* and 2 long *fo* developed. Mid-tibia with 1 *av* in addition to those bristles found in the male, hind tibia with 2 *av*.

Length : 8-10 mm.

Collection Musée du Congo : Urundi : Buturi, 1.800-2.000 m, III.1953 (4 ♀♀, leg. P. BASILEWSKY). — Collection American Museum, New York : Kenya : Kabete, XI.1917 (1 ♂ ♀, leg. V. J. ANDERSON); Natal : New Hanover, VIII.1914 (1 ♂, leg. H. K. MUNRO); Transvaal : Barberton, 25.IV.1920 (1 ♀, leg. H. K. MUNRO). — Collection S. A. Institute for Med. Research, Johannesburg : Tanganyika : nr. Songea (1 ♂♀); S. Rhodesia : Vumba Mts., III.1935 (1 ♀, leg. A. CUTHBERTSON); Transvaal : Zoutpansberg (1 ♂, leg. H. PATERSON).

ISOMYIA SPECIES INCERTAE SEDIS

[28. — **Isomyia angolensis** (PERIS).]

Thelychaeta angolensis PERIS, Eos, XXVII, 1951, p. 244, et An. Estac. Exp. Aula Dei, III, 1952, p. 152.

I have not seen this species which is based on one male from Angola. The author placed it into his « *tristis*-group » and compared it with *I. fasciculata*, from which he separated it by the « occipital dilatation divergent from the margin of the eye », whereas the dilatation is said to be « normal » in *I. fasciculata.*

[29. — **Isomyia ellenbergi** (SÉGUY).]

Apollenia ellenbergi SÉGUY, Rev. Brasil, Biol., IX, 1949, p. 129; PERIS, An. Estac. Exp. Aula Dei, III, 1952 ,p. 184.

Described from Lambaréné, French Congo, and placed by the author near *I. tristis.*

[30. — **Isomyia occidentalis** (PERIS).]

Thelychaeta occidentalis PERIS, Eos, XXVII, 1951, p. 245, et An. Estac. Exp. Aula Dei, III, 1952, p. 159.

I have not seen this species which was based on a single female from Eduadin nr. Kumasi, Gold Coast. The author (1952) placed it into his *viridaurea*-group which contains robust species with a broad thoracic squama and with a predominantly metallic greenish colouring of the body. In his key it runs down near *I. jactatrix*, but the abdomen is said to be non-pruinose, the basicosta totally black, and the face wholly testaceus. Length : 11 mm.

[31. — **Isomyia pharyge** (SÉGUY).]

Apollenia pharyge SÉGUY, Rev. Brasil, Biol., IX,1949, p. 133; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 186.

Described from Konakry, French Guinea. It is said to be totally glossy black, and it may be a synonym of *I. nitida*.

[32. — **Isomyia pluvialis** (SÉGUY).]

Apollenia pluvialis SÉGUY, Rev. Brasil, Biol., IX, 1949, p. 133; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 187.

Another species placed by SÉGUY into the *tristis*-group. He compares it with his *A. ellenbergi* from which he distinguishes it by separated eyes in the male sex, whereas they are touching each other in *A. ellenbergi*. Described from the Cameroons.

[33. — **Isomyia solitaria** (PERIS).]

Thelychaeta solitaria PERIS, Eos, XXVII, 1951, p. 245, et An. Estac. Exp. Aula Dei, III, 1952, p. 147.

This species, like *I. occidentalis*, is based on a single female and assigned by the author to his *tristis*-group. The abdomen is said to be densely pruinose, the thorax shows 3 dark longitudinal stripes and there is no median convexity in the antennal groove. Proboscis short, being twice as long as broad. Length : 8 mm. Described from Elisabethville, Belgian Congo.

Genus **THORACITES** BRAUER & BERGENSTAMM.

Thoracites BRAUER & BERGENSTAMM, Denkschr. Akad. Wiss. Wien, LVIII, 1891, p. 363; TOWNSEND, Man. Myiol., V.1937, p. 113; S.-WHITE, AUBERTIN & SMART, Fa. Brit. India, Dipt., VI, 1940, p. 168; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 124.

Type species : *M. abdominalis* FABRICIUS from India.

The genus, containing up to now one Oriental and one Ethiopian species, has been separated from *Isomyia* by the wanting outer *ph* bristle. In all other respects, it coincides with *Isomyia*.

[**Thoracites cingulatus** BEZZI.]

(Fig. 19.)

Thoracites cingulatus BEZZI, Bull. Lab. Portici, VIII, 1914, p. 290; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 125.

According to PERIS there are two species which are known to belong to the genus *Thoracites*, namely *T. abdominalis* (FABRICIUS) from the Oriental region and *T. cingulatus* BEZZI from the Ethiopian region. I have not seen *P. abdominalis* which is the type species. In the Ethiopian region, *T. cingulatus* is easily recognizable by its generic features and according to PERIS' key, it must also be quite distinct from the Oriental species. It evidently belongs to the rarer species, for PERIS and I myself have only seen a few specimens.

Male. — Eyes bare, upper facets moderately enlarged but not demarcated from the lower ones. Frons relatively broad, at its narrowest part measuring 1/6-1/7 of eye-length. Frontal stripe complete, blackish and almost parallel from the antennal groove to the tip of the ocellar triangle, which, like the parafrontalia and -facialia, is covered with a dense, yellow pollinosity. The chaetotaxy consists of a pair of long *iv* and *oc*, a pair of shorter *pvt* and several bristles and bristly hairs of varying length on the ocellar triangle; normally 6 pairs of well developed *paf*; parafrontalia and -facialia in their whole extent beset with relatively long black setae. Antennae predominantly black-brown, separated from one another by a short and flatly rounded convexity, 3rd segment 3 times as long as the second, arista with long hairs on both sides; antennal groove yellow and densely pollinose. Bucca measures about 2/5 of eye-length, like the parafacialia with a dense yellow pollinosity which almost completely covers the blackish or brownish underground, only at anterior eye-margin an undusted irregular spot is left. Facial ridge with 2-3 bristles above the vibrissa, peristomal bristles black and forming a complete row, hairs yellow, sometimes a few black ones on the anterior part of the bucca. Palpi yellow-brown; slender, terminally club-shaped and sometimes darkened, the club at the widest point slightly broader than the base of the 3rd antennal segment.

Thorax completely metallic dark green and with an irregular yellow or whitish pollinosity, the pattern of which changes with the incidence of light. Stigmata black. Bristles black and long, *ac*=3+3, *dc*=2+4, *ia*=1 +3, outer *ph* wanting, but *prs* present, *h*=3, *n*=2, *sa*=3, scutellum with 3 long marginal bristles and a great number of erect discal hairs, *st*=1 : 1, *pst* and *pp* present. Mesopleuron with black hairs and at the posterior margin with a row of long bristles, sternopleuron with thin pale hairs. Suprasquamal ridge, post-alar declivity and propleuron bare. Wings

hyaline, veins including basicosta yellow, costal spine long, stem-vein with black bristles, base of r_{4+5} with several long setae, R_5 open, thoracic squama longer than broad, halter yellow. Legs blackish with the fore-femora metallic green; fore-tibia with 2 *ad* and one long submedian *pv*; mid-tibia with 2 *pd* and one *ad* and *pv*; hind-tibia with 2 long *pd* and *ad*, whereas *av* are wanting (but one *av* present in the female sex).

Abdominal tergite I+II dorsally totally or predominantly black or black-brown, following tergites with the posterior part broadly blackened and with a continuous median longitudinal vitta, the lateral anterior parts yellow-brown and densely pollinose; tergites ventrally with a similar pattern, but sternites and hypopygium black; hairs and bristles black, the latter strikingly long. Hypopygium (fig. 19) with long and slender cerci and paralobi.

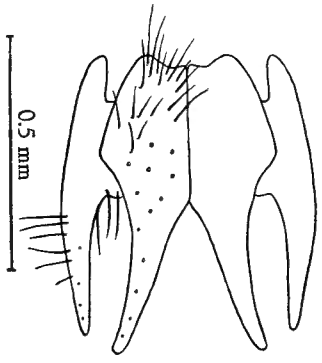

FIG. 19. — *Thoracites cingulatus* BEZZI.
Cerci with paralobi.
Specimen from Delagoa Bay, Mozambique.

Female. — Frons broad, widened from the vertex towards the antennal groove, at vertex measuring about 2/5 of eye-length. Frontal stripe narrow, red-brown, with margins diverging slightly towards the ocellar-triangle. Parafrontalia and -facialia very broad and densely yellow pollinose, with long *iv*, *ev*, *f*, *paf* and 2 proclinate *fo*, setae as distinct as in the male. Antennae reddish in both females before me, but they are perhaps not quite mature. Palpi terminally broader than in the male.

Length : 5-8 mm.

Collection British Museum, London : Mozambique (1♂♀, leg. F. MUIR). — Collection S. A. Institute for Med. Research, Johannesburg : Mozambique : Delagoa Bay (1 ♀); Natal : Mtubatuba (1 ♂). — Collection American Museum, New York : Nigeria : Maiduguri, 7.IX.1942 (3 ♂♂, leg. F. SNYDER).

Genus **IDIOPSIS** Brauer & Bergenstamm.

Idiopsis Brauer & Bergenstamm, Denkschr. Akad. Wiss. Wien, LVI, 1889, p. 153; Séguy, Encycl. Ent., A IX, 1928, p. 180; Townsend, Man. Myiol., V, 1937, p. 102; Peris, An. Estac. Exp. Aula Dei, III, 1952, p. 126; Zumpt, Fliegen pal. Region, 64, i, 1956, p. 116.
Type species : *I. prasina* Brauer & Bergenstamm from Egypt.

Eusynamphoneura Townsend, Rec. Ind. Mus., XIII, 1917, p. 189, et Man. Myiol., V, 1937, p. 99; Peris, An. Estac. Exp. Aula Dei, III, 1952, p. 126.
Type species : *I. seriepunctata* Loew from Mozambique.

Synamphoneuropsis Townsend, Rec. Ind. Mus., XIII, 1917, p. 199, et Man. Myiol., V, 1937, p. 112; S.-White, Aubertin & Smart, Fa. Brit. India, Dipt., VI, 1940, p. 172; Peris, An. Estac. Exp. Aula Dei, III, 1952, p. 126.
Type species : *S. viridis* Townsend from India.

The genus *Idiopsis* has been separated from *Isomyia* on account of the haired propleura. In other respects the species fit the description of the genus *Isomyia*, but the chaetotaxy of the thorax may be more strongly reduced. The presutural acrostichals and dorsocentrals, for instance, are in some cases wholly reduced. In one species, the vein-cell R_5 is closed and petiolate. The thoracic squama is longer than broad. Hypopygium with free cerci and usually shaped paralobi.

All 5 species described up to now occur in the Ethiopian region, but one of them is found in the neighbouring Palaearctic area too, and a second inhabits also the South Eastern Palaearctis and India.

The biology of the *Idiopsis* species is not known.

KEY TO THE SPECIES.

1 (2) R_5 closed and short-petiolate.
Thorax and abdomen olive green and coppery, with a white pruinosity. Anterior margin of wing broadly infuscated, basicosta blackish. Legs with dark femora and tibiae, tarsi yellow-brown. 8-11 mm. — West and Central Africa ..... 2. *I. petiolata* (Malloch).

2 (1) R_5 open 3

3 (4) Basicosta blackish.
Thorax and abdomen olive, coppery or more or less greenish, with a thick greyish pollinosity. Wing with the anterior margin broadly infuscated. Legs with dark femora, tibiae and tarsi predominantly yellow-brown. 6-10 mm. — Ethiopian region ..... 1. *I. aenea* (Fabricius).

4 (3) Basicosta yellow 5

5 (6) Wings wholly hyaline, anterior margin not infuscated.
In general appearance like *viridis*, but male with pointed cerci and terminally rounded paralobi. 7-9 mm. — Egypt, Somaliland ..... 5. *I. prasina* BRAUER & BERGENSTAMM.

6 (5) Wings with the anterior margin infuscated 7

7 (8) ♂ : Cerci truncate. Hind-tibia without *av* seta.
Thorax and abdomen metallic green or bluish, only slightly pruinose. Legs with dark femora and yellow-brown tibiae and tarsi. 8-9 mm. — Sudan, also known from the Palaearctic and Oriental regions ..... 3. *I. viridis* (TOWNSEND).

8 (7) ♂ : Cerci pointed. Hind-tibia with *av* seta.
Otherwise coinciding with the foregoing species. — West and Central Africa ..... 4. *I. griseoviridis* (BEZZI).

1. — **Idiopsis aenea** (FABRICIUS).

(Fig. 20.)

Dictya aenea FABRICIUS, Syst. Antl., 1805, p. 328; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 131.
Idia seriepunctata LOEW, Monatsber. Akad. Wiss. Berlin, 1852, p. 660.
Cosmina depressa KARSCH, Berl. Ent. Ztschr., XXXI, 1887, p. 377.
Cosmina punctulata MALLOCH (nec WIEDEMANN), Ann. Mag. N. H., (9), XVIII, 1926, p. 517; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 131 (syn. nov.).
Cosmina punctulata var. *microps* MALLOCH, Ann. Mag. N. H., (9), XVIII, 1920, p. 518 (syn. nov.).

This species seems to be distributed all over the Ethiopian region, and it probably does not occur beyond this area (comp. *aenea* S.-WHITE, AUBERTIN & SMART nec FABRICIUS=*viridis* TOWNSEND). As MALLOCH has already detected, there are two strains of males, one with the upper facets of the eyes strongly enlarged and demarcated from the lower ones (f. *macrommatidiata=punctulata* MALLOCH nec WIEDEMANN), and a second strain with slightly enlarged upper facets which gradually diminish in size towards the lower edge of the eye (f. *micrommatidiata = punctulata* var. *microps* MALLOCH). These two strains are found in series from the same locality.

Male. — Eyes bare, nearly touching in the middle, frons at its narrowest point at most as broad as at the anterior ocellus; frontal stripe triangular, black brown or reddish, developed only in the lower part of the frons; *iv* strong, *oc* weak. Parafrontalia black, with a dense white pollinosity and glossy black setigerous spots, 6-7 *paf*, the additional setae continue onto the parafacialium and reach the large glossy spot on its lower half. Antennal groove black, white pruinose in the upper part, antennae separated from

each other by a low and not very broad convexity which widens and flattens towards the middle of the groove; antennae black brown, basal segments more or less reddish, 3rd segment twice as long as the second or a little longer, arista with long hairs above and below, its last fourth bare. Height of bucca about 1/3 of eye-length, anterior part glossy black, with a few pale and short hairs, posterior part white or grey pruinose, with longer pale hairs which do not arise from glossy spots. Vibrissa long and thick, with several shorter bristles above it, row of peristomal

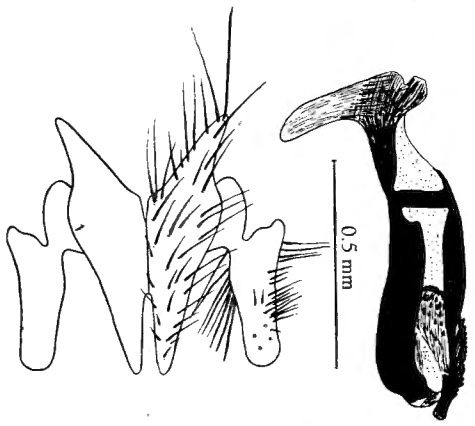

FIG. 20. — *Idiopsis aenea* (FABRICIUS).
Cerci with paralobi and phallosome.
Specimen from Ibadan, Nigeria.

bristles well developed. Palpus black, yellow at base, short and broad, the upper margin straight, the lower strongly convex, at its broadest part about twice as wide as the third antennal segment.

Thorax olive, coppery or more or less greenish, with a thick greyish pollinosity and black setigerous dots. Anterior stigma dark yellow, posterior one black-brown. Chaetotaxy highly variable. In some of the specimens, two presutural and 4 postsutural *ac* are distinct, and 2+4 *dc* are fully developed; in other ones, the presutural *ac* and *dc* may be totally reduced and of the postsutural ones, only one or two pairs are distinct, *ia*=1+2, *prs* and outer *ph* present, *h*=2-3, *n*=2, *sa*=3, scutellum with 3 long marginal bristles. Pleurae with black and pale hairs, propleuron densely haired, or the setae may be more or less reduced, but a few are always present; mesosternal bristles thick and long, *pst* and *pp* present, *st*=1 : 1, suprasquamal ridge and post-alar declivity bare. Wings with the anterior margin broadly infuscated, especially towards the apex, basicosta blackish,

veins predominantly yellow-brown, costal spine distinct, hairs on stem-vein black, R_5 always broadly open; thoracic squama longer than broad, halter yellow. Legs with the femora coloured like the thorax, tibiae and tarsi predominantly yellow-brown; fore-tibia with a few *ad* and a long submedian *pv;* mid-tibia with 2 *pd* and one *ad*, *av* and *pv* each; hind tibia with several long *ad* and *pd* as well as 0-1 submedian *av*.

Abdomen longer than broad, coloured like the thorax. Hypopygium (fig. 20), with relatively broad cerci and paralobi.

Female. — Frons at vertex measuring about half the length of the eye, frontal stripe black-brown to reddish, subparallel, at the tip of the ocellar triangle about 2/3 as broad as the neighbouring parafacialium. Setigerous spots on the parafacialium broad, but not united with each other, chaetotaxy complete, fronto-orbital setae long and strong.

Length : 6-10 mm.

Mission G. F. de Witte : May-ya-Moto, 850 m, 10.XI.1934 (1 ♂, f. *macrommatidiata*). — Mission L. Lippens : Sud lac Édouard : riv. Rwindi, 1.000 m, 14.IV.1936 (2 ♂♂, f. *micromma-* et *macrommatidiata*, 1 ♀). — Collection Musée du Congo : Ubangi : Sohro, I-II.1932 (4 ♂♂, f. *micromma-* et *macrommatidiata*, 10 ♀♀, leg. H. J. Brédo); Lulua : Luashi, III.1936 (1 ♂, f. *micrommatidiata*, leg. Freyne); Terr. de Banningville, riv. Bas-Kwango, IV.1945 (1 ♀, leg. Fain); Banana à Weka, VII.1948 (1 ♂, f. *macrommatidiata*, 2 ♀♀, leg. A. Marée); Mayidi, 1912 (1 ♀, leg. P. van Eyen); Léopoldville, 1948 (1 ♀, leg. J. J. Deheyen). — Collection American Museum, New York : Liberia : Bendu, Robertsport, IV-XI.1943 (2 ♂♂, f. *micrommatidiata*, 4 ♀♀, leg. F. M. Snyder); Nyasaland : Zumba (1 ♀, leg. H. S. Stannus). — Collection Zoolog. Museum, Berlin : Tanganyika : Usumbara, II-III.1886 (1 ♀, leg. C. W. Schmidt, type of *depressa* Karsch); Lindi (1 ♀, leg. Füllerborn); Mozambique : Inhambane (1 ♀, leg. Peters, type of *seriepunctata* Loew); Cameroons : Mao Gali, 31.V.1909 (2 ♀♀, leg. Riggenbach); Uam distr., 13.V.1914 (1 ♂, 2 ♀♀, leg. Tessmann). — Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Hartley, VIII.1930 (2 ♂♂, f. *micromma-* et *macrommatidiata*); Gota Gota, Urungwe, 4.XI.1938 (2 ♀♀, leg. W. L. Williams); Shamwa, Mazoe distr., 3.VI.1941 (1 ♀, leg. A. Cuthbertson); Matetsi, 1.I.1934 (1 ♀, leg. R. H. R. Stevenson). — Collection Dept. of Agriculture, Pretoria : Transvaal : Marico, I.1918 1 ♂, f. *macrommatidiata*); Pretoria 4.V.1919 (1 ♂, f. *macrommatidiata*, leg. H. K. Munro); Barberton, 18.V.1913 (1 ♂♀, f. *macrommatidiata*, leg. H. K. Munro); Natal : Mtubatuba, Zululand, V.1941 (1 ♂, f. *micrommatidiata*, leg. H. K. Munro). — Collection S. A. Institute for Med. Research, Johannesburg : Nigeria : Ibadan (1 ♂, f. *micrommatidiata*): Transvaal : Rustenberg, 23.IV.1950 (4 ♂♂, f. *micromma-* et

macrommatidiata, 2 ♀♀, leg. F. ZUMPT); Brits, 2.VI.1953 (1 ♂♀, f. *macrommatidiata*, leg. H. PATERSON); Pretoriuskop, KRUGER Park, I.1952 (1 ♂♀, f. *micrommatidiata*, leg. F. ZUMPT).

[2. — **Idiopsis petiolata** (MALLOCH).]

(Fig. 21.)

Cosmina petiolata MALLOCH, Ann. Mag. N. H., (9), XVIII, 1926, p. 518; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 129.

Idiopsis petiolata is recognizable by the petiolate R_5 in combination with a haired propleuron. Sometimes the latter feature is not quite distinct, so that this species runs down to *Cosmina gracilis* CURRAN. *C. gracilis*, however, is smaller in the average, the frons is broader in both sexes and the tibiae are light-brown or reddish. The hypopygia of these two species differ in the shape of the paralobi.

M a l e . — Eyes bare, nearly touching each other in the middle of the frons, which at that point is not broader than the anterior ocellus; upper facets only slightly larger than the lower ones. Frontal stripe triangular, reddish or black-brown with strong *iv* and weak *oc*. Parafrontalia black, white pruinose, with 6-7 pairs of *paf* and a few additional setae which do not continue onto the parafacialium; the latter partly reddish and white pruinose too, but in the lower half with a large, black and glossy spot. Antennal groove glossy black, pruinose above, antennae separated from each other by a narrow interstice which is almost totally flat; second antennal segment black-brown, third segment lighter brown, more or less reddish and about twice as long as the second, arista with long hairs up to the tip. Height of bucca about 1/4 of eye-length, anterior part glossy black, without pruinosity, but with sparse black setae, posterior part of bucca white pollinose, with black hairs, which become longer and paler towards the posterior edge of the bucca. Vibrissa long, surrounded by strong and also relatively long bristles; row of peristomal bristles well developed, the bristle at the anterior peristomal corner strikingly long and thick. Palpus blackish, slightly curved, as broad as the base of the 3rd antennal segment.

Thorax olive green and coppery, with a white pruinosity; two narrow dark stripes on the presutural area. Anterior stigma yellow-brown, posterior one blackish. Presutural *ac* wanting, one pair of prescutellar ones present, presutural *dc* irregularly developed; of the postsutural ones, at least the posterior two pairs are always distinct, $ia=1+2$, *prs* and outer *ph* present, $h=2$, $n=2$, $sa=3$, scutellum with 3 long marginal bristles. Pleura slightly pruinose like the mesonotum, *pst* and *pp* present, row of mesosternal bristles

complete, $st = 1:1$; propleuron haired in centre, but hairs sometimes sparse and not very distinct, suprasquamal ridge and post-alar declivity bare. Wings with the anterior margin broadly infuscated, remaining area light brownish tinged or more or less hyaline, basicosta blackish, veins brown to yellow, costal spine distinct, stem-vein with long black hairs, r_{4+5} strongly curved, R_5 closed and distinctly petiolate; thoracic squama coloured like the wing, longer than broad, halter yellow-brown Legs with yellow-brown tarsi, whereas the femora and tibiae are coloured like the thorax; fore-tibia

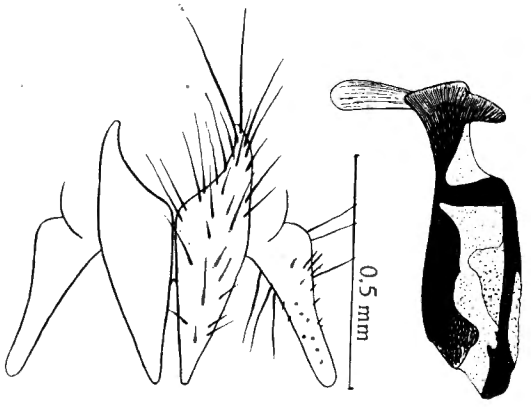

FIG. 21. — *Idiopsis petiolata* (MALLOCH).
Cerci with paralobi and phallosome.
Specimen from Katanga, Belgian Congo.

with a row of unequally long *ad* and a submedian *pv*; mid-tibia with 2 *pd* and one *ad*, *av* and *pv*; hind-tibia with 2 *pd*, several *ad* and 2 *av*.

Abdomen coloured like the thorax; longer than broad, dorsally and ventrally with black hairs. Hypopygium (fig. 21) similar to that of *I. aenea*, but cerci broader and paralobi more slender.

Female. — Frons at vertex measuring about 4/9 of eye-length, frontal stripe beyond the ocellar triangle subparallel, parafrontalia densely pollinose with broad and glossy black setigerous spots; chaetotaxy complete. Palpus broader than in the male.

Length : 8-11 mm.

Idiopsis petiolata was described from Yapi, Gold Coast, and recorded by PERIS also from N. Nigeria and the Belgian Congo. I have seen the following specimens :

Collection Musée du Congo : Katanga : Liula (Kambai), XII. 1925 (1 ♂, leg. CH. SEYDEL); Uele : Tukpwo, IX.1937 (1 ♀, leg. L. LECONTE). —

Collection Zoolog. Museum, Berlin : Cameroons : Uam distr., VI.1914 (1 ♂, leg. TESSMANN). — Collection American Museum, New York : Nigeria : Alagua, 1912 (1 ♀, leg. W. SCOTT-MACFIE).

[3. — **Idiopsis viridis** (TOWNSEND).]

(Fig. 22.)

Synamphoneuropsis viridis TOWNSEND, Rec. Ind. Museum, XII, 1917, p. 199; ZUMPT, Fliegen, pal. Region, 64, i, 1956, p. 117, figs.

? *Idiopsis pseudoprasina* BECKER, Ann. Mus. Zoolog. Acad. Sci. Petersb., XVII, 1912, p. 627; ZUMPT, id., ibid.

Cosmina indica S.-WHITE, Mem. Dept. Agric. Ind., Ent. Ser., VIII, 1923, p. 42; S.-WHITE, AUBERTIN & SMART, Fa. Brit. India, Dipt., VI, 1940, p. 172.

Cosmina aenea S.-WHITE, AUBERTIN & SMART (nec. FABRICIUS), Fa. Brit. India, Dipt., VI, 1940, p. 172, fig. 48; ZUMPT, id., ibid.

PERIS, in his monograph of the *Rhiniini* (1952), has lumped 3 species, namely *prasina*, *griseoviridis*, and *viridis*, which are superficially very similar to one another, but well characterized by the hypopygia.

Male. — Eyes bare, upper facets slightly enlarged. Frons at the narrowest point not or hardly broader than the anterior ocellus. Frontal stripe reddish, triangular, developed only in the lower part of the frons; *iv*, *oc* and normally 6 pairs of *paf* present. Parafrontalia blackish, with a silvery pollinosity, parafacialia blackish too or more or less yellow, in the lower part with a black glossy spot; parafrontalia with a few black setae, parafacialia with pale setae. Antennal groove yellow-brown, median carina not or hardly developed; antennae yellow to orange, 3rd segment about twice as long as the second, arista with long dorsal and ventral hairs. Height of bucca about 1/3 of eye-length, yellow-white pollinose, anterior part more or less bare of pollinosity, buccal hairs yellow. Palpus yellow, broader than the 3rd antennal segment, the upper margin straight, the lower convex.

Thorax metallic green or bluish, with a white pruinosity. Prostigma yellow, poststigma brown. Presutural *ac* indistinct, 2-3 posterior ones developed, $dc=2+4$-5, $ia=1+2$-3, outer *ph* and *prs* present, $h=3$, $n=2$, $sa=3$, $sc=3+0$-1, $st=1:1$, *pp* and *pst* present. Pleurae with pale hairs, those on the propleuron dense and relatively long, suprasquamal ridge and postalar declivity bare. Wings with the outer margin broadly infuscated, especially apically, veins including epaulet and basicostal yellow, costal spine distinct, stem-vein with black hairs, R_5 open; thoracic squama longer than broad, halter yellow. Legs with dark femora and yellow-brown tibiae and tarsi, fore-femur metallic green, the middle and posterior ones

blackish with a green shine; fore-tibia with a row of *ad* and a submedian *pv*; mid-tibia with 2 *pv* and a submedian *ad* and *pd*; hind-tibia with 2-4 *ad* and 2-3 *pd*, but *av* wanting.

Abdomen, like the thorax, metallic green with a white pruinosity and with an ill-defined, dark median stripe. Hypopygium (fig. 22) with truncate cerci.

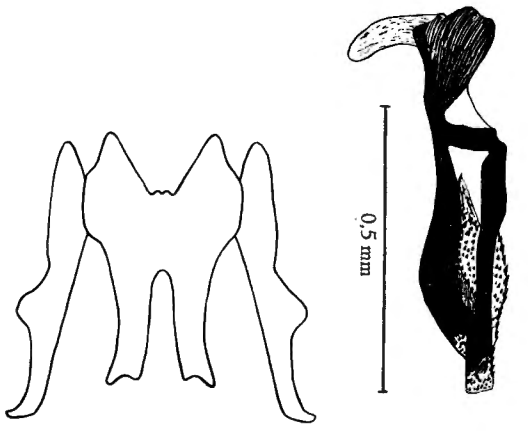

FIG. 22. — *Idiopsis viridis* (TOWNSEND).
Cerci with paralobi, phallosome.
Specimen from the Arabian desert.
(After ZUMPT.)

Female. — I have not seen specimens from Africa. The description in LINDNER's Fliegen der palaearktischen Region (ZUMPT, 1956) is based on a female of *pseudoprasina*, but it is doubtful whether this species is conspecific with *viridis*.

Length : 8-9 mm.

This species has been recorded from Arabia, Persia, India and other parts of the Oriental region. From the Ethiopian region I have only seen the following specimens :

Collection American Museum, New York : French Equatorial Africa : Ft. Lamy, 23-25.VIII.1942 (5 ♂♂, leg. F. SNYDER).

[4. — **Idiopsis griseoviridis** (BEZZI).]

(Fig. 23.)

Apollenia griseoviridis BEZZI, Boll. Lab. Portici, VIII, 1914, p. 294; ZUMPT, Fliegen pal. Region, 64, i, 1956, p. 116.

I refer to this species male specimens from West and Central Africa, which are identical with *I. prasina* in their general appearance, but have pointed cerci (fig. 23). The three males I saw were also distinguishable

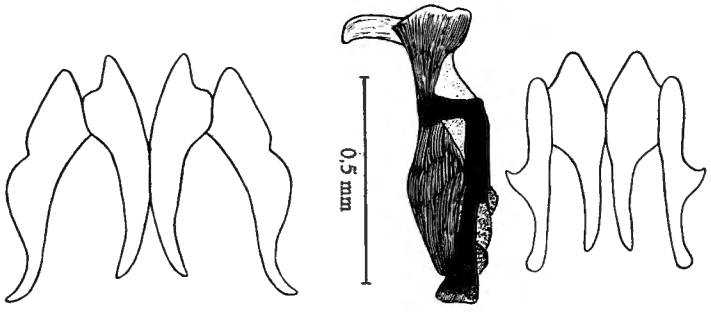

FIG. 23. — *Idiopsis griseoviridis* (BEZZI) and *I. prasina* BRAUER & BERGENSTAMM. — Right : Cerci with paralobi and phallosome of *I. griseoviridis*. Specimen from N. Nigeria. — Left : Cerci with paralobi of *I. prasina*. Paratype from Egypt. (Hairs omitted.)

from *prasina* by having one *av* seta on the hind-tibia, but it remains to be proved whether this feature is constant.

Collection Musée du Congo : Bambili (1 ♂, leg. RODHAIN). — Collection S. A. Institute for Med. Research, Johannesburg : Nigeria : Badeggi, 19.IV.1910 (1 ♂, leg. J. W. SCOTT-MACFIE); Dahomey : Abomey, I.1950 (1 ♂).

[5. — **Idiopsis prasina** BRAUER & BERGENSTAMM.]

(Fig. 23.)

Idiopsis prasina BRAUER & BERGENSTAMM, Denkschr. Akad. Wiss. Wien, LVI, 1889, p. 171; SÉGUY, Encycl. Ent., A 9, 1928, p. 180, fig. 230; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p 130; ZUMPT, Fliegen pal. Reg., 64, i, 1956, p. 116.

Pollenia viridocana HOUGH, Nat. Sci. Philad., 1898, p. 175 (syn. nov.).

Idiopsis prasina was described from Egypt. In the material of the American Museum of Natural History, New York, kindly sent to me by Dr.

C. H. CURRAN, there was a badly damaged specimen from Somaliland, evidently belonging to this species and labelled as paratype of *Pollenia viridocana* HOUGH.

I have seen 3 male specimens of the type series (Museum of Nat. History, Vienna), which have hyaline wings but otherwise coincide with *I. viridis*, except for the characteristic structure of the hypopygium. A female specimen which belongs to the same series and which is located in the American Museum, has 2 submedian *av* setae on the hind tibia, whereas these setae are wanting in the male sex, as in the case in the male of *I. viridis* too. Hypopygium (fig. 23), with pointed cerci and apically rounded paralobi.

Length : 7-9 mm.

Collection American Museum, New York : Egypt, 1858 (1 ♀, leg. NATTERER, det. BRAUER & BERGENSTAMM); Somaliland : Lake Abaya, Konso, 9.V.1895 (1 ♀, leg. A. D. SMITH, paratype of *viridocana* HOUGH).

Genus **COSMINA** ROBINEAU-DESVOIDY.

Cosmina ROBINEAU-DESVOIDY, Ess. Myod., II, 1830, p. 423; MALLOCH, Ann. Mag. N. H., (9), XVIII, 1926, p. 516; TOWNSEND, Man. Myiol., V, 1937, p. 97; S.-WHITE, AUBERTIN & SMART, Fa. Brit. India, Dipt., VI, 1940, p. 171; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 126; ZUMPT, Fliegen, pal. Region, 64, i, 1956, p. 111.
Type species : *C. fuscipennis* ROBINEAU-DESVOIDY from the Cape.

Seseromyia RONDANI, Arch. Zool. Modena, III, 1863, p. 32; TOWNSEND, Man. Myiol., V.1937, p. 97; S.-WHITE, AUBERTIN & SMART, Fa. Brit. India, Dipt., VI, 1940, p. 171; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 126.
Type species : *I. punctulata* WIEDEMANN from the Cape.

Synamphoneura BIGOT, Bull. Soc. Ent. France, VI, 1886, p. 14; TOWNSEND, Man. Myiol., V, 1937, 111; S.-WHITE, AUBERTIN & SMART, Fa. Brit. India, Dipt., VI, 1940, p. 171; PERIS, id., ibid.
Type species : *S. cuprina* BIGOT from Java.

This genus, like *Idiopsis*, is closely related to *Isomyia* and has been separated from it by the wanting or strongly reduced presutural *ac*, a feature of minor importance. A tendency towards reduction of the thoracic bristles is recognizable in the species of *Isomyia* as well as *Idiopsis*, and it would be worthwhile considering the advisibility of uniting all three genera under *Cosmina*.

Cosmina species have been described from the Ethiopian, Palaearctic and Madagascan regions.

KEY TO THE SPECIES.

1 (2) Wing with R_5 short-petiolate. Frons in male measuring at the narrowest point 1/5-1/6 of eye-length.

Bright metallic green or coppery with a slight pruinosity, tibiae and tarsi yellow-brown or reddish. 5-8 mm. — Southern Africa ..... 4. *C. gracilis* CURRAN.

2 (1) Wings with R_5 open or closed, but not petiolate. Frons in male measuring at most 1/9 of eye-length 3

3 (4) Frons at its narrowest point measuring 1/9-1/12 of eye-length in male, about 2/5 of eye-length in female.

In size and colour similar to *C. gracilis*, but R_5 is narrowly open or at most closed. Furthermore, the hypopygial structure is quite different and characteristic. — Central, East and Southern Africa ..... 3. *C. margaritae* PERIS.

4 (3) Frons at its narrowest point not wider than twice the diameter of the anterior ocellus in the male, in the female sex measuring about 1/2 of eye-length 5

5 (6) Antennae in both sexes broadly separated by an elongated prominence about as broad as the 3rd antennal segment and having dorsally a broad impression. Terminal third of arista bare.

Dark olive or blackish coppery and slightly white pruinose; legs black, bases of tarsi and sometimes also of the tibiae more or less brownish. Palpus black with subparallel edges, in the male a little broader than the 3rd antennal segment, in the female about twice as broad. 8-11 mm. — Southern Africa, according to PERIS also known from Tanganyika ..... 3. *C. punctulata* (WIEDEMANN).

6 (5) Antennae in both sexes separated from each other by a much narrower and shorter prominence without a dorsal impression. Arista with hairs almost to the tip.

Metallic dark green, sometimes more or less olive or coppery; legs with dark femora and yellow-brown tibiae and tarsi. Palpus blackish, upper margin straight, the ventral one curved, in the male as broad as the 3rd antennal segment, in the female about twice as broad. 7-10 mm. — West and Central Africa ..... 2. *C. undulata* MALLOCH.

[1. — **Cosmina punctulata** (WIEDEMANN).]

(Fig. 24.)

Musca punctulata WIEDEMANN, Zool. Mag., III, 1819, p. 30; MALLOCH, Ann. Mag. N. H., (9), XVIII, 1926, p. 516; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 131.

Cosmina fuscipennis ROBINEAU-DESVOIDY, Ess. Myod., II, 1830, p. 423; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 135 (syn. nov.).

I have seen the type (♀) of this species, preserved in the Museum of Natural History, Vienna, and have to state that it is conspecific with *C. fuscipennis* ROBINEAU-DESVOIDY, and not with *C. aenea* (FABRICIUS) as PERIS (1952) believed.

Male. — Eyes bare, upper facets only slightly larger than the lower ones. Frons at the narrowest point measuring once to twice the width of the anterior ocellus; frontal stripe triangular, black or reddish, ocellar triangle black, with *iv* and *oc*. Parafrontalia and -facialia with a silvery pollinosity, parafacialia in the lower part with a large glossy black spot; in the average 10 pairs of *paf* present, accompanied by sparse black setae which continue onto the parafacialia and reach the black spot. Antennal groove glossy black, slightly dusted in the upper part; antennae separated from each other by an elongated prominence which is about as broad as the 3rd antennal segment and which shows dorsally at the base a shallow, but broad impression; 3rd segment nearly twice as long as the second; arista with long hairs on both sides, bare in the terminal third. Height of bucca about 3/8 of eye-length, anterior half glossy black and without pollinosity, with only a few black setae, posterior half white or yellowish pollinose, with long black and pale hairs which do not show black footprints. Vibrissa short but thick, surrounded by several stout bristles occupying the lower fourth to third of the facial ridge, peristomal bristles thick and forming a complete row. Palpus black, with subparallel edges, a little broader than the base of the 3rd antennal segment.

Thorax dark olive or blackish coppery, slightly white pruinose, shoulders and anterior mesonotum with a denser pruinosity, two narrow black stripes normally distinct in the presutural part; anterior stigma yellow-brown, posterior one blackish. Presutural *ac* not developed, but one or two pairs of prescutellar *ac* usually distinct, *dc*=2-3+5-6 (irregularly developed), *ia*=1+2, *prs* and outer *ph* present, *h*=3, *n*=2, *sa*=3, scutellum with 3 long and thick marginals. Pleurae with a slight white pruinosity, hairs black or pale, *pst* and *pp* present, posterior margin of mesopleuron with a complete row of long black bristles, *st*=1 : 1; propleuron, supra-squamal ridge and post-alar declivity without hairs. Wings with a brown tinge and a more strongly darkened anterior margin, veins dark brown, basicosta blackish, costal spine indistinct, stem-vein with long black bristles,

m with a rounded angle, R_5 open; thoracic squama smoky, longer than broad, halter yellow brown. Legs black, bases of tarsi and sometimes also of tibiae more or less brownish; fore-tibia with 4-5 *ad* and a submedian *pv*; mid-tibia with 2 *pd*, 2 *pv* and 1-2 *av* and *ad* (number and arrangement seem to vary); hind-tibia with several *ad* and *pd* and 2 *av*.

Abdomen coloured like the thorax; longer than broad, dorsally and ventrally with short black hairs. Hypopygium (fig. 24) very similar to that of *C. cuprina*.

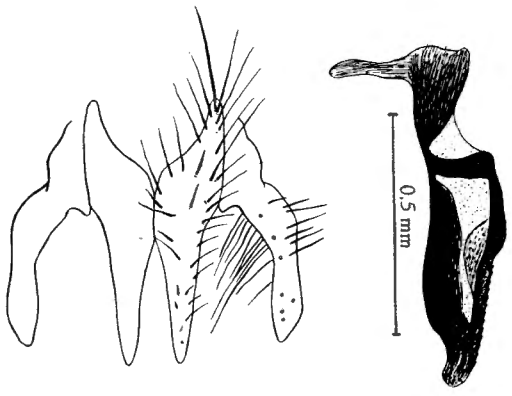

FIG. 24. — *Cosmina punctulata* (WIEDEMANN).
Cerci with paralobi and phallosome.
Specimen from Mossel Bay, Cape Province.

Female. — Frons at vertex measuring 4/9-1/2 of eye-length, frontal stripe subparallel, at the tip of the ocellar triangle about as braod as one parafrontalium. Chaetotaxy of head fully developed, parafrontalium white pollinose and with large and densely placed setigerous spots, parafacialium with a large glossy spot and sparse setae as in the male. Palpus about twice as broad as the 3rd antennal segment.

Length : 8-11 mm.

Collection Museum of Natural History, Vienna : Cape (1 ♀, ex Coll. WIEDEMANN, Type). — Collection American Museum, New York : Cape Province : Uitenhage, 13.III.1919 (1 ♀, leg. H. K. MUNRO, labelled as « Metatype », compared by Dr CURRAN). — Collection S. African Museum, Cape Town : Cape Province : Tankwa Karoo, Waterval, XI.1952 (1 ♂); Bulhoek, Klaver-Clanwilliam, X.1950 (4 ♂♂, 1 ♀); Uniondale distr., X.1952 (3 ♂♂); Oudtshoorn, X.1951 (6 ♂♂); Wallekraal, Namaqualand, X.1950 (5 ♂♂, 6 ♀♀); Ceres distr.,

XII.1949 (5 ♂♂); Stellenbosch distr., X.1934 (1 ♂♀). — Collection Dept. of Agriculture, Pretoria : Transvaal : Pretoria, 9.XII. 1915 (1 ♀, leg. H. K. MUNRO). — Collection S. A. Institute for Med. Research, Johannesburg : Cape Province : Mosselbay, XII.1954 (1 ♂, leg. F. ZUMPT); Bechuanaland : Kanye, I.1956 (1 ♀, leg. F. ZUMPT); Mozambique : Maputo, IV.1951 (1 ♀, leg. F. ZUMPT).

PERIS recorded a female from Mt. Meru, Tanganyika.

[2. — **Cosmina undulata** MALLOCH.]

(Fig. 25.)

Cosmina undulata MALLOCH, Ann. Mag. N. H., (9), XVIII, 1926, p. 518; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 134.

PERIS united this species, described from Nigeria, with *C. cuprina* from Madagascar, the latter species having priority. From the British Museum I have received several Ethiopian specimens identified by PERIS as *C. undulata*, so that he probably synonymized the two species only a short time before completing his manuscript. He evidently only saw one male from Madagascar, preserved in alcohol. This specimen, as PERIS stated, belongs to BIGOT's collection and represents the type of *cuprina*.

I have not seen BIGOT's specimen, but have received several different *Cosmina* species from Madagascar, which are all distinguishable from the Ethiopian species identified by PERIS and other authors as *C. undulata* MALLOCH. The *Cosmina* species most frequently found in collections from Madagascar, and which I think represents the true *cuprina* BIGOT, is quite different from *C. undulata* and more similar to *C. punctulata*. I hope to be able to study the Madagascan *Cosmina* species in the near future and to establish definitely the status of *C. cuprina*. For the time being, however, I prefer to retain MALLOCH's name for the Ethiopian species, and to leave it open whether the Madagascan species also occurs in the Ethiopian region or not.

Male. — Eyes bare, upper facets only moderately enlarged and not demarcated from the lower ones (f. *micrommatidiata*), or they are strikingly bigger and distinctly demarcated from the small ventral facets (f. *micrommatidiata*). Frons in the middle very narrow, not wider than the anterior ocellus; frontal stripe triangular, black or brown, ocellar triangle black, *iv* and *oc* distinct. Parafrontalia and -facialia with a dense white pruinosity, parafacialia in the lower part with a large glossy spot; *paf* accompanied by black setae which continue onto the parafacilia and reach the black spot. Antennal groove glossy black, slightly dusted in the upper part, antennae separated from each other by a relatively narrow prominence which has no dorsal impression and which is flattened just beyond the first

antennal segment; 3rd segment 1½ times to twice as long as the second, colour varying from reddish-brown to dark-brown and blackish; arista with hairs on both sides almost reaching the tip. Height of bucca 1/3-3/8 of eye-length, anterior half glossy black and without pollinosity, posterior half whitish pollinose, with black and pale hairs. Vibrissa long, row of peristomal bristles complete. Palpus black or black-brown, upper margin straight, the lower symmetrically curved, the greatest width being near the middle of the palpus, almost equalling that of the 3rd antennal segment.

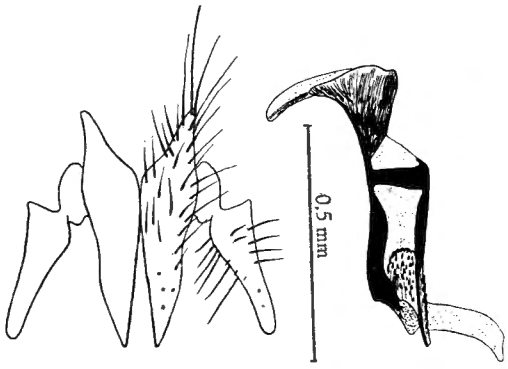

FIG. 25. — *Cosmina undulata* MALLOCH.
Cerci with paralobi and phallosome.
Specimen from Garua, Cameroons.

Thorax metallic dark green, sometimes more or less olive or coppery, with a slight pruinosity and two narrow black lines in front of the suture; stigmata brown or blackish. Presutural *ac* not developed, but the prescutellar pair is always developed; prescutellar pair of *dc* distinct too, but the other ones variable in length and often not distinguishable, *ia*=1+2, *prs* and outer *ph* present, *h*=3, *n*=2, *sa*=3, scutellum with 3 long marginals and usually also a pair of shorter discals. Pleura with black and pale hairs and a slight white pruinosity, *pst* and *pp* present, posterior margin of mesopleuron with a complete row of long black bristles, *st*=1 : 1, propleuron, suprasquamal ridge and post-alar declivity without hairs. Wings with a brown tinge and a more strongly darkened, but ill-defined anterior margin, veins yellow-brown, basicosta light to dark-brown, but not blackish, costal spine distinct, stem-vein with long black bristles, *m* broadly rounded, R_5 open, slightly curved terminally; thoracic squama longer than broad, halter yellow-brown. Legs with dark femora and yellow-brown tibiae and tarsi; fore-tibia with short, but at least distinct *ad* and one long submedian *pv*; mid-tibia with one *ad*, 2 *pd*, 1 *av* and 1 *pv*; hind-tibia with several *ad* and *pd* as well as 2 *av*.

Abdomen coloured like the thorax; longer than broad, hairs and bristles black. Hypopygium (fig. 25) similar to those of *C. punctulata*.

Female. — Frons at vertex measuring about half of eye-length, frontal stripe subparallel, at the tip of the ocellar triangle about as broad as one parafacialium. Chaetotaxy of head fully developed, parafrontalium white pollinose and with large and densely placed setigerous spots, parafacialium with a large glossy spot and sparse setae as in the male. Palpus about twice as broad as the 3rd antennal segment.

Length : 7-10 mm.

Collection Musée du Congo : Sankuru : Kondue (1 ♀, leg. E. LUIA); Kikwit, 1920 (1 ♀, leg. P. VANDERIJST). — Collection British Museum, London : S. Nigeria, 7.IX.1913 (1 ♂♀, f. *macrommatidiata*, leg. W. A. LAMBORN); Nyasaland : Cholo (1 ♂♀, f. *micrommatidiata*, leg. R. C. WOOD); Blantyre, 1914 (1 ♂, f. *micrommatidiata*, leg. J. B. DAVEY). — Collection American Museum, New York : Nigeria : Ouiri, 27.VII.1912 (1 ♂, f. *micrommatidiata*, leg. J. W. S. MACFIE). — Collection Zoolog. Museum, Berlin : Cameroons : Garua, 1.IX.1889 (1 ♂, 2 ♀♀, f. *micrommatidiata*, leg. RIGGENBACH); Uam distr., V.1914 (2 ♂♂, f. micrommatidiata, leg. G. TESSMANN); Togo : Sokode, 24.VII.1900 (1 ♀, leg. SCHRÖDER); Misahöhe, 24.V.1899 (1 ♀, leg. E. BAUMANN); Bismarckburg, VI-VII.1893 (4 ♀♀, leg. L. CONRADT).

[3. — **Cosmina margaritae** PERIS.]

(Fig. 26.)

Cosmina margaritae PERIS, An. Estac. Exp. Aula Dei, II, 1952, p. 229, et id., ibid., III, 1952, p. 134.

Cosmina margaritae is superficially very similar to *C. gracillis* and was confused with this species (for instance by CURRAN too) until PERIS recognized its distinctness by some minor outer features. The hypopygia are, however, strikingly different.

Male. — Eyes bare, upper facets only slightly larger than the lower ones. Frons at the narrowest point measuring 1/9-1/12 of eye-length; frontal stripe reddish or black, very narrow in the middle, but normally distinct in its entire length. Parafrontalia white pollinose, with 6-7 *paf* and a few additional setae which arise from broad and glossy black footprints; parafacialia in the upper half white pollinose like the parafrontalia, in the lower half with a bare and large, glossy black spot; a few odd setae are present on the whole extent of the parafacialium, but difficult to detect. Antennal groove black, white dusted in the upper part, antennae reddish

or dark brown, separated from each other by a short and narrow convexity, third segment twice as long as the second, arista with long hairs up to the tip. Height of bucca about 1/3 of eye-length, anterior part glossy black, but provided with sparse short hairs, posterior part white pollinose and with long pale hairs, peristomal bristles black, vibrissa long, a shorter bristle above it. Palpus black-brown, slightly broader than the 3rd antennal segment.

Thorax bright metallic green or coppery, slightly white pruinose, with two dark longitudinal stripes anteriorly, stigmata brown. Presutural *ac* wanting, but 1-2 pairs of prescutellar ones distinct, normally 2 presutural and 2 prescutellar *dc* distinguishable, two postsutural *ia* present, but the presutural one often poorly developed, $h=3$, *prs* and outer *ph* present, $n=2$, $sa=3$, scutellum with 3 long marginal bristles. Pleura with a slight white pruinosity, *pst* and *pp* present, row of mesosternal bristles complete, $st=1:1$; propleuron, suprasquamal ridge and post-alar declivity without hairs. Wings hyaline or with a brown tinge, anterior margin always broadly demarcated brown, veins black-brown, basicosta black, costal spine present, r_{4+5} slightly curved, m broadly rounded, R_5 narrowly open or closed, but not petiolate; stem-vein with long black hairs; thoracic squama longer than broad, more or less smoky, halter yellow. Legs with the femora bright metallic green, tibiae and tarsi yellow-brown or reddish; fore-tibia with several *ad* and a long submedian *pv*; mid-tibia with 2 *pd* and one *ad*, *av* and *pv*; hind-tibia with 2 long median *ad* and *pd* as well as with 2 submedian *av*. PERIS (1952) says in this description that the second tibia shows no *v* seta. One should be present in any case, but perhaps this feature is variable.

Abdomen longer than broad, like the thorax totally bright metallic green or coppery and only slightly pruinose. Hypopygium (fig. 26) very characteristic, the cerci being truncate and slightly bent upwards.

Female. — Frons at vertex measuring about 2/5 of eye-length, frontal stripe reddish or dark brown, slightly narrowed towards the antennal groove, at the tip of the ocellar triangle, about 2/3 as broad as one parafrontalium. Chaetotaxy of head complete, hairs and bristles located in large glossy black spots, which are partly united with each other, interstices white pollinose; fronto-orbital hairs partly long and bristly, parafacialium with short setae only.

Length : 5-8 mm.

PERIS described this species from Cholo, Nyasaland. I have seen the following specimens :

Collection Musée du Congo : Kwango : Popokabake, II.1952 (1 ♂, 4 ♀♀, leg. L. PIERQUIN); Kwamouth, VI.1922 (1 ♂, leg. H. SCHOUTEDEN). — Collection Zool. Museum, Berlin : Tanganyika : Lan-

genburg, N. Nyasa, II.1898, IV.1899 (3 ♂♂, 2 ♀♀, leg. FÜLLERBORN). — Collection American Museum, New York : Belgian Congo : Matadi, 9.VI.1915 (1 ♀, leg. LANG & CHAPIN, paratype of *gracilis* CURRAN). — Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Salisbury, X.1934 (1 ♀, leg. A. CUTHBERTSON); Marandellas, IV.1939 (1 ♀, leg. A. CUTHBERTSON). — Collection S. A. Institute for Med. Research, Johannesburg : S. Rhodesia : Victoria Falls, 24.I.1926 2 ♂♂, leg. R. H. R. STEVENSON); Transvaal : Tzaneen, III.1957 (1 ♀, leg. H. PATERSON).

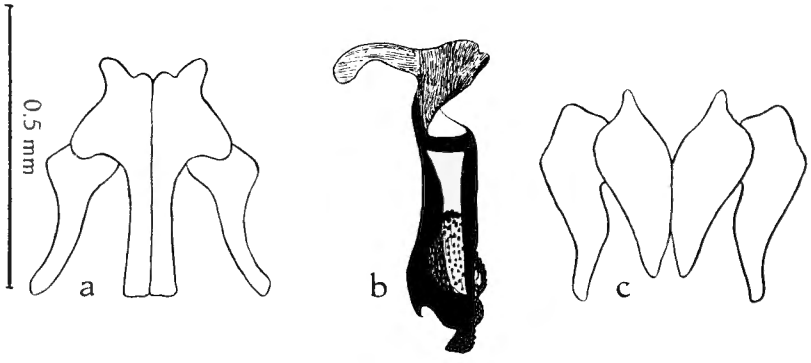

FIG. 26. — *Cosmina margaritae* PERIS and *C. gracilis* CURRAN. — a+b : Cerci with paralobi and phallosome of *C. margaritae*. Specimen from Lake Nyasa. — c : Cerci and paralobi of *C. gracilis*. Specimen from Tsessebe, Bechuanaland. (Hairs omitted.)

[4. — **Cosmina gracilis** CURRAN.]

(Fig. 26.)

Cosmina gracilis CURRAN, Amer. Mus. Nov., 246, 1927, p. 2, et Bull. Amer. Mus. N. H., LVII, 1928, p 374; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 134.

Cosmina gracilis is very similar to *C. margaritae*, but is nevertheless, a well characterized and distinct species. The hypopygium (fig. 26) shows a triangular, broadly pointed cercus and the male frons is broader, measuring at its narrowest point 1/5-1/6 of eye-length. Wings in both sexes with R_5 closed and short-petiolate. The chaetotaxy of the mid-tibia shows no difference in the two species (comp. PERIS 1952).

C. gracilis seems to be restricted to Southern Africa, including S. West Africa. I have seen the following specimens :

Collection Dept. of Agriculture, Pretoria : Transvaal : Barberton, 17.V.1914 (1 ♂♀, leg. H. K. MUNRO, holo- and allotype). —

Collection S. A. Institute for Med. Research, Johannesburg : Natal : Hluhluwe, Zululand, 18.I.1950 (1 ♂, leg. F. ZUMPT); Bechuanaland : Tsessebe, I.1956 (1 ♂, leg. F. ZUMPT). — Collection S. African Museum, Cape Town : Mozambique : Masiene, XII. 1923 (5 ♂♂, 6 ♀♀, leg. R. F. LAWRENCE).

Genus **FAINIA** nov.

Type species : *I. albitarsis* MACQUART from Kaffraria.

This new genus is erected for two Ethiopian species formerly listed under *Idiella* BRAUER & BERGENSTAMM. They are distinguishable from the true *Idiella* species, restricted to the Oriental region and the Palaearctic Far East, mainly by the unusual structure of the 5th sternite and fused cerci in the male sex (comp. figs. 27 and 28) and by the wanting *pv* bristles of the mid-tibia. They are furthermore characterized by predominantly orange or reddish femora, whereas these are darkened in the *Idiella* species.

The remaining important generic features may be summarized as follows :

Eyes bare, frons narrow in male, broad in the female sex. Parafacialium with a glossy undusted spot, setae rudimentary. Antennal groove with a median convexity, arista pectinate. Posterior part of bucca densely pollinose, anterior part bare and glossy. Epistome strongly protruded.

Thorax dark coloured, with a weak metallic shine, pleura partly densely pollinose. Chaetotaxy of mesonotum reduced, the presutural *ac*, *dc* and *ia* wanting, the postsutural ones restricted to one or two prescutellar pairs. Only two black mesopleural bristles present. Propleuron densely pollinose, but without hairs. Prosternum haired, post-alar declivity and suprasquamal ridge bare. Wing with open R_5, thoracic squama slightly longer than broad. Mid-femur in male with a terminal comb of short spines, which is wanting in the female. Hind-tibia without comb-like *ad* bristles. Abdomen longer than broad, predominantly reddish.

Nothing is known about the life history of the two species.

The genus is named in honour of the well-known Belgian Entomologist, Dr. A. FAIN.

KEY TO THE GENERA.

1 (2) Sternopleuron glossy, without or with only slight pollinosity.

Legs almost totally orange. Male frons at the tip of the ocellar triangle about twice as broad as the anterior ocellus. 5-9 mm. — Ethiopian region ..... 1. *F. albitarsis* (MACQUART).

2 (1) Sternopleuron as densely yellow pollinose as the mesopleuron.

Similar to the foregoing species. Male frons at the tip of the ocellar triangle about as wide as the anterior ocellus. 7-13 mm. — Ethiopian region except the southern part ..... 2. *F. elongata* (BEZZI).

1. — **Fainia albitarsis** (MACQUART).

(Fig. 27.)

Idia albitarsis MACQUART, Dipt. Exot. Suppl., 1846, p. 193; MALLOCH, Ann. Mag. N. H., (9), XVIII, 1926, p. 510; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 49, fig. 8.

Idiella eupoda LOEW, Monatsber. Akad. Wiss. Berlin, 1852, p. 660.

Idia extensa WALKER, Trans. Ent. Soc. London., IV, 1858, p. 211.

This species, like the following one, is easily recognizable within the Ethiopian region and also clearly distinguishable from the Oriental members of the genus.

M a l e . — Eyes bare, inner facets moderately enlarged but not demarcated from the outer ones. Frons at its narrowest point about twice as wide as the anterior ocellus, frontal stripe black, parafrontalia and -facialia black too, with a silvery white pollinosity leaving free a glossy spot on the lower part of the parafacialium. There are normally 8 pairs of *paf* present, *iv* long and thick, *oc* much shorter and weaker. Antennal groove black, sometimes partly reddish, pollinose, carina well developed and broadly separating the antennae which are black to black-brown; 3rd segment about 3 times as long as the second, arista with long dorsal hairs. Epistome glossy black, strongly protruded, height of bucca about one third of eye-length or a little more, postbucca glossy black, posterior half of bucca densely yellow pollinose and provided with long and thin yellow hairs which arise from small black foot-prints, anterior half of bucca glossy black, without pollinosity and almost bare, only a few dark hairs present near the pollinose area. Vibrissa short but thick, a few black bristles above it, peristomal bristles black, reaching the border of the yellow pollinosity. Palpi black and spatulate, more than twice as broad as the 3rd antennal segment.

Thorax dark metallic olive or bluish, with a weak glossy shine, white dusted and with 3 narrow longitudinal dark lines, hairs and bristles

arising from small black foot-prints, upright hairs present all over the mesonotum, but bristles strongly reduced. The following bristles can be detected : one pair of prescutellar *ac*, 1-2 *dc*, one longer *ia*, furthermore *prs* and the outer *ph*, one long *h*, 2 *n*, 2 *sa* and 2 *pa*; scutellum with 3 pairs of marginal bristles, *st*=1 : 1, *pp* (usually two) are present, but *pst* wanting. Mesopleuron and the anterior part of the pteropleuron with a thick yellow pollinosity and long and thin yellow hairs, which arise from very small black foot-prints. They can actually not be called setiferous spots. On the

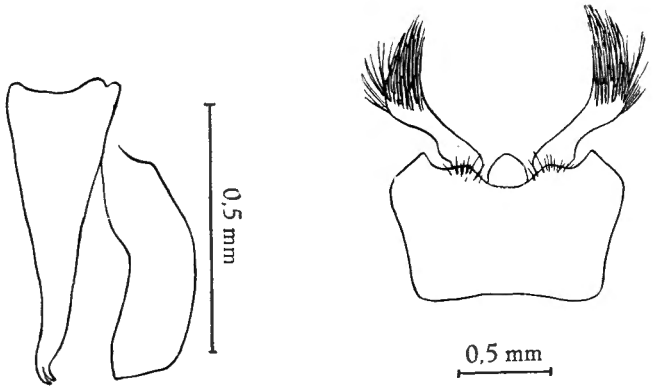

FIG. 27. — *Fainia albitarsis* (MACQUART).
Fused cerci and one paralobus, 5th sternite.
Specimen from Natal.

posterior mesopleural border, there are only two black, but long bristles. Sterno- and hypopleuron as well as the remaining parts of the pleura glossy black and only covered with a light whitish or yellow dusting, posterior stigma black. Hypopleural bristles black and normally developed. Post-alar declivity and suprasquamal ridge bare, prosternum haired, propleuron without hairs, but with the same thick pollinosity as the surrounding area. Wings with the anterior border demarcated dark-brown, remaining area tinged light-brown, costal spine wanting, stem-vein with black bristly hairs, root of r_{4+5} with a few black setae, *m* broadly rounded, R_5 open. Thoracic squama dark yellow, slightly longer than broad, halter yellow. Legs predominantly orange, only the tips of the femora and the last tarsal segments are black; usually the lower parts of the mid- and hind-tibiae are more or less darkened; fore-tibia with 2 *ad*, *pv* wanting; mid-femur on the posterior edge with a terminal comb of short spines, mid-tibia with a submedian *ad* and *pd*; hind-tibia with 2 *pd*, 2 *ad* and 2 *pv*.

Abdomen about 1½times as long as broad, dorsally yellow orange, the median anterior concavity of tergite I+II black, rarely a median longitu-

dinal, narrow blackish line is indicated. Colouring of the venter as on the dorsal side, but there is an ill-defined blackish lateral spot at the base of tergite I+II. Hairs and bristles of the dorsum black, on the venter predominantly pale. Fifth sternite with a lateral, club-shaped protrusion bearing a brush of black bristly hairs; hypopygium with united, but bifid cerci and broad, rectangular paralobi (fig. 27).

Female. — Frons at vertex measuring one third of eye-length, frontal stripe subparallel, at the tip of the ocellar triangle twice as wide as one parafrontalium. Chaetotaxy of head complete. Mid-femur without comb, mid-tibia with one *ad*, one *av* and 2 *pv*.

Length : 5-9 mm.

Mission G. F. DE WITTE : Escarpement de Kabasha, 1.500 m, 12.XII.1934 (1 ♀); May-ya-Moto, 950 m, 6-9.XI.1934 (1 ♀). — Collection Zool. Museum, Berlin : Cape (1 ♀, leg. KREBS, type); Sudan : Schecho (1 ♂, leg. O. NEUMANN). — Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Chirinda Forest, XI.1930 (2 ♂♂); Vumba Mts., XI.1940 (1 ♂, leg. A. CUTHBERTSON); Grampians, Melsetter distr., 29.IX.1939 (1 ♂, leg. W. L. WILLIAMS); Gotagota, 13.VIII.1938 (1 ♀, leg. W. L. WILLIAMS). — Collection S. A. Institute for Med. Research, Johannesburg : Natal : Tete Pan, Zululand, 31.VI.1955 (4 ♂♂, leg. H. PATERSON); Hluhluwe, Zululand, 18.I.1950 (1 ♂, leg. F. ZUMPT); Cape Province : Grahamstown, 15.XII.1952 (1 ♀, leg. B. STUKKENBERG). — Collection Dept. of Agriculture, Pretoria : Cape Province : East London, V.1923 (2 ♂♂, 3 ♀♀, leg. H. K. MUNRO). — Collection Zoolog. Museum, Stuttgart : Tanganyika : Usangi, Pare Mts., V.1952 (3 ♂♂).

Also recorded from S. Leone, Kenya, Uganda and Nyasaland.

2. — **Fainia elongata** (BEZZI).

(Fig. 28.)

Stomatorrhina elongata BEZZI, Ann. Soc. Ent. Belg., LII, 1908, p. 383; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 48, fig. 7.
Idiella major MALLOCH, Ann. Mag. N. H., (9), XVIII, 1926, p. 510.

Fainia elongata is closely related to *F. albitarsis*, but in the average bigger (7-13 mm) and with the sterno- and hypopleura as densely yellow pollinose as the upper part of the pleura. Tibiae mostly darkened to a greater extent. Male frons narrower, width at the tip of the ocellar triangle more or less equal to the diameter of the ocellus. Hypopygium (fig. 28) strikingly different, having the united cerci unitipped and the paralobi relatively slender.

Fainia elongata does not seem to extend as far south as *F. albitarsis*. I have seen no specimens from S. Rhodesia or the Union, and only 1 ♀ from the northern part of S. W. Africa. In the tropical parts of Africa, however, it seems to occur almost everywhere. I have also seen specimens from Madagascar.

Mission Hackars : Mutsora, 1939 (1 ♀). — Collection Musée du Congo : Kivu : Terr. Kabare, Ngweshe, Kashongerma, 5.V.1949 (1 ♂,

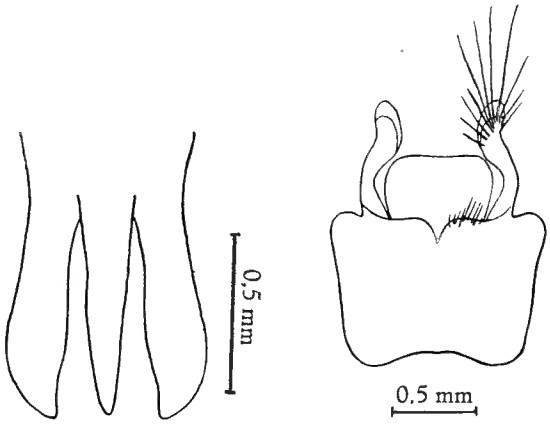

FIG. 28. — *Fainia elongata* (BEZZI).
Fused cerci with paralobi, 5th sternite.
Specimen from Lake Kivu, Belgian Congo.

3 ♀♀, leg. G. MARLIER); Kavumu à Kabunga, IV-VI.1951 (3 ♀♀, leg. H. BOMANS); Lubongola, 1939 (1 ♀, leg. HAUTMANN); Mabulta, XII.1935 (1 ♀, leg. BOUTSKOFF); Sankuru : Komi, VI.1930 (1 ♀, leg. J. GHESQUIÈRE); Ruanda : Muhavura, 2.100 m, 28.I.1953 (1 ♀, leg. P. BASILEWSKY); Tshuapa : Bokuma, II.1954 (1 ♂, leg. R. P. LORTENS); Maniema : Kasongo, V.1954 (1 ♀, leg. J. CLAESSENS); Eala, IX.1935 (1 ♀, leg. J. GHESQUIÈRE); Basoko, X.1948 (2 ♂♂, 7 ♀♀, leg. G. BENOIT); Bolima, 17-28.II.1930 (1 ♂, leg. P. HULSTAERT); Bombona, VII.1915 (1 ♀, leg. A. BAI); Mongbwalu, 20.V.1939 (2 ♀♀, leg. A. LEPERSONNE); Port-Franqui, X.1937 (1 ♀, leg. MME GITTARDIN); Kamaiembi, 17.IX.1921 (1 ♀, leg. H. SCHOUTEDEN). — Collection Zoolog. Museum, Berlin : Togo : Bismarckburg, VI.1891 (1 ♀, leg. R. BÜTTNER); Cameroons : Pama, 1913 (5 ♂♂, leg. RAMSAY); Kumba (1 ♀, leg. L. CONRADT); Bibundi, 14.XI.1904 (1 ♀, leg. G. TESSMANN); Span. Guinea : Benito Mts., 1-14.II.1907 (1 ♀, leg. G. TESSMANN); Tanganyika : Langenburg, IV.1899 (2 ♀♀, leg. FÜLLEBORN). — Collection Ameri-

can Museum, New York : Belgian Congo :Medje, V.1910 (1 ♂, leg. LANG & CHAPIN); Stanleyville, IV.1915 (1 ♀, leg. LANG & CHAPIN). — Collection S. A. Institute for Med. Research, Johannesburg : S. W. Africa : Otjiwarongo, V.1949 (1 ♀, leg. C. KOCH).

Genus **STOMORHINA** RONDANI.

Idia WIEDEMANN, Nov. Dipt. Gen., 1820, p. 21 (praeocc.).

Stomorhina RONDANI, Dipt. Ital. Prod., IV, 1861, p. 9; SÉGUY, Encycl. Ent., A IX, 1928, p. 189; CURRAN, Amer. Mus. Nov., 506, 1931, p. 15; TOWNSEND, Man. Myiol., V, 1937, p. 108; S.-WHITE, AUBERTIN & SMART, Fa. Brit. India, Dipt., VI, 1940, p. 190; HALL, Blowflies N. Amer., 1948, p. 86; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 17; ZUMPT, Fliegen pal. Region, 64, i, 1956, p. 118.
Type species : *M. lunata* FABRICIUS from Madeira.

Stomathorrhina BEZZI, Z. Hym., Dipt., VI, 1906, p. 53 (pro *Stomorhina* RONDANI); S.-WHITE, AUBERTIN & SMART, Fa. Brit India, Dipt., VI, 1940, p. 190.

Stomotorhina MALLOCH, Ann. Mag. N. H., (9), XVIII, 1926, p. 499 (pro *Stomorhina* RONDANI).

Idielliopsis TOWNSEND, Rec. Ind. Mus., XIII, 1917, p. 190, et Man. Myiol, V, 1937, p. 101; S.-WHITE, AUBERTIN & SMART, Fa. Brit. India, Dipt. VI, 1940, p. 190; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 24.
Type species : *I. similis* TOWNSEND from India.

Eudiella TOWNSEND, Rec. Ind. Mus., XIII, 1917, p. 192, et Man. Myiol., V, 1937, p. 98; S.-WHITE, AUBERTIN & SMART, Fa. Brit. India, Dipt., VI, 1940, p. 190; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 24.
Type species : *M. discolor* FABRICIUS from India.

In my revision of the Palaearctic *Calliphorinae* (ZUMPT, 1956), I proposed to re-characterize the genera *Stomorhina* and *Rhinia*, and to list in the latter only those species which have pincer-like cerci and paralobi and the 5th sternite of the male provided with teeth on the tips of the lateral branches (*apicalis*-group).

According to this new arrangement, the generic features of the genus Stomorhina are as follows :

Eyes bare, upper facets more or less enlarged, width of frons in the male varying from 1/6 of eye-length to nil in which case the eyes touch each other for a shorter or longer distance; in the female, frons at vertex measures from about 1/2 to 2/5 of eye-length. Chaetotaxy of head complete in the female, in the male only *iv*, *oc* and *paf* developed. Parafacialia with glossy spots, setae indistinct. Antennal groove with a median convexity, arista pectinate. Epistome strongly protruding, bucca glossy, either wholly or only in the anterior part, and devoid of pollinosity.

Thorax of various colours, from black or olive to metallic coppery and green, more or less pollinose, with piliferous spots. Chaetotaxy reduced,

ac=0+0-2, *dc*=0+0-1, *ia*=0+0-2, *h*=1-3, *prs* and outer *ph* present, *n*=2, *sa*=2-3, *sc*=2-3+0, *pst* wanting, *pp*=1-2, *st*=1 : 1. Mesopleuron with 2-5 posterior bristles, pleura partly pollinose, with or without piliferous dots. Propleuron bare of hairs. Wings with R_5 open, closed or petiolate; thoracic squama about as long as broad or longer. Legs totally dark or more or less brownish; fore-tibia with several *ad* and 1-2 *pv*; mid-tibia with 2 *pv*, 1 *pd*, 1 *ad* and 0-1 *av*; hind-tibia with 3 to several *ad* forming a kind of comb, with 1 to several *pd* and 1-2 *av*.

Abdomen coloured like the thorax, or it is partly or wholly yellow or reddish. Hypopygium with free cerci and paralobi, phallosome globular, 5th sternite simple, without denticles.

The genus *Stomorhina* is fairly well represented in the warmer parts of the Old World. *S. lunata* also occurs on the island of Bermuda, the only part in the Nearctic region from which a species of *Rhiniini* has been recorded.

S. lunata is one of the few Rhiniini of which the life-history is known. The larvae were found feeding on egg pods of certain locusts. They are probably not restricted to these insects, but have also been found in association with termites (comp. CUTHBERTSON, 1935; HALL, 1948).

KEY TO THE SPECIES.

1 (6) R_5 open or only closed immediately on the wing-margin, not petiolate. Posterior mesopleural margin with 4 or more black bristles 2

2 (3) Wing with r_{4+5} almost straight, without a slight bending at the apex; R_5 narrowly open or closed. Tip of scutellum broadly yellow. Wing with the anterior apical margin demarcated darkened.

Posterior part of bucca thickly yellow pollinosae. Mesopleuron with a yellow to greyish, but thin pollinosity, without distinct piliferous dots. Abdomen wholly black or with yellowish spots, with a yellow to olive pollinosity. 7-8 mm. — Central Africa ..... 1. *S. apta* CURRAN.

3 (2) Wing with r_{4+5} slightly curved at the apex; R_5 rather widely open. Tip of scutellum not or only very narrowly yellow. Wing hyaline, anterior apical margin not demarcated darkened 4

4 (5) Anterior coxae of ♂ each with a tubercle which is provided with 6-10 long, spine-like bristles.

With respect to other features coinciding with the following species. The females are not clearly separable from each other. — Southern and East Africa ..... 2. *S. armatipes* MALLOCH.

5 (4) Anterior coxae of ♂ without tubercle and bunch of spine-like bristles.

Posterior part of bucca thickly white or yellowish pollinose. Mesopleuron without distinct piliferous dots, lower part less pollinose than the upper part on which the pollinosity forms a more or less clearly demarcated band. Abdomen with or without yellow to reddish lateral spots. 5-9 mm. — Ethiopian region, but also recorded from various other parts of the world ..... 3. *S. lunata* (FABRICIUS).

6 (1) R_5 closed and distinctly petiolate. Posterior mesopleural margin with 3 or fewer black bristles 7

7 (12) Posterior part of bucca like the anterior part devoid of pruinosity 8

8 (9) Thorax wholly black.

Mesonotum and scutellum with a slight greyish pruinosity and piliferous dots; mesopleuron with a thick yellow pollinosity. Wing with a brown terminal spot. 5-6 mm. — Liberia, Belg. Congo ..... 4. *S. atra* (CURRAN).

9 (8) Thorax glossy black, but tip of scutellum broadly yellow 10

10 (11) Thorax with a white pruinosity and large piliferous dots.

Mesonotum behind the suture with a broad black, undusted band; meso- and sternopleuron also white pruinose and provided with piliferous dots. Wing with a large apical spot. Abdomen glossy black like the thorax, with lateral pollinose vittae. 4-5 mm. — Ethiopian region ... 5. *S. chapini* CURRAN.

11 (10) Thorax without pruinosity.

Otherwise like the foregoing species. — Kenya .....
6. *S. patrizii* (PERIS).

12 (7) Posterior part of bucca thickly pollinose 13

13 (16) Abdomen totally dark coloured, green, coppery or blackish, without a reddish or yellow pattern 14

14 (15) Thorax and abdomen metallic green or more or less coppery, with a white pruinosity and piliferous dots. Wing wholly hyaline.

Piliferous dots of bucca small. Anterior stigma yellow-white. Legs with metallic green femora and yellow-brown tibiae. Abdomen longer than broad. 4-8 mm. — Southern Africa ..... 7. *S. guttata* (VILLENEUVE).

15 (14) Thorax and abdomen glossy black, with a white pruinosity and piliferous dots. Wing with a dark-brown, apical spot.

Piliferous dots of bucca large. Anterior stigma dark-brown. Legs with black femora and blackish or brownish tibiae. Abdomen about as long as broad. 5-6 mm. — Ethiopian region ..... 8. *S. rugosa* (BIGOT).

16 (13) Abdomen totally or partly reddish or yellow 17

17 (18) Abdomen black with a yellow pattern forming lateral vittae. Meso- and sternopleura with large piliferous dots.

Bucca with distinct piliferous dots. Thorax black or cupreous, with a grey or olive pollinosity. Wing with a terminal spot. Legs black or dark-brown, only tarsal segments partly yellow. 4-7 mm. — Ethiopian region ..... 9. *S. cribrata* (BIGOT).

18 (17) Abdomen totally reddish or yellow, or with 3 longitudinal black stripes. Meso-and sternopleuron without distinct piliferous dots 19

19 (20) Abdomen reddish-yellow, with a broad median, glossy black stripe and a similar one on each side.

Posterior part of bucca thickly yellow pollinose, with long yellow hairs located in very small dark dots. Thorax black and greyish pruinose. Wing with the outer margin, especially in the apical half, dark brown. Femora partly reddish, tibiae and tarsi wholly black. 9-10 mm. — East Africa, S. Rhodesia ..... 10. *S. tristriata* (BECKER).

20 (19) Abdomen wholly reddish or yellow 21

21 (22) Head generally black coloured. Thorax bluish green, a little metallic.

Posterior half of bucca with a dense yellow pruinosity. Meso- and sternopleura densely yellow pruinose, without piliferous dots. Legs reddish, femora sometimes brown. 7-8 mm. — Sierra Leone, Nigeria ..... 11. *S. celibe* (PERIS).

22 (21) Head reddish to orange except the epistome, which is broadly black, and the greatest part of the occiput. Thorax glossy black except the tip of the scutellum which is reddish, dorsum and pleura with a thick grey to yellow-olive pollinosity.

Pleura without piliferous dots. Legs predominantly reddish-yellow, tips of femora and last tarsal segments more or less darkened. 6-7 mm. — Belg. Congo ..... 12. *S. deceptor* (CURRAN).

1. — **Stomorhina apta** CURRAN.

(Fig. 29.)

Stomorhina apta CURRAN, Amer. Mus. Nov., 506, 1931, p. 17; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 19, fig. 5.

This species is well characterized by its r_{4+5} which is almost straight, in combination with a complete row of mesosternal bristles and a yellow-tipped scutellum.

M a l e . — Eyes bare, touching each other for a long distance, facets of the upper two-thirds distinctly enlarged, but not clearly demarcated from the lower ones. Ocellar triangle black, with iv and oc; frontal stripe triangular, developed only in the lower part, dark brown or black. Parafrontalia and -facialia glossy black, with a white or yellow pollinosity leaving free irregular spots, especially on the lower parts of the parafacialia, normally 5 pairs of *paf* present, but no parafacial setae are detectable. Antennal groove black, pollinose in the upper part, antennae separated by a broad longitudinally excavated carina, which is, however, very short and only slightly surpasses the 2nd segment; antennal segments dark brown, the 3rd about 3 times as long as the second, arista with long hairs dorsally. Epistome strongly protruded. Height of bucca measuring about 1/3 of eye-length, anterior part glossy black without pollinosity and with only a few scattered hairs, posterior part thickly yellow pollinose and with long yellow hairs which do not arise from distinct foot-prints. Palpi and proboscis black.

Thorax black with a yellow to olive, relatively thin pollinosity and dark piliferous spots, three darker longitudinal stripes are more or less distinct, especially when seen from behind; tip of scutellum yellow to a varying extent. Chaetotaxy strongly reduced , prescutellar *ac* and *dc* developed or absent, posterior *ia* normally present, outer *ph* and *prs* distinct as well as the outer *h*, $n=2$, $sa=3$, scutellum with 3 long marginal bristles, $st=1:1$, mesopleuron with a row of 4-5 posterior bristles, 2 *pp*, but *pst* wanting. Anterior stigma yellow, poststigma black. All pleura covered with a yellow to greyish pollinosity which is, however, relatively thin and sometimes partly rubbed off, hairs predominantly yellow, propleuron bare. Prosternum haired, suprasquamal ridge and post alar declivity bare. Wing at the anterior border ill-defined dark brown, especially in its terminal part, the remaining part tinged of lighter brown, veins yellow-brown, basicosta blackish, stem-vein with long black hairs, r_{4+5} almost straight, *m* broadly rounded and R_5 only narrowly open or closed, and not petiolate; thoracic squama with a brown tinge, asymmetrically rounded and hardly longer than broad; halter with a yellow knob, peduncle red-brown. Legs black, tibiae and tarsi mostly more or less reddish or brown; fore-tibia with 3-4 *ad*

and a submedian *pv*; mid tibia with 2 *pv* and one *pd* and *ad*; hind-tibia with a row of *ad* bristles of which 2 or 3 are longer than the remaining ones which are arranged to form a comb, posterior edge with a similar row of bristles, furthermore 2 *av* are present.

Abdomen slightly longer than broad, predominantly glossy black and with a greyish to olive pollinosity showing dark setiferous spots. As in *S. lunata*, the abdomen may be wholly black or may show lateral and ventral yellow or reddish spots of varying size, sometimes the whole area

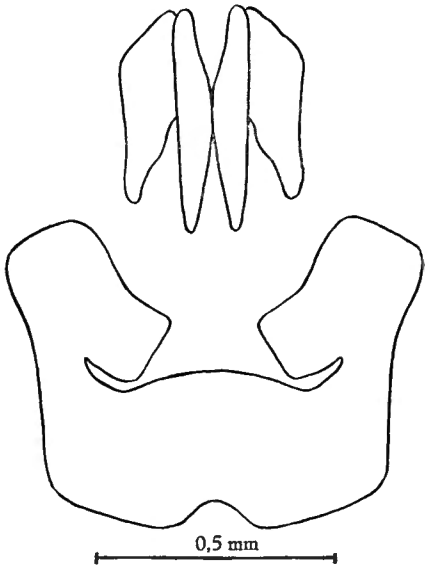

FIG. 29. — *Stomorhina apta* CURRAN.
Cerci with paralobi in frontal view and 5th sternite (hairs omitted).
Specimen from P.N.A.

of tergite I+II except the hind margin and the greatest part of tergite III may be lightened. Hypopygium (fig. 29) similar to that of *S. lunata*, but the paralobi are broader.

Female. — Frons at vertex measuring about half of eye-length: chaetotaxy complete, with *iv*, *ev*, *f*, several *fo* and 8-10 pairs of *paf*. Parafacialia in the lower half with a large glossy spot.

Length : 7-8 mm.

The species has been described and recorded up to now only from Kenya and Uganda. I have the following specimens before me.

Mission G. F. de Witte : vers Mt. Kamatembe, 2.300 m, 7-23.I. 1935 (3 ♂♂, 20 ♀♀); Shamuheru (volc. Nyamuragira), 1.820 m, 14-26.VI. 1935 (5 ♀♀); Mushumangabo (volc. Nyamuragira), 2.075 m, 14-26.VI.1935 (1 ♀); Kitondo (près Gandjo), 2.000 m, 7-23.I.1935 (1 ♀). — Collection Musée du Congo : Nord Kivu : lac Vert, 1.500-1.800 m, IX.1951 (1 ♀, leg. A. E. Bertrand); volc. Karisimbi : Nya Muzinga, I.1926 (3 ♀♀, leg. H. Schouteden). — Collection American Museum, New York : Uganda : Toro, VI.1925 (1 ♀, leg. G. L. P. Hancock, paratype).

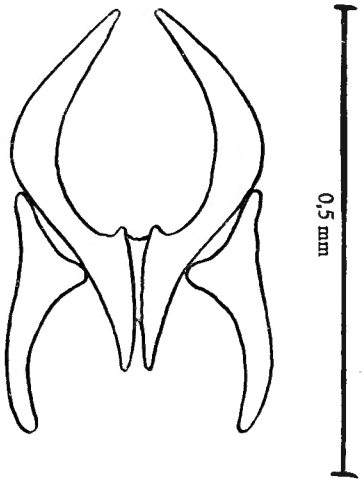

Fig. 30. — *Stomorhina chapini* Curran.
Cerci with paralobi in frontal view (hairs omitted).
Specimen from Durban, Natal.

[2. — **Stomorhina armatipes** (Malloch).]

Stomatorrhina armatipes Malloch, Ann. Mag. N. H., (9), XVIII, 1926, p. 500; Peris, An. Estac. Exp. Aula Dei, III, 1952, p. 20.
Stomorhina fasciculata Curran, Ann. Mag. N. H., (9), XIX, 1927, p. 528; Peris, id., ibid.

This is evidently a rare species of which, up to now, only a few specimens have been recorded from Natal, Transvaal and Kenya. In the male sex it is quite distinct from the superficially similar *S. lunata*, but, as far as I am aware, the females of these two species are not separable. The features given by Peris in respect of the pollinosity of the pleuron do not hold through and overlap in certain populations in these two species.

It is surprising to note that there are evidently no differences in the hypopygia of *S. armatipes* and *S. lunata*, but very striking ones in the

outer features. The fore-coxa is provided with a tubercle from which a bunch of 6-10 spines arises, and the mid-femur shows on the anterior lower half a great number of spine-like bristles. The abdominal venter is clothed with orange-coloured, dense and crinkly hairs, whereas in *S. lunata*, only sparse yellowish hairs are found.

S. armatipes was described twice from the same locality, namely Willow Grange in Natal (III-V.1914, several males, leg. R. C. WROUGHTON). One paratype ♂ of *S. fasciculata* CURRAN (ex American Museum, New York). is before me. It is, furthermore, recorded from Estcourt, Natal, and from Pretoria, Transvaal. I have seen another male from Durban (ex S. African Museum, Cape Town).

[3. — **Stomorhina lunata** (FABRICIUS).]

(Fig. 31.)

Musca lunata FABRICIUS, Syst. Antl., 1805, p. 292; PANDELLÉ, Rev. Ent., XV, 1896, p. 149; STEIN, Arch. Naturg., A XC, 1924, p. 260; MALLOCH, Ann. Mag. N. H., (9), XVIII, 1926, p. 500; SÉGUY, Encycl. Ent., A IX, 1928, p. 189, figs.; CUTHBERTSON, Proc. Rhod. Sci. Ass., XXXII, 1933, p. 106 et Occ. Pap. Rhod. Mus., IV, 1935, p. 19; S.-WHITE, AUBERTIN & SMART, Fa. Brit. India, Dipt., VI, 1940, p 191, fig. 88; HALL, Blowflies N. America, 1948, p. 91, figs.; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 20, fig. 6; ZUMPT, Fliegen pal. Region, 64, i, 1956, p. 120, fig. 41.

Idia fasciata MEIGEN, Auss. Zweifl. Ins., V, 1826, p. 9; BRAUER & BERGENSTAMM, Denkschr. Akad. Wiss. Wien, LXXI, 1894, p. 22.

Idia cinerea ROBINEAU-DESVOIDY, Ess. Myol., II, 1830, p. 422.

Idia rostrata ROBINEAU-DESVOINY, Ess. Myod., II, 1830, p. 421; WIEDEMANN, Auss. Zweifl. Ins., II, 1830, p. 352; VILLENEUVE, Rev. Zool. Afric., III, 1914, p. 435.

Idia myoidea BIGOT, Ann. Soc. Ent. France, (3), VII, 1859, p. 538.

Stomatorrhina maculata RONDANI, Atti Soc. Ital. Sci. Nat., VIII, 1865, p. 228.

Stomorhina melanorrhina BIGOT, Ann. Soc. Ent. France, 1887, p. 592; VILLENEUVE, Rev. Zool. Afric., IV, 1916, p. 203.

Stomorhina muscoidea BRAUER, Musc. Schiz., 1899, p. 22; VILLENEUVE, Rev. Zool. Afr., IV, 1916, p. 203.

S. lunata is widely distributed and probably occurs everywhere in the Ethiopian region and the Mediterraneum. It is also known from the northern parts of France and from England, but is apparently rare there. In the Oriental region it reaches the northern parts of India, in the Nearctic region it is common on the island of Bermuda, but is not found elsewhere. *S. lunata* is also recorded from Madagascar.

Male. — Eyes bare, upper facets only a little larger than the lower ones, frons line-shaped in the middle or at least not broader than half the width of the anterior ocellus. Frontal stripe short-triangular, black or

reddish; ocellar triangle black, with *iv* and a pair of proclinate hairs; parafrontalia black like the remaining part of the head, yellow pollinose, *paf* accompanied by long hairs which are distributed all over the parafrontalia. Parafacialia yellow pollinose in the upper half, with a large bare and glossy spot in the lower part, like the parafrontalia relatively densely beset with long black hairs. Antennae separated from each other by a broad, knob-like convexity which shows a median, line-shaped groove; 3rd segment $2\frac{1}{2}$-3 times as long as the second, black or black-brown; antennal groove white pollinose, epistome broadly glossy black. Height of bucca measuring nearly half the eye-length, anterior part of bucca glossy black and bare, marked by a line from the posterior lower eye-margin to the peristomal corner, posterior part thickly yellow pollinose and with long yellow hairs located in small dark dots. Vibrissa long, a row of black peristomal bristles present up to the yellow pollinosity. Palpi black, terminally slightly broader than the 3rd antennal segment.

Thorax black or olive, with a thin white pollinosity and 3 broad longitudinal dark stripes on the notum. Piliferous dots small. Hairs and bristles of the dorsal side black, the latter partly reduced, prescutellar *ac* and *dc* mostly distinct, hindmost *ia*, outer *ph* and *prs* present, outer *h* very long, scutellum with 3 marginal bristles, $st = 1 : 1$. Pleura with yellow hairs and a white pruinosity which is dense on the dorsal half of the mesopleuron, but only slight on the lower half, although normally the two halves are not clearly demarcated from each other. There are, however, specimens of populations in which there is a distinct demarcation, so that this feature cannot be used to separate *S. armatipes* from *S. lunata*. Remaining pleura with a white pollinosity of varying density; sometimes it is light only, sometimes as dense as on the upper part of the mesopleuron. Propleuron bare of hairs, posterior margin of mesopleuron with a complete row of long black bristles, 2 *pp*, but *pst* wanting. Anterior stigma yellow, posterior black-brown. Prosternum haired, suprasquamal ridge and postalar declivity bare. Wing hyaline or with a brown tinge, but without demarcated spots, veins reddish or brown, basicosta blackish, stem-vein mostly with pale hairs, sometimes one or a few are dark, costal spine wanting, r_{4+5} slightly curved towards the apex, *m* broadly rounded and R_5 always open; thoracic squama more or less brownish tinged, about as long as broad; halter yellow. Legs black, tibiae and tarsi reddish brown; anterior coxa white pruinose with pale hairs and a few slender black bristles which are, however, not placed on a tubercle and not arranged in a bunch; fore-tibia with several *ad* and 2 *pv*; mid-tibia with 2 *pv* and one *pd* and *ad*; hind-tibia with rows of *pd* and *ad* bristles of unequal length, and 2 *av*.

Abdomen as long as broad, dorsally brownish black or olive and with a variable yellow pattern which normally forms broad lateral spots on tergites III, IV and V; ventral side predominantly yellow. These spots may

become more or less indistinct and only marked by a denser whitish pruinosity with distinct piliferous dots. Hypopygium (fig. 31) probably not separable from that of *S. armatipes*.

Female. — Frons at vertex measuring about 3/7 of eye-length; chaetotaxy complete, with numerous fronto-orbital hairs and setae arising from

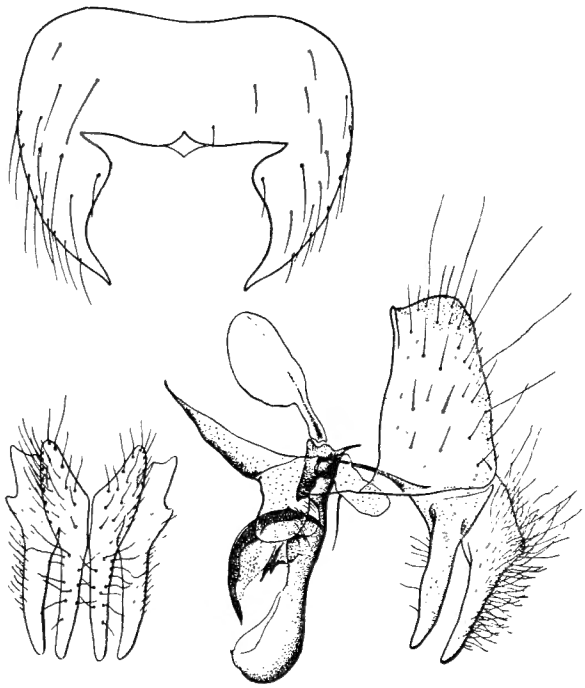

FIG. 31. — *Stomorhina lunata* (FABRICIUS).
Hypopygium in frontal and in lateral view, 5th sternite (after HALL).

black dots. Pruinosity white, forming 2 more densely dusted spots on the parafrontalia and 2 on the parafacialia. Yellow spots on the dorsal side of the abdomen mostly less well developed than in the male or replaced by pollinose spots. This pattern is, however, as variable as in the male. Mid-tibia also with *av* seta.

Length : 5-9 mm.

Mission G. F. DE WITTE : Vitshumbi (lac Édouard), 27.IX.-15.X. 1933 (1 ♂); Kivu : Rutshuru, 1.100 m, 9.VII.1935 (1 ♀). — Mission H. DAMAS : Nord lac Kivu : Ngoma, 2-5.IV.1935 (1 ♀). — Collection

Musée du Congo : Kivu : Tshibinda, XII.1927 (1 ♂, leg. Ch. Seydel); Ituri : Nioka, 20.I.1934 (1 ♀, leg. J. V. Leroy); II.1935 (2 ♀♀, leg. H. J. Bredo); Kilo, 2.III.1931 (1 ♀, leg. G. du Soleil); Urundi : Rumonge, 1934 (1 ♀, leg. A. Lestrade); Madagascar : massif Ankaratra, Manjakatompo, 1.700-1.800 m, XII.1951 (3 ♂♂, 9 ♀♀, leg. Benoit); Antsirabe, II.1942 (1 ♂, leg. A. Seyrig). — Collection American Museum, New York : Abyssinia : Addis Ababa, VIII.1918 (2 ♂♂, 1 ♀). — Collection Zool. Museum, Berlin : Tanganyika : Langenburg, 7.V.1899 (1 ♀, leg. Fülleborn); Cape Province : Bethel (3 ♂♂, 1 ♀, leg. Beste). — Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Salisbury, II, III, VIII.1935-39 (1 ♂, 2 ♀♀, leg. A. Cuthbertson); Balla-Balla, II, V, XII.1933-35 (1 ♂, 4 ♀♀, leg. A. Cuthbertson). Vumba Mts., III.1935 (1 ♀, leg. A. Cuthbertson). — Collection Dept. of Agriculture, Pretoria : Orange Free State : Fauresmith, II.1939 (9 ♂♂, 7 ♀♀, leg. Heckroodt); Natal : Mt. Edgecomb, I.1941 (2 ♂♂); Cape Province : East London, 10.VIII.1922 (1 ♂, leg. H. K. Munro). — Collection S. A. Institute for Med. Research, Johannesburg : Transvaal : Johannesburg, 28.XI.1948 (5 ♂♂, 5 ♀♀, leg. F. Zumpt); Cape Province : Mossel Bay, 12.XII.1953 (1 ♂♀, leg. F. Zumpt). — Collection S. African Museum, Cape Town : Cape Province : Grahamstown, 1930 (1 ♀, leg. Miss. Walton); Knysna, X.1916 (1 ♂, leg. L. Peringuey); Natal : M'Fongosi, Zululand, 1934 (1 ♂♀, leg. W. E. Jones); S. W. Africa : Warmbad, I.1925 (2 ♂♂, 3 ♀♀).

[4. — **Stomorhina atra** (Curran).]

Rhinia atra Curran, Amer. Mus. Nov., 506, 1931, p. 15; Peris, An. Estac. Exp. Aula Dei, III, 1952, p. 46.

Of this characteristic species I have only one pair before me, namely the holotype from Liberia and a female from the Belgian Congo.

Male. — Eyes bare and touching, upper facets moderately enlarged. Frons and face glossy black, antennae reddish to dark brown, *iv* strong, *oc* weaker, but well developed, 5 pairs of *paf*, parafacialia glossy, not setulose, pruinose in the upper and bare in the lower half. Antennal groove pruinose in its upper part, with a high and relatively narrow, but dorsally rounded carina between the basal segments, third segment hardly twice as long as the second. Bucca about 3/11 as high as the eye is long, totally glossy black, without pruinosity, posterior part with long yellow hairs; vibrissa thick and short, peristomal bristles partly indistinct. Palpi brown, only slightly dilated terminally and not broader than the 3rd antennal segment.

Thorax wholly black, with a slight greyish pruinosity and piliferous dots all over the mesonotum and scutellum; mesopleuron and the anterior

part of pteropleuron with a thick yellow pollinosity, but wtihout distinct piliferous dots; sterno- and hypopleuron glossy black. Upper posterior margin of mesopleuron with 2 black bristles, otherwise with long yellow hairs. Chaetotaxy as in *S. chapini* and other species. Wing with a brown terminal spot, basicosta yellow-brown, costal spine indistinct, stem-vein with yellow hairs, R_5 closed and long petiolate. Thoracic squama distinctly longer than broad. Legs with black or dark-brown femora and lighter coloured tibiae and tarsi; hind-tibia with a dense row of relatively long *ad*, but with only one submedian *pd*.

Abdomen longer than broad, black. The hypopygium could not be dissected.

Female. — Head black, frons at vertex measuring 2/5 of eye-length. Palpi a little broader than the 3rd antennal segment.

Length : 5-6 mm.

Collection Musée du Congo : Kivu : Rwankwi, V.1948 (1 ♀, leg. J. V. LEROY). — Collection American Museum, New York : Liberia : Reppo's Town, IX.1926, leg. J. BEQUAERT, holotype).

[5. — **Stomorhina chapini** CURRAN.]

(Fig. 30.)

Stomorhina chapini CURRAN, Amer. Mus. Nov., 506, 1931, p. 16; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 30.

Easily recognizable by the features given in the key.

Male. — Eyes bare and touching, inner and upper facets moderately enlarged. Face and frons totally glossy black, only the antennae are black-brown; *iv* and *oc* distinct, about 6 pairs of *paf* which gradually diminish in size towards the vertex, parafacialia not setulose, but with a spot of silvery pollinosity in the upper half. Lower part of the antennal groove glossy, upper part pollinose, median convexity broad, but short and low, 3rd antennal segment almost 3 times as long as the second, arista yellow, with long dorsal hairs. Bucca with height about 1/3 of eye-length, glossy black, without any pruinosity, but with long pale hairs, vibrissa short, peristomal bristles only partly developed. Palpi black-brown.

Thorax glossy black except the tip of the scutellum, which is broadly yellow; stigmata black-brown. Dorsum with a white pruinosity, which is, however, wanting on the scutellum and behind the mesonotal suture, resulting in the formation of a broad transverse band; hairs and bristles in the pruinose parts are located in relatively large dots, the majority of which touch one another (piliferous dots). Chaetotaxy rudimentary as in other *Stomorhina* species, only the prescutellar *ac*, *dc* and *ia* are distinct;

furthermore, *prs* and the outer *ph*, one long outer *h*, 2 *n*, 2 *sa* and 2 *pa* are developed; scutellum with 3 long marginals. Pleura glossy black and white dusted, with piliferous dots on meso- and sternopleuron like those on the dorsum; *pp* present, *pst* wanting, *st*=1 : 1, mesopleuron with 3 bristles at the upper posterior margin. Wing hyaline, with a large brown, terminal spot; basicosta and base of wing black-brown, veins yellow, costal spine minute or quite indistinct, stem-vein with yellow hairs, R_5 closed and long-petiolate; thoracic squama rounded and about as broad as long or even broader. Legs with black femora, tibiae reddish or yellow-brown, first tarsus blackish, mid- and hind-tarsi predominantly yellow-brown, with only the last segments more or less darkened, hind-tibia with a row of rather unequal *ad*, 1-2 *av* present.

Abdomen about as long as broad, glossy black, with lateral white pollinose vittae provided with piliferous dots. Hypopygium (fig. 30) with slender paralobi which are longer than the cerci.

Female. — Head totally black, antennae dark brown or reddish and sometimes also the frontal-stripe more or less brownish. Frons at vertex measuring about 2/5 of eye-length. Parafrontalia totally glossy, parafacialia with an upper pollinose spot as in the male; chaetotaxy complete.

Length : 4-5 mm.

Collection Musée du Congo : Kivu : Rwankwi, V.1948 (7 ♂♂, leg. J. V. LEROY); Bumba, XII.1939-I.1940 (1 ♂, leg. H. DE SAEGER). — Collection American Museum, New York : Belgian Congo : Lukolela, 13.I.1931 (1 ♀, leg. J. P. CHAPIN, paratype); Liberia : Bendu, Robertsport, 28.XII.1943 (4 ♀♀, leg. F. H. SNYDER). — Collection Zoolog. Museum, Berlin : Cameroons : Bibundi, 16-30.X.1904 (1 ♀, leg. G. TESSMANN). — Collection S. A. Institute for Med. Research, Johannesburg : Tanganyika : Kisangara (1 ♀); Natal : Durban, VI.1941 (1 ♂, leg. H. K. MUNRO).

PERIS saw 3 specimens from Uganda.

[6. — **Stomorhina patrizii** (PERIS).]

Rhinia patrizii PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 29.

I have not seen this species which was based on 6 females from Ngong, Kenya. The author compares it with *S. chapini*, from which it is distinguishable mainly by a black thorax without any pruinosity. The following details of taxonomic importance have been taken from the original description, which is rather long.

Female. — Head wholly black except the aristal base which is reddish, parafrontalia and -facialia as well as buccae glossy, without pruinosity. Antennal groove without carina but bases of antennae separated from each other by a width of the second segment. Thorax black, tip of scutellum broadly yellow; pruinosity totally wanting. Chaetotaxy as in *S. chapini*. Wing with a termina dark spot, R_5 closed and petiolate. Legs with black femora, tibiae black-brown, at the base more or less reddish, fore-tarsus coloured like the tibia, mid- and hind-tarsi reddish-brown; hind-tibia with one *av*, three short *ad* and 2 *pd*. Abdomen black, without pruinosity.

Length : 5 mm.

[7.— **Stomorhina guttata** (VILLENEUVE).]

(Fig. 32.)

Rhinia guttata VILLENEUVE, Bull. Soc. Ent. France, LXXXIII, 1914, p. 384; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 31.

A metallic green or partly coppery species which is restricted to Southern Africa.

Male. — Eyes bare, upper facets moderately enlarged, frons relatively broad, at its narrowest point, at the tip of the ocellar triangle, measuring 1/6-1/9 of eye-length. Frontal stripe black or reddish, mostly complete, triangularly widened towards the antennal groove; ocellar triangle and parafrontalia white or yellow pollinose, with about 8 pairs of *paf* located in small black dots, and a few, sometimes indistinct black setae; *oc* and *iv* well developed. Parafacialia pollinose like the parafrontalia, not setulose, but with a broad glossy spot in the lower half. Antennal groove yellow pollinose in the upper part, epistome broadly glossy black, antennae separated by a broad, knob-like convexity between the first two segments, third segment dark-brown to reddish, about twice as long as the second, arista yellow at base, with long dorsal hairs. Height of bucca almost half of eye-length, anterior part of bucca, marked by a line from the middle of the lower eye-margin to the anterior peristomal corner, glossy black and totally bare, posterior part thickly yellow pollinose and with long yellow hairs located in small dark dots. Vibrissa short, but well developed, peristomal bristles weak and partly indistinct. Palpi black, spatulate, distinctly broader than the 3rd antennal segment.

Thorax dark metallic green, sometimes more or less coppery, with a white pruinosity leaving free the foot-prints of hairs and bristles. Chaetotaxy partly reduced as in other *Stomorhina* species. Pleura metallic and white pollinose like the dorsum, but piliferous dots smaller; anterior stigma yellow-white, posterior one brown. There are 3 black bristles in the upper

part of the posterior mesosternal margin. Wing hyaline, stem-vein with white hairs, costal spine indistinct, veins yellow, basicosta yellow-brown, R_5 long-petiolate; thoracic squama yellow, longer than broad; halter yellow. Legs with metallic green femora and yellow-brown tibiae and tarsi, the latter with the last segments more of less darkened; fore-tibia with a row of *ad*, of which 2-3 are longer than the others, furthermore 2 long *pv*; mid-tibia with 2 *pv* and *ad* and one *pd* and *ad*; hind-tibia with a row of *ad* bristles, of which normally 3 are longer than the remaining ones, with 2-3 long *pd* and 1-2 long *av*.

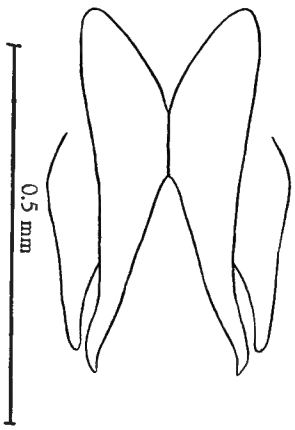

FIG. 32. — *Stomorhina guttata* (VILLENEUVE).
Cerci with paralobi in frontal view (hairs omitted).
Specimen from Mossel Bay, Cape Province.

Abdomen longer than broad, totally metallic green or coppery and with a white pollinosity like the thorax, but piliferous dots on the dorsal side smaller, on the ventral side about as broad as those on the mesonotum. Hypopygium (fig. 32) with slender and pointed cerci.

Female. — Frons at vertex measuring about half of eye-length, subparallel, black or reddish; parafrontalia thickly yellow pollinose, with broad and partly united glossy black dots in which the bristles and several setae are located; parafacialia yellow pollinose in the upper part and sometimes with a few small dots which have, however, no setae, lower part with a large glossy black spot. Chaetotaxy of head complete. Mid-tibia, as usual, also with an *av* bristle.

Length : 4-8 mm.

Collection Museum of Natural History, Vienna : Cape (1 ♂, typus). — Collection American Museum, New York : Cape Province : Kimberley, 23.IX.1925 (1 ♂ ♀, leg. J. T. POTGIETER). — Col-

lection Dept. of Agriculture, Pretoria : Transvaal : Pretoria, IV.1946 (3 ♂♂, 4 ♀♀, leg. W. H. G. COATON); Orange Free State : Fauresmith, II.1939 (3 ♂♂, 6 ♀♀, leg. HECKROODT); Bloemfontein, 16.V.1920 (1 ♂, leg. H. K. MUNRO); Cape Province : Hope Town, 14.V.1917 (1 ♂). — Collection S. A. Institute for Med. Research, Johannesburg : Cape Province : Mossel Bay, 10.XII.1953 (2 ♂♂, 5 ♀♀, leg. F. ZUMPT); Basutoland : Mamathes, 2.VII.1950 (1 ♂, leg. C. J. GUILLARMOD); Natal : Umhlatuzi, 6.III.1954 (1 ♂, leg. H. PATERSON). — Collection S. A. Museum, Cape Town : Cape Province : Venterstadt distr., X.1935 (1 ♂); Merveville distr., I-II.1947 (7 ♂♂, 2 ♀♀); Oudtshoorn distr., X.1951 (1 ♂); Steynsburg distr., X.1935 (2 ♂♂); Knersvlakte, Namaqualand, X.1950 (1 ♂); Albert distr., X.1935 (3 ♂♂); S. West Africa : Gt. Karas Mts., XI.1936 (2 ♂♂); Warmbad, II.1935 (1 ♂).

8. — **Stomorhina rugosa** (BIGOT).

(Fig. 33.)

Rhinia rugosa BIGOT, Bull. Soc. Zool. France, XII, 1887, p. 591; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 35.

Stomorhina mitis CURRAN, Amer. Mus. Nov., 506, 1931, p. 18; PERIS, id., ibid.

This species is also well characterized and easily recognizable within the Ethiopian region.

Male. — Eyes bare, touching, upper facets moderately enlarged. Head totally glossy black, only the 3rd antennal segment and palpi black-brown, arista yellow. Parafrontalia white pruinose and with large glossy spots in which the *paf* are located; upper half of parafacialia pruinose like the parafrontalia, lower half almost bare of dust. Antennal groove dusted in the upper part, with a broad, knob-like convexity between the first two antennal segments, 3rd segment 2½-3 times as long as the second. Height of bucca about ⅖ of eye-length, anterior part glossy black, posterior half white pollinose and with large glossy dots in which thick pale hairs are located. Vibrissa short but strong, peristomal bristles relatively weak. Palpi spatulate, broader than the 3rd antennal segment.

Thorax glossy black, only stigmata dark-brown. Dorsum white pruinose, with piliferous spots which tend to unite in longitudinal direction; looking from behind, three broad, ill-defined darker stripes are formed by the pruinosity and extend from the head to the scutellum; chaetotaxy strongly reduced, even the prescutellar *ac*, *dc* and *ia* indistinct or very weak, but *prs* and outer *ph* distinct as well as the 3 marginal bristles of the scutellum. Pleura white pruinose like the dorsum, meso- and sternopleuron with large and more or less circular piliferous dots, mesopleuron at the upper posterior margin with 2 black bristles, pleural hairs thick

and pale, 2 *pp* but *pst* wanting. Wing hyaline with a dark brown apical spot, basicosta black-brown, veins yellow-brown, costal spine indistinct, stem-vein with pale hairs, R_5 closed and petiolate, thoracic squama with a brown tinge, about as long as broad, halter yellowish. Legs with femora and tibiae black, the latter sometimes brown, fore-tarsus dark brown or blackish too, mid- and hind-tibiae predominantly yellow, with the last segments more or less darkened; fore-tibia with 2-3 *ad* and a submedian *av*; mid-tibia with 2 *pv* and one *pd* and *ad*; hind-tibia with a row of long *ad*, a long submedian *pd* and *av*.

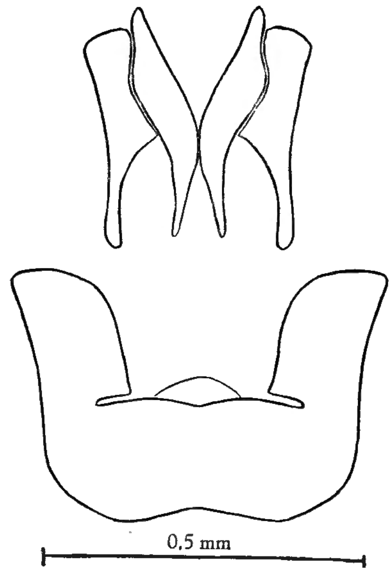

FIG. 33. — *Stomorhina rugosa* (BIGOT).
Cerci with paralobi and 5th sternite (hairs omitted).
Specimen from Zululand.

Abdomen about as long as broad, glossy black, with a white pruinosity forming large lateral spots which are provided with piliferous dots. Hypopygium (fig. 33) with slender cerci and paralobi.

Female. — Frons at vertex measuring about 2/5 of eye-length, gradually widened towards the antennal groove. Frontal stripe subparallel, black or more or less dark-brown, parafrontalia and -facialia white pollinose with large glossy dots which are partly united with each other; chaetotaxy complete. Mid-tibia with *av* bristle.

Length : 5-6 mm.

S. rugosa seems to be common everywhere in the Ethiopian region. The following specimens are before me :

Mission G. F. DE WITTE : Kivu : Kalondo (lac Ndaraga, Mokoto), 1.750 m, 22-27.III.1934 (1 ♀). — Collection Musée du Congo : Katanga : Élisabethville, 21.XII.1930 (1 ♂♀, leg. M. BEQUAERT); Lualaba : Kabongo, 7.I.1953 (1 ♂, leg. CH. SEYDEL); Ituri : Arara-Aru, IX.1952 (1 ♀, leg. M. WINAND). — Collection American Museum, New York : S. Rhodesia : Salisbury, 15.V.1932 (1 ♂, leg. A. CUTHBERTSON); Natal : New Hanover, 16.II.1914 (1 ♂, leg. C. B. HARDENBERG, paratype of *S. mitis* CURRAN). — Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Salisbury, II-V. (7 ♂♂, 7 ♀♀, leg. A. CUTHBERTSON); Balla Balla, III-V. (3 ♀♀, leg. A. CUTHBERTSON); Victoria, 3.VI.1932 (1 ♂♀, leg. A. CUTHBERTSON). — Collection Dept. of Agriculture, Pretoria : Transvaal : Barberton, 5.V.1913 (1 ♂♀, leg. H. K. MUNRO, paratypes of *S. mitis* CURRAN); Natal : New Hanover, 16.XII.1916 (1 ♂♀, leg. H. K. MUNRO, paratypes of *S. mitis* CURRAN). — Collection Zool. Museum Stuttgart : Tanganyika : Kware, nr. Moshi, 27.XII-13.I.1952 (2 ♀♀, leg. E. LINDNER). — Collection U. S. Nat. Museum, Washington : Nigeria : Ololleweji (2 ♂♂, 5 ♀♀). — Collection S. A. Institute for Med. Research, Johannesburg : Transvaal : Johannesburg, 19.XII.1938 (2 ♂♂, 4 ♀♀, leg. F. ZUMPT); Naboomspruit, 20.II.1949 (1 ♂♀, leg. F. ZUMPT); Pretoriuskop, I.1952 (1 ♂♀, leg. F. ZUMPT); Natal : Eshowe, Zululand (1 ♂, leg. H. PATERSON); Hluhluwe, Zululand (1 ♂♀, leg. H. PATERSON); S. Rhodesia : Marandella, XI. 1951 (1 ♂, leg. F. ZUMPT). — Collection S. African Museum, Cape Town : Cape Province : Van Staden Pass, III.1954 (1 ♂) : Fort Beaufort, III.1954 (1 ♀); Mozambique : Lourenco Marques, 1914 (1 ♀, leg. H. A. JUNOD).

9. — **Stomorhina cribrata** (BIGOT).

(Fig. 34.)

Rhinia cribrata BIGOT, Ann. Soc. Ent. France, 1874, p. 239; CUTHBERTSON, Proc. Rhod. Sci. Ass., XXXII, 1933, p. 104, et Tr. Rhod. Sci. Ass., XXXVI, 1938, p. 125; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 31; ZUMPT, Fliegen, pal. Region, 64, i, 1956, p. 119, fig. 39.

Rhinia vertebrata BIGOT, Ann. Soc. Ent. France, 1891, p. 378.

Rhinia tricincta BIGOT, id., ibid., p. 379.

Rhinia striata BECKER, Ann. Mus. Zool. Acad. Sci. Petersburg, XVII, 1912, p. 626; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 31.

Easily recognizable by the features given in the key and not to be confused with any other species in the Ethiopian region.

Male. — Eyes bare and touching, upper facets moderately enlarged but not demarcated from the lower ones. Frontal stripe short-triangular,

black or dark-brown; parafrontalia and -facialia glossy black like the remaining part of the face; only the antennae are red-brown. Antennal groove in the upper two-thirds and parafrontalia and -facialia partly covered with a white pollinosity, parafacialia not setulose, *iv* and *oc* as well as 4-6 pairs of *paf* distinct. Antennae broadly separated by a short, but strongly convex, knob-like carina, which has no median excavation; 3rd segment about twice as long as the second, arista with long hairs

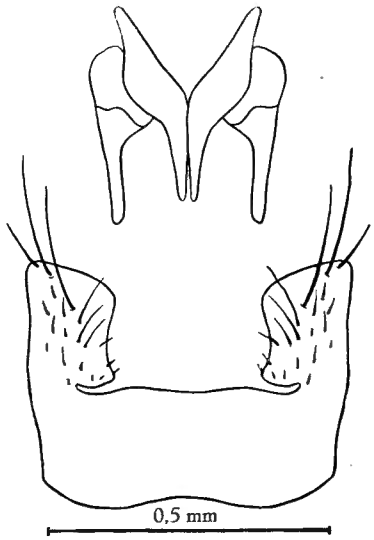

FIG. 34. — *Stomorhina cribrata* (BIGOT).
Cerci with paralobi (hairs omitted) and 5th sternite.
Specimen from Transvaal.

dorsally. Height of bucca almost ⅓ of eye-length, anterior part of bucca glossy black, without pollinosity and almost bare of hairs, posterior part densely yellow pollinose but with black spots from which long yellow hairs arise, vibrissa strong, peristomal bristles short and only present on the non-pollinose part. Palpi black like the proboscis, terminally spatulate and broader than the 2nd antennal segment.

Thorax glossy black or cupreous, with a grey or olive pollinosity and piliferous spots which are partly united in the longitudinal direction; furthermore, the notum shows 3 broad longitudinal dark vittae and also the lateral margins are darkened, so that 5 stripes may be counted. Besides the black hairs and bristles, mesonotum and scutellum show long, irregularly placed yellow hairs. Bristles reduced as in the other *Stomorhina*-species, mesonotum with only two long bristles on the upper posterior

margin, meso- and sternopleuron densely yellow pollinose and with large black dots from which long yellow hairs arise, ptero- and hypopleuron with a thinner pollinosity and without piliferous spots. Prostigma yellow, poststigma black-brown. Propleuron, suprasquamal ridge and post-alar declivity bare. Wing with a terminal brown spot, basicosta black-brown, veins yellow-brown, costal spine wanting, stem-vein with long whitish hairs, R_5 closed and short-petiolate; thoracic squama with a yellow tinge, hardly longer than broad, halter yellow. Legs black or dark-brown, first two or three tarsal segments of mid- and hind-legs yellow; fore-tibia with 3-4 *ad* and a submedian *pv*; mid-tibia with 2 *pv*, one *pd* and *ad*; hind-tibia with a dense row of relatively long *ad* and a similar comb of shorter *pd* bristles, among which one submedian is longer than the others; one submedian *av* developed.

Abdomen approximately as long as broad, tergite I+II yellow with the posterior margin broadly black, tergite I+II with two broad lateral, yellow vittae, tergites IV and V with smaller lateral vittae which are formed by dense pollinosity and show black piliferous spots; sternites I-III yellow. This pattern is variable; the yellow spots may also be present on the last tergites. Dorsally, the posterior margin of tergite I+II is provided with long dark and pale hairs which partly surpass the posterior margin of tergite III. Hypopygium (fig. 34) black, with slender cerci and paralobi.

Female. — Frons black, width at vertex about half length of eye; parafrontalia with a thick yellow pollinosity and large, partly united glossy spots in which the bristles are located. Chaetotaxy complete, parafrontal and fronto-orbital bristles strong, but relatively short. Parafacialia pollinose like the parafrontalia, not setulose, but with a large glossy area in the lower part and a few smaller ones above it. Thorax dorsally without long hairs, those on the pleura shorter and not as dense as in the male; posterior margin of abdominal tergite I+II with short hairs only. Mid-tibia also with a submedian *av*.

Length : 4-7 mm.

Mission H. Damas : lac Kivu, Ngoma, 2-5.IV.1935 (1 ♀). — Collection Musée du Congo : Kivu : Rwanku, V.1948 (18 ♀♀, leg. J. V. Leroy); 31.III.1946 (5 ♀♀, leg. J. V. Leng); plaine Ruzizi, 1949 (1 ♀, leg. H. Bomans); Katanga : Kando (Mutaka), 1953 (1 ♂, leg. Th. de Caters); Tschuapa : Bokuma, II-III.1954 (1 ♀, leg. R. P. Lootens); Ruanda : Kisenyi, 1.500 m, 28.IX.1951 (1 ♀, leg. A. E. Bertrand); Coquilhatville, 1946 (1 ♀, leg. Ch. Scops); Myidi, 1945 (1 ♀, leg. P. van Eyen); Élisabethville, 8.VII.1920 (1 ♀♂, leg. M. Bequaert); Eala, XI.1934 (1 ♀, leg. J. Ghesquière); mines de Kilo, 1930 (2 ♀♀, leg. G. du Soleil); Bambesa, 17.III.1933 (2 ♀♀, leg. J. Vrydagh); Kalembelembe-Baraka, VII.1918 (2 ♀♀, leg. R. Mayné); Léopoldville, X.1934 (1 ♀, leg. J. Ghesquière). — Collection Ameri-

can Museum, New York : Sierra Leone : Kruto, 23.II.1913 (1 ♀, leg. T. Y. Wood.); Belg. Congo : Stanleyville, III.1915 (1 ♂, leg. Lang & Chapin). — Collection Zoolog. Museum, Berlin : Cameroons : Garua, 12-19.IV.1909 (1 ♂, leg. Riggenbach); Kumba, IV.1896 (1 ♀, leg. L. Conradt); Pama-Quelle, V.1913 (1 ♀, leg. Ramzy). — Collection S. African Museum, Cape Town : Cape Province : Van Stadens Pass, III.1954 (1 ♀); S. W. Africa : Warmbad, II.1925 (1 ♂). — Collection Dept. of Agriculture, Pretoria : N. Rhodesia : Shangombo, VIII.1952 (1 ♂). — Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Salisbury, 15.VI.1939 (1 ♂, leg. A. Cuthbertson); Bulawayo, 24.XII.1936 (1 ♂, leg. A. Cuthbertson). — Collection S. A. Institute for Med. Research, Johannesburg : Tanganyika : Songea, II.1936 (1 ♂♀); Natal : Olivier's Hoek Pass, II.1954 (1 ♀, leg. H. Paterson); Transvaal : Potchefstroom, 18.XII.1951 (1 ♂, leg. H. Paterson).

S. cribrata occurs probably everywhere in the Ethiopian region and reaches in Palaestine the Mediterraneum.

[10. — **Stomorhina tristriata** (Becker).]

Rhinia tristriata Becker, Bull. Mus. Paris, 1909, p. 118; Peris, An. Estac. Exp. Aula Dei, III, 1952, p. 39.

Rhinia ancyrosema Speiser, Kilimandjaro-Meru Exp., X, Pt 5, 1910, p. 154; Peris, id., ibid.

This species is quite outstanding in its general appearance and is somewhat reminiscent of *Fainia*; R_5, however, is closed and petiolate and the hind-tibia shows a distinct row of *ad* arranged in a comb, with 3 of the bristles longer than the remaining ones. With respect to the pleural pollinosity, this species runs down in Peris' key to a group which is represented in the Ethiopian region by *S. celibe* and *S. deceptor*. The male sex of both species is unknown, and also of *S. tristriata* there are only 5 females before me, so that the question whether these species are really to be placed into the genus *Stomorhina*, or whether the males perhaps show a hypopygial structure which would refer these species to the genus *Rhinia* str. (*apicalis*-group) is still open. But there is an evidently closely related species in the Oriental region, *S. xanthogaster* (Wied.), the hypopygium of which (comp. S.-White, Aubertin & Smart, 1940) shows clearly that it belongs to *Stomorhina*. I think it therefore justifiable to transfer these Ethiopian species, for the time being, to the genus *Stomorhina*.

Female. — Head black, frontal stripe and 3rd antennal segment more or less reddish, palpi red-brown. Frons at vertex measuring about $\frac{1}{3}$ of eye-length, gradually widened towards the antennal groove, para-

frontalia white pruinose, with hairs and bristles on bare dots. Chaetotaxy complete, at least a dozen fronto-orbital bristles of unequal length are present, parafrontalia in the upper part white pruinose too and with a few black setae, lower part with a large glossy spot. Antennal groove with a long and broad, dorsally rounded median convexity, 3rd segment about twice as long as the second, arista with long hairs dorsally. Anterior part of bucca glossy black, with only a few black setae, posterior part thickly yellow pollinose and with long yellow hairs which arise from very small dark dots. Vibrissa long, peristomal bristles well developed and reaching the anterior border of the yellow pollinosity; there are also a few black bristles present above the vibrissa. Palpi spatulate, distinctly broader than the 3rd antennal segment.

Thorax black, dorsum greyish pruinose, with hairs and bristles located in small black dots. Chaetotaxy, as normally in *Stomorhina*, partly reduced; *ac*=0+1, *dc*=0+1, *ia*=0+1, *prs* and outer *ph* present, *h*=2−3, *n*=2, *sa*=3, *pa*=2, *sc*=3+0. Pro-, meso- and sternopleuron densely yellow pollinose, whereas ptero- and hypopleuron only show a light greyish pruinosity. Propleuron bare, mesopleuron with long yellow hairs located in very small black dots, posterior upper margin with 2 long black bristles; 2 *pp* present, *pst* wanting. Anterior stigma yellow, posterior one black-brown. Wing with the outer margin, especially in the apical half, dark-brown, remaining part with a strong brown tinge, veins including basi-costa dark-yellow, costal spine indistinct, hairs on stem-vein yellow, R_5 closed and petiolate, thoracic squama yellow, longer than broad. Legs with tibiae and tarsi deep black, femora in the anterior half or more red-yellow, black towards the apices; fore-tibia with 2-3 *ad* and a sub-median *pv*; mid-tibia with 2 *pv* and one *ad*, *pd* and *av*; hind-tibia with a row of *ad* (3 longer than the remaining ones) and a shorter row of *pd* of which 2 bristles are longer, furthermore 2 *av* are present.

Abdomen a little longer than broad, reddish-yellow, with a broad median, glossy black stripe from the base to the abdominal tip, and a similar lateral stripe which, however, does not continue onto the last tergite.

Length : 9-10 mm.

Collection American Museum, New York : Uganda : Kampala, 5.IX.1918 (1 ♀, leg. C. C. Gowdey); S. Rhodesia : Umtali distr., 29.XI.1931 (1 ♀, leg. P. A. Sheppard). — Collection S. African Museum, Cape Town : Kenya : Eldoret, 1914 (1 ♀, leg. E. Fry). — Collection S. A. Institute for Med. Research, Johannesburg : Uganda : Fort Portal, 18.VI.1946 (1 ♀); Tanganyika : Usangi (1 ♀).

[11. — **Stomorhina celibe** (PERIS).]

Rhinia celibe PERIS, Eos, XXVII, 1951, p. 238, et An. Estac. Exp. Aula Dei, III, 1952, p. 40.

In PERIS' key (1952) this species and *S. deceptor* CURRAN run down to the same number. I have not seen *S. celibe*, but both must be quite different and easily separable. The original description of *S. celibe*, of which only the female sex is known, is translated as follows :

« Head generally black coloured. Thorax bluish green, a little metallic. Halters reddish. Abdomen wholly reddish. Legs reddish, femora sometimes brown. Wing subhyaline. Posterior half of bucca with a dense yellow pruinosity. Mesopleura and sternopleura densely yellow pruinose, without piliferous dots, R_5 closed and short-petiolate. Length : 7-8 mm. »

The holotype was described from Kondunbo, Sierra Leone, a paratype from Buguena, Nigeria.

[12. — **Stomorhina deceptor** (CURRAN).]

Rhinia deceptor CURRAN, Amer. Mus. Nov. 246, 1927, p. 2; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 46.

Only the female sex of this species is known. I am placing it into the genus *Stomorhina* on the assumption that the male genitalia are accordingly structured, but it may be possible that the discovery of the male sex will eventually prove a closer relationship with *Rhinia apicalis*.

Female. — Head reddish to orange except the epistome which is broadly black; greatest part of the occiput also black. Frons at vertex measuring $5/12$ of eye-length, gradually widened towards the antennal groove, frontal stripe subparallel, parafrontalia and -facialia covered by a dense yellow pollinosity which leaves free a glossy spot in the lower half of the parafacialium. Chaetotaxy of head complete; there are a greater number of fronto-orbital bristles and hairs present which, however, do not continue onto the parafacialium; all bristles and hairs are located in little, but distinct, bare footprints. Antennal groove with a high, dorsally rounded convexity between the first two antennal segments, third segment about $2\frac{1}{2}$ times as long as the second, arista with long dorsal hairs. Bucca bare and glossy in the anterior half, densely yellow pollinose posteriorly and with long yellow hairs which, however, do not arise from bare dots. Vibrissa short and thick, peristomal bristles normally developed on the ventral bare part of the bucca, rudimentary on the anterior margin. Palpi yellow, a little broader than the 3rd antennal segment.

Thorax covered by a thick grey to yellow-olive pollinosity, but bristles and hairs are borne on little black dots; the underground of the thorax is glossy black except the tip of the scutellum which is reddish, to a greater or lesser extent. All pleura as densely pollinose as the dorsum, but without piliferous dots; hairs yellow, upper posterior margin of mesopleuron with 2 black bristles; chaetotaxy of thorax otherwise as usual. Wing hyaline; the two specimens before me have no apical spot but, according to the original description, this may sometimes be present. Veins including basicosta yellow, stem-vein with pale hairs, R_5 closed and long-petiolate, thoracic squama longer than broad. Legs predominantly reddish-yellow, tips of femora as well as the last tarsal segments more or less darkened; hind-tibia with a dense row of *ad*, a similar row of *pd* of which two are longer than the remaining ones, furthermore 1 *av* is developed.

Abdomen almost 1 ½ times as long as broad, totally reddish-yellow.

Length : 6-7 mm.

Collection American Museum, New York : Belg. Congo : Stanleyville, III-IV.1915 (2 ♀♀, leg. LANG & CHAPIN, paratypes).

Genus **RHINIA** ROBINEAU-DESVOIDY.

Rhinia ROBINEAU-DESVOIDY, Mem. Acad., Roy. Sci. Inst. France, II, 1830, p. 422; SÉGUY, Encycl. Ent., A IX, 1928, p. 191 et Bull. Mus. Paris, (2), III, 1931, p. 120; CURRAN, Amer. Mus. Nov., 506, 1931, p. 14; TOWNSEND, Man. Myiol., V, 1937, p. 105; S.-WHITE, AUBERTIN & SMART, Fa. Brit. India, Dipt., VI, 1940, p. 204; ZUMPT, Fliegen pal. Region, 64, i, 1956, p. 124.

Type species : *R. testacea* ROBINEAU-DESVOIDY from Mauritius.

Beccarimyia RONDANI, Ann. Mus. Civ. Geneva, IV, 1873, p. 287; TOWNSEND, Man. Myiol., V, 1937, p. 105.

Type species : *G. glossina* RONDANI from Abyssinia.

The three species belonging to this genus are closely related to one another and show only slight differences in the hypopygial structure, which may even prove to overlap. The outer features, however, evidently always allow a clear recognition of the species.

The *Rhinia*-species represent a specialized branch of the Stomorhina complex with pincer-like cerci and paralobi and a denticulated fifth sternite in the male sex. With respect to other features, the mesopleuron is densely yellow pollinose, without setiferous spots, sternopleuron glossy black. R_5 petiolate. Abdomen wholly or predominantly yellow-brown.

Some details on the life-history of *R. apicalis* were given by CUTHBERTSON (1938). The larvae develop in the nests of driver-ants (*Dorylus*), but are also associated with sand-wasps.

KEY TO THE SPECIES.

1 (2) Legs almost totally black or black-brown; anterior border of wing broadly infuscated.

In the male sex, chaetotaxy of scutellum as in *R. nigricornis*; in the female, structure of frons as in *R. apicalis*. 4-8 mm. — Cameroons, Central and Southern Africa ..... 3. *R. coxendix* VILLENEUVE.

2 (1) Legs predominantly yellow-brown; wing with the anterior border hyaline or more or less infuscated only at the tip 3

3 (4) Mesonotum and scutellum in both sexes with the normal short setulosity. Female with the frontal stripe about as broad as one parafrontalium.

Female with parafrontal piliferous spots which are small and not united with each other. 4-8 mm. — Ethiopian region. 2. *R. nigricornis* (MACQUART).

4 (3) Mesonotum and scutellum in male with moderately long and thin, half erect hairs; female with the normal setulosity. Frontal stripe of female about twice as broad as one parafrontalium.

Female with the parafrontal piliferous spots large and partly united with each other. 4-8 mm. — Ethiopian region, also recorded from other parts of the world ..... 1. *R. apicalis* (WIEDEMANN).

[1. — **Rhinia apicalis** (WIEDEMANN).]

(Fig. 35.)

Idia apicalis WIEDEMANN, Auss. Zweifl. Ins., II, 1830, p. 354; VILLENEUVE, Rev. Zool. Afr., IV, 1916, p. 203; SÉGUY, Encycl. Ent., A IX, 1928, p. 191, fig. 250; CUTHBERTSON, Proc. Rhod. Sci. Ass., XXXII, 1933, p. 104, et Trans. Rhod. Sci. Ass., XXXVI, 1938, p. 124; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 43; ZUMPT, Fliegen pal. Region, 64, i, 1956, p. 124, fig. 42.

Rhinia testacea ROBINEAU-DESVOIDY, Ess. Myod., II, 1830, p. 423; MALLOCH, Ann. Mag. N. H., (9), XVIII, 1926, p. 504, fig. 2; SÉGUY, Encycl. Ent., A IX, 1928, p. 191; S.-WHITE, AUBERTIN & SMART, Fa. Brit. India, Dipt., VI, 1940, p. 204, fig. 93.

Idia flavipennis MACQUART, Dipt. Exot., II, 1843, p. 125.

Idia simulatrix LOEW, Monatsber. Akad. Wiss. Berlin, 1852, p. 660; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 49 (syn. nov.).

Idia punctata BIGOT, Arch. Ent., II, 1858, p. 24.

Idia pleuralis THOMSON, Dipt. Eugn. Resa, 1869, p. 542.
Beccarimyia glossina RONDANI, Ann. Mus. Genova, IV, 1873, p. 287.
Rhinia fulvipes BIGOT, Ann. Soc. Ent. France, (5), IV, 1874, p. 239.
Rhinia pallidiventris BRAUER, Musc. schiz., II. 1899, p. 22.
Idiella trineuriformis SPEISER, Kilimandj.-Meru Exp., II, 1910, p. 153; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 43.

This is an easily recognizable species which is distributed over the whole of Africa, including the Palaearctic part, and is known also from Syria and Palaestine, from Madagascar, many parts of the Oriental region and from several islands in the Pacific.

Male. — Eyes bare, upper facets moderately enlarged but not demarcated from the lower ones. Frons at its narrowest point not wider than the anterior ocellus, normally eyes nearly touching. Frontal stripe triangular, developed only in the lower part, black, at the base mostly brown. Parafrontalia and -facalia black, white pollinose except the lower part of the parafacialium which is glossy, 6-8 pairs of *paf*, accompanying setae sparse and hardly detectable, *oc* and *iv* well developed. Antennal groove glossy black like the remaining part of the face, sometimes partly red-brown, white dusted in its upper part, carina broad and high, but hardly longer than the second antennal segment; antennae dark-brown or even yellow, 3rd segment about twice as long as the second. Bucca nearly ⅓ as high as the eye is long, anterior part bare and glossy black, posteriorly densely yellow pollinose and with long yellow hairs, vibrissa and peristomal bristle black. Palpi yellow to yellow-brown, as broad as or a little broader than the 3rd antennal segment, proboscis blackish.

Thorax dark metallic green or bluish-black, with a white pollinosity and elongate, partly united piliferous spots. The hairs are of moderate length, relatively thin and half erect; chaetotaxy reduced, only the prescutellar *ac*, *dc* and *ia* more or less distinct; furthermore, 2 *h*, the outer *ph* and the *prs*, 2*n* and 3 *sa* are developed, scutellum with 3 pairs of marginals, *si*=1 : 1, *pp* present, but *pst* wanting. Ptero- and mesopleuron with a thick yellow pollinosity and long yellow hairs which do not have bare foot-prints, prostigma yellow like the surrounding area, propleuron without hairs, but prosternum haired. Hypo- and sternopleuron glossy black, rarely with a thin white pruinosity, bristles black, hairs sparse and yellow. Suprąsquamal ridge and alar declivity bare. Wings with the tip more or less darkened, otherwise hyaline, veins yellow, costal spine indistinct, stem-vein with yellow hairs, root of r_{4+5} with a few black setae, *m* broadly rounded, R_5 closed and petiolate; thoracic squama yellow-brown, longer than broad, halter yellow. Legs predominantly yellow-brown, the tips of the tarsi and tibiae as well as the median part of the femora, especially of the hind ones, sometimes more or less darkened; fore-tibia with 3-4 *ad*

and one submedian *pv*; mid-tibia with 2 *pv* and one *pd* and *ad*; hind-tibia with a row of long *ad* arranged as a comb, a similar row of *pd* which are shorter, except two median ones, and 1-2 *av*.

Abdomen longer than broad (about 7 : 5), predominantly yellow to yellow-brown, with a variable dark pattern forming a median vitta of moderate width and occupying the last two tergites. This pattern, however, is highly variable and may become totally reduced, so that the abdomen is wholly yellow. Hairs and bristles dorsally predominantly black, on tergite I+II longer and yellow, on the ventral side mostly yellow. Hypopygium and 5th sternite shown in fig. 35.

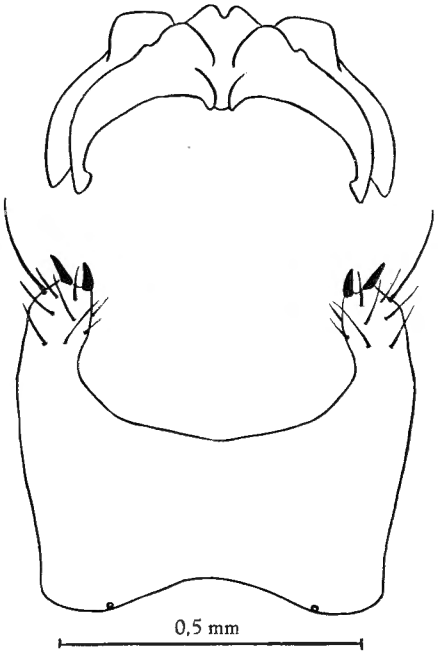

FIG. 35. — *Rhinia apicalis* (WIEDEMANN).
Cerci with paralobi and 5th sternite.
Specimen from Nigeria (after ZUMPT).

Female. — Frons at vertex measuring about 2/5 of eye-length. Frontal stripe blackish, at the tip of the ocellar triangle about twice as wide as the parafrontalium. Parafrontalia white dusted, with large and irregular, partly united, setigerous glossy spots. Chaetotaxy of head complete. Mesonotum and scutellum with short hairs which are lying close to the surface.

Length: 4-8 mm.

As already mentioned above, *R. apicalis* is widely distributed over the whole Ethiopian region and is quite common. I am therefore only listing specimens collected from localities in the Belgian Congo. Curiously enough, no specimens of *R. apicalis* were present in the collections of the « Institut des Parcs Nationaux », but through the « Musée du Congo », I have received many from various localities.

Collection Musée du Congo : Ruanda : Rubenyeri, XI.1933 (1 ♀, leg. J. GOLLACH); Gabiro, 1935 (3 ♀♀, leg. R. VERHULST); Urundi : Rumonge, 7.III.1953 (1 ♂, 2 ♀♀, leg. P. BASILEWSKY); Usumbura, 780 m, 23.XII.1953 (2 ♀♀, leg. H. BOMANS); Ubangi : Nouvelle-Anvers, 9.XII.1952 (1 ♂, leg. P. BASILEWSKY); Lualaba : Kolwezi, 1954 (2 ♂♂, 1 ♀, leg. A. FRANC); Bas-Congo : Mavuma, XI.1950 (1 ♀, leg. M. BEQUAERT); Boma, XI.1950 (2 ♀♀, leg. I. MESMAEKERS); Lomami : Sungu Mwana, 9.II.1951 (1 ♀, leg. BULS); Maniema : Mobanga, 1952 (1 ♀, leg. P. HENRARD); Kasai : Bumba, 18.III.1940 (1 ♀, leg. J. J. DEHEYN); Kwango : Popokabaka, II.1951 (1 ♀, leg. L. PIERQUIN); Kivu : Rwankwi, V.1948 (10 ♀♀, leg. J. V. LEROY); Ibanda, 1952 (1 ♀, leg. M. VANDELANOTTE); Kapanga, 1952 (2 ♀♀, leg. FROIDEBISE); Uele : Pawa, 1938 (1 ♀, leg. A. DUBOIS); Kibali-Ituri : Geti, 1938 (1 ♂, leg. CH. SCOPS); Aba, 1937 (2 ♀♀, leg. R. BELOT); Mayumbe : Kikionga, 24.VII.1924 (1 ♂, leg. A. COLLART); lac Albert : Kasenyi, 1935 (1 ♀, leg. H. J. BRÉDO); Rutshuru, I.1934 (1 ♂, 2 ♀♀, leg. DE WULF); Costermansville, 1948 (1 ♀, leg. P. H. VERCAMMEN); Uvira, VIII-XII.1949 (2 ♀♀, leg. G. MARLIER); Mabende (entre Beni-Rutshuru), 2.400 m, XII.1935 (1 ♂, leg. H. J. BRÉDO); Élisabethville, 21.XII.1920 (4 ♀♀, leg. M. BEQUAERT); Congo da Lemba, VI.1913 (2 ♀♀, leg. R. MAYNÉ); Mongbwalu, 1933 (3 ♀♀, leg. SCHEITZ); bassin Lukuga, IV-VI.1934 (1 ♂, 2 ♀♀, leg. DE SAEGER); Port-Francqui, X.1937 (4 ♀♀, leg. GILLARDIN); Kitsantu, 1931 (2 ♀♀, leg. R. P. VANDERYST); Nyangwe, IV-V.1918 (1 ♂, 3 ♀♀, leg. R. MAYNÉ); Libenge, XII.1931 (1 ♀♂, leg. H. J. BRÉDO); Eala, X.1935 (1 ♂, leg. J. GHESQUIÈRE); Bambesa, 16.V.1938 (2 ♂♂, leg. P. HENRARD).

[2. — **Rhinia nigricornis** (MACQUART).]

(Fig. 36.)

Idia nigricornis MACQUART, Dipt. Exot., II, 1843, p. 124; VILLENEUVE, Rev. Zool. Afr., IV, 1916, p. 203.

Rhinia winthemi VILLENEUVE, id., ibid., p. 204.

Rhinia apicalis MALLOCH (nec. WIEDEMANN), Ann. Mag. N. H., (9), XVIII, 1926, p. 503, fig. 1.

Rhinia nigricornis is evidently closely related to *R. apicalis* and hardly separable from it by the hypopygial characters. The outer features, however, always permit the recognition of both sexes. *R. nigricornis* is much rarer than *R. apicalis* but like this species it is apparently distributed over

the whole of the Ethiopian and the Madagascan regions. It has not been recorded from any other parts of the world.

In the male sex, *R. nigricornis* is separable from *R. apicalis* by the presence on the mesonotum and scutellum of short hairs which are not longer and thinner than in the female sex of both species. Palpi mostly dark brown. Hypopygium (fig. 36) very similar to that of *R. apicalis* and perhaps, owing to a certain degree of variability, not separable at all. The only difference I can detect in the few specimens dissected is in the structure of the teeth on the 5th sternite. They are longer in *R. nigricornis* than in *R. apicalis*.

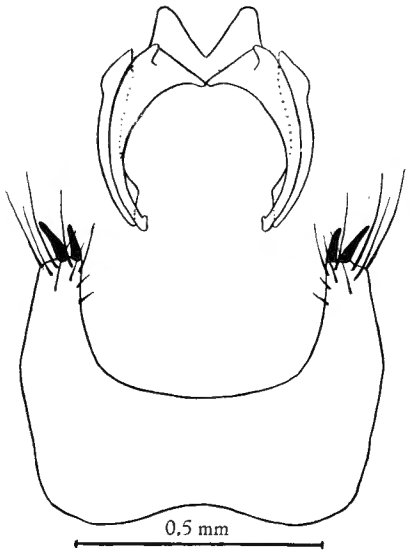

FIG. 36. — *Rhinia nigricornis* (MACQUART).
Cerci with paralobi and 5th sternite.
Specimen from Congo da Lemba.

The female of *R. nigricornis* shows a mostly dark red-brown subparallel frontal stripe which, at the tip of the ocellar triangle, is only about as broad as one parafrontalium. The parafrontalia are densely white or yellowish pollinose and show small setigerous spots which are well separated from each other.

Collection Musée du Congo : Kivu : Masisi, Kalenga, 1.200 m, 1951 (1 ♂, leg. DEDOBELEERE); Équateur : Bokote, 1928 (1 ♀, leg. R. P. HULSTAERT); Flandria, 1928 (1 ♀, leg. R. P. HULSTAERT); Congo da Lemba, IV.1913 (1 ♂ ♀, leg. R. MAYNÉ). — Collection Zool. Museum, Berlin : Cameroons (2 ♀♀, leg. TESSMANN). — S. African Museum, Cape Town : Cape Province : Boesmans River nr. Grahamstown, III.1954

(1 ♂, 2 ♀♀); Fort Beaufort, III.1954 (1 ♂). — Collection Dept. of Agriculture, Salisbury : S. Rhodesia : Salisbury, 25.V.1932 (1 ♀); Vumba, III.1935 (1 ♀, leg. A. CUTHBERTSON). — Collection S. A. Institute for Med. Research, Johannesburg : Transvaal : Johannesburg, 17.IV.1939 (1 ♂, leg. F. ZUMPT); Barberton, 10.V.1914 (1 ♀, leg. H. K. MUNRO); S. W. Africa : Otavi, III.1926 (1 ♂). — Collection American Museum, New York : Liberia : Bendu, Robertsport, 17.III.1943 (1 ♂, leg. F. M. SNYDER); Belg. Congo : Stanleyville, 10.IV.1915 (1 ♀, leg. LANG & CHAPIN); Natal : New Hanover, VIII.1914 (1 ♂, leg. H. K. MUNRO); Transvaal : Hatherley, 1.I.1913 (1 ♂, leg. H. K. MUNRO); Kaapmuiden, 3.V.1920 (1 ♂, leg. H. K. MUNRO).

PERIS recorded this species also from Sierra Leone, the Gold Coast, Uganda, Nyasaland and Mozambique.

3. — **Rhinia coxendix** VILLENEUVE.

(Fig. 37.)

Rhinia coxendix VILLENEUVE, Rev. Zool. Afr., IV, 1916, p. 204; PERIS, An. Estac. Exp. Aula Dei, III, 1952, p. 42.

Rhinia pallidula CURRAN, Amer. Mus. Nov., 246, 1927, p. 1; PERIS, id., ibid.

This is evidently a rare species characterized by almost totally blackish legs, only the coxae remaining yellow-brown or at least predominantly light-coloured. The anterior margin of the wing is broadly infuscated. The abdomen has the dorsal surfaces of the last two tergites as well as a broad median vitta blackened, being coloured as in dark specimens of *R. apicalis*. The structure of the female frons is the same as that of *R. apicalis* showing a broad median stripe and partly united, setigerous, glossy spots. In the male, the chaetotaxy of the mesonotum and scutellum coincides with that of *R. nigricornis*. I dissected the hypopygium (fig. 37) of 4 males, the cerci of which have no inner hooks as in *R. apicalis* and *R. nigricornis*. The teeth on the 5th sternite vary a little with respect to their length and stoutness.

Mission G. F. DE WITTE : Rutshuru, 1 285 m, 23-30.XI.1933 (2 ♂♂). — Collection Zoolog. Museum, Berlin : Cameroons : Kumba (3 ♂♂, leg. L. CONRADT). — Collection S. A. Institute for Med. Research, Johannesburg : Transvaal : Waterval Onder, 28.II.1952 (1 ♂, leg. H. PATERSON); S. Rhodesia : Vumba Mts., III.1935 (1 ♀, leg. A. CUTHBERTSON); Tanganyika : Massassi, 460 m, 15-23.VI. 1936 (1 ♂, leg. ZERNY). — Collection American Museum, New York : Belg. Congo : Stanleyville, 8.IV.1915 (1 ♂, leg. LANG & CHAPIN, holotype of *R. pallidula* CURRAN); Uganda : Entebbe, 16.VIII.1911 (1 ♂, leg. C. C. GOWDEY). — S. African Museum, Cape Town : Cape Province : Cape Town, 1913 (1 ♂, leg. PERINGUEY); Natal : Mfongosi, Zululand (1 ♀, leg. W. E. JONES).

[Genus **VANEMDENIA** PERIS.]

Vanemdenia PERIS, Eos, XXVII, 1951, p. 237, et An. Estac. Exp. Aula Dei, III, 1952, p. 13.
Type species : *V. africana* PERIS from Uganda.

PERIS based this genus on a new species belonging to the *Stomorhina* complex but distinguishable by the features given in the key to the genera. It should be easily recognizable on account of the wing-venation. I have only seen one of the badly damaged males from S. Leone mentioned by PERIS (1952).

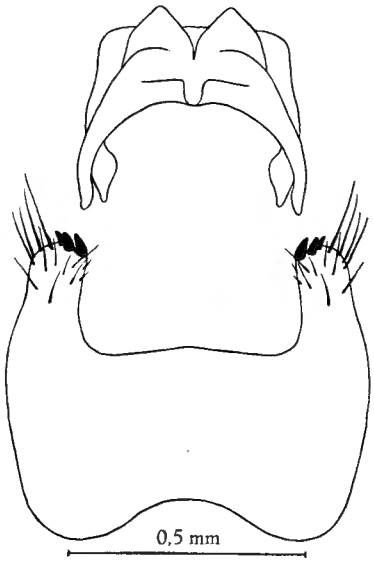

FIG. 37. — *Rhinia coxendix* VILLENEUVE.
Cerci with paralobi and 5th sternite.
Specimen from Kumba, Cameroons.

The translation of the original generic description is as follows : « Arista pectinate. Occiput strongly concave in its upper part and convex in the lower one. Frons in both sexes much broader than the ocellar triangle. Rows of *ac* and *dc* reduced except the pairs of prescutellar ones. Propleural depression and suprasquamal ridge bare. Fore-tibia without *pv*. Posterior cross-vein strongly bent towards the base of the wing, almost forming a right angle; *m* strongly curved; R_5 vaulted, closed and petiolate. ».